

10th INTERNATIONAL SCHOLARS' CONFERENCE

**FULL PAPER
PROCEEDINGS**

THEME

**Toward a New Decade of International
Interdisciplinary Collaborative Research
in the Next Normal** *October 24-25, 2023*

Hosted by
Adventist University of the Philippines
Puting Kahoy, Silang, Cavite

In Partnership with
Asia-Pacific International University
Universitas Advent Indonesia
Universitas Klabat



10th International Scholars' Conference

Full Paper Proceedings

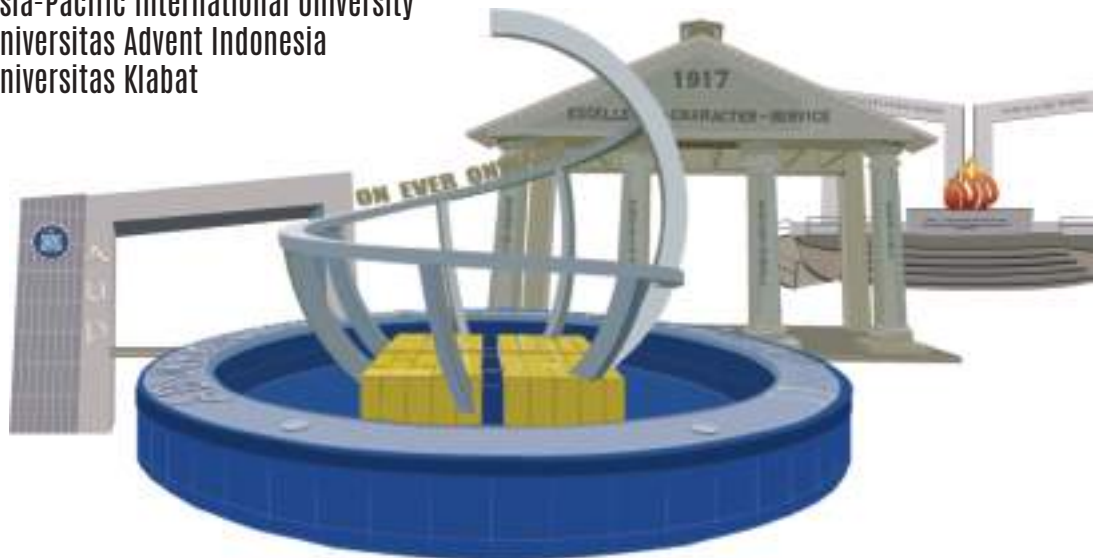


THEME

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Universitas Klabat**



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MESSAGE

10th International Scholars' Conference



MALACAÑAN PALACE
MANILA



I extend my heartfelt greetings to everyone gathered for the **10th International Scholars' Conference (ISC)**—a hallmark of academic excellence, hosted by the **Adventist University of the Philippines**.

Over the course of its evolution, the ISC has seamlessly transcended geographical boundaries, uniting brilliant scholars both here and abroad. Their research endeavors, discoveries, and unwavering commitment to the pursuit of knowledge have provided solutions to the myriad challenges confronting our society and the world. Indeed, the contribution of your institution extends far beyond the academe, for it ripples through the lives of countless individuals and accelerates the upward trajectory of nations.

May this platform be an arena for intellectual exchange and a sanctuary of transformative thought that compels you to venture deeper, to question more profoundly, and to embark on audacious odysseys into the uncharted realms of human understanding.

In your ardent research pursuits, presentations, and dialogues, remain mindful of the awe-inspiring power within your grasp so that you may be able to positively change lives and shape our shared destiny. I hold an unwavering faith that the discussions that will take place here will perpetually echo across innumerable generations, bestowing upon posterity, a profound and sublime wisdom that will illuminate humanity's journey to greater development and meaningful success.

I wish you all a fruitful and enlightening conference.


FERDINAND R. MARCOS JR.

MANILA
24 October 2023

THE PRESIDENT OF THE PHILIPPINES

MESSAGE

10th International Scholars' Conference



Adventist University
of the Philippines



It is with great pleasure and a sense of deep anticipation that I extend my warmest greetings to each one of you on behalf of the Adventist University of the Philippines. As we prepare to convene for the International Scholars' Conference, hosted jointly by AIU, AUP, UNAI, and UNKLAB, we eagerly anticipate the exchange of ideas, insights, and collaborative opportunities that this event promises.

This conference brings together a diverse assembly of scholars, researchers, and thought leaders from across Asia, united by a shared commitment to academic excellence and the values espoused by our Adventist heritage. Together, we embark on a journey of intellectual exploration, seeking innovative solutions to the challenges that face our church and global community.

Throughout the conference, we will have the privilege of engaging with a rich tapestry of perspectives, disciplines, and methodologies. It is my hope that the discourse and exchange of knowledge that transpires over these days will not only foster intellectual growth but also inspire lasting connections and collaborations that extend far beyond this event.

As we come together, let us be reminded of the profound impact that our collective endeavors can have on the world. Each paper, each idea, and each conversation has the potential to contribute to the advancement of knowledge and the betterment of the Adventist Church and society.

I encourage you all to approach this conference with open hearts and minds, ready to learn from one another and to contribute your unique insights to the dialogue. Let us foster an atmosphere of humility, respect, and intellectual curiosity that allows for the free exchange of ideas and the productive pursuit of truth.

I look forward to the rich intellectual exchange that awaits us and to the new friendships and collaborations that will undoubtedly emerge from this conference. Together, we can make a meaningful impact on the scholarly landscape and contribute to the betterment of our church and global community.

I eagerly look forward to our time together at this esteemed conference.

Sincerely yours,

A handwritten signature in black ink, reading "Arceli Rosario".

ARCELI ROSARIO, PhD
President, Adventist University of the Philippines



Adventist University
of the Philippines



My warm and delightful welcome to all the participants of the 10th International Scholars' Conference (ISC) hosted by the Adventist University of the Philippines!

Time flies so swiftly! It was only like yesterday when we held the 1st ISC at the Asia-Pacific International University in Thailand in 2013. Now, we are on the 10th year of holding an annual ISC. It has been a decade of meaningful partnerships among the four Adventist Higher Education Institutions in the Southeast Asian region, namely: 1) Adventist University of the Philippines (AUP), b) Asia-Pacific International University, C) Universitas Adventist Indonesia (UNAI), and d) Universitas Klabat (UNKLAB). We praise the Lord for His sustaining grace!

Research is central to the life of a University, much more so it is a vital tenet of Adventist education. Considered as a spiritual act of magnifying the Truth in search for truths in various disciplines, research unlocks endless possibilities of knowledge management, innovation, and constant quest for improvements for "something better" is the watchword of education according to Ellen White. Further, 1 Thessalonians 5:21 reminds us to "examine everything carefully; and hold fast to what is good."

As a toss "*Toward a New Decade of International Interdisciplinary Collaborative Research in the Next Normal*" which is the conference theme, here are the 10 features to bask in this gathering of scholars:

1. Keynote speeches
2. Plenary talks
3. Parallel presentations
4. Master classes
5. Cultural night
6. Personal and professional networking
7. Spiritual activities
8. Physical campus
9. Palatable food
10. Opportunities for further collaboration

It is my fervent prayer that, in the next two days, we all experience heartwarming *Interactions*, *boundless Synergy*, and *unwavering Commitment* to a lifelong pursuit of excellence for God's glory.

In Christ's service,

A handwritten signature in black ink, reading "Gracel Ann Saban".

GRACEL ANN SABAN, PhD
Vice President for Academics
Adventist University of the Philippines

MESSAGE

10th International Scholars' Conference



Adventist University
of the Philippines



A warm and sincere welcome to the distinguished participants of the 10th International Scholar's Conference!

As we look back on the past decade, we stand united, having effectively nurtured lasting collaborations and sustainable partnerships. Our journey has been defined by the exchange of knowledge and the fruitful endeavors we have collectively undertaken.

As we celebrate this significant milestone, let us channel our collective energy towards addressing the challenges that lie ahead, particularly in the realm of publication.

In this era of the "Next Normal," let us wholeheartedly embrace international interdisciplinary collaboration. The challenges we face require innovative and collective approaches. By nurturing a cohesive global research community, we can collectively address these challenges and envision a brighter and more promising future.

A special THANK YOU to Adventist University of the Philippines (AUP), Asia-Pacific International University (AIU), Universitas Advent Indonesia (UNAI), and Universitas Klabat (UNKLAB) for their invaluable contributions and partnership. Here's to the next decade of impactful collaborations and meaningful contributions!

A handwritten signature in black ink, reading "jbalila".

DR. JOLLY S. BALILA

Conference Chair, 10th International Scholars' Conference

Research Director, Adventist University of the Philippines



Asia-Pacific International University



A GLOBAL HEALTH COLLABORATION RESEARCH: FROM DISPARITY TO SUCCESS

In the wake of the pandemic, health discipline naturally focused on the shift towards remote partnerships. Impactful lessons learned, eliminating avoidable diseases and death especially in deprived community is the goal. Research collaboration across global institutions is critical for identifying new and emerging health threats and for improving health. Health education, practice, and research must be integrated. Healthcare workers and students are encouraged to be global citizens. Interdisciplinary and international collaborative studies into practice and research offer many benefits including the sharing of knowledge and resources. Successful global health partnership relies on many factors including respect for resources invested and for researchers themselves. Examples from regions are discussed.

DR. JARURAT SRIRATANAPRAPAT
President, Asia-Pacific International University



Universitas Advent Indonesia



TOWARD A NEW DECADE OF INTERNATIONAL INTERDISCIPLINARY COLLABORATIVE RESEARCH IN THE NEXT NORMAL

The term “Next Normal” emerged after the COVID-19 pandemic to differentiate human life before and after pandemic. Major changes occurred in almost all aspects of human life. The solution that emerged is the use of technology. However, “Next Normal” is not only related to and dependent on the use of technology, for technology is a means and not the core of “Next Normal.” “Next Normal” refers to how humans carry out their activities in accordance with current developments and supported by technology. This is also a challenge in the world of education. “Next Normal” in education is not just online classes or distance learning. There are other challenges that exist. For instance, learning must be a continuous process and not confined to a classroom with material that has been pre-defined in the curriculum and in textbooks. Learning must be open to the outside influences through content found in modules, it must come from practical experience, found online or in YouTube. To deal with these issues, lecturers can collaborate with other lecturers to create more varied online teaching materials. The “Next Normal” challenges lecturers to develop new knowledge where research no longer focuses only on one field. Research must be open to combining two or even three different but related fields. This will produce research outputs that are more varied and open, so that they become new resources for teaching.

DR. MILTON THORMAN PARDOSI
President, Universitas Advent Indonesia



Universitas Klabat



INNOVATIVE LEARNING MODEL IN THE NEW NORMAL ERA: INDONESIAN INDEPENDENT LEARNING - INDEPENDENT CAMPUS

The workplace is transforming due to the revolution of Industry 4.0 and Society 5.0, allowing countries and companies to increase productivity, efficiency, and growth. They are also changing the nature of labour at the same time. Successfully harnessing these technologies will create jobs, but it will also displace others and change many occupations. All stakeholders, including policymakers, academic institutions, NGOs, and business leaders will need to prepare for substantial changes affecting the future of work. Companies must begin designing for and implementing the future of work as soon as possible, with long-term learning initiatives for those affected immediately and those involved in the future. Anticipating the changes, the Indonesian Minister of Education and Culture has issued the “Independent Learning - Independent Campus” policy. The “Independent Learning - Independent Campus” policy gives students the right to study outside their study programs for at least three semesters to support the “link and match” program between the HEIs and the users. The “Independent Learning - Independent Campus” program can improve students' quality of education and competence in tertiary institutions, which is marked by enhancing the quality of academic teaching through curriculum development and collaboration with partners/stakeholders/universities. It allows students to develop new competencies and a more thorough learning experience. This program may eventually improve graduates' employment rates and employability among students. However, as this policy is relatively new, its implementation is still scarce; it could have been mistakenly addressed in HEIs. In addition, this policy is perhaps sceptically responded to by some educators. As a result, although some institutions have responded favourably and have begun acting on the policy, others are still considering their options and waiting for other universities to act on the new policy. Regardless of the pros and cons of the Independent Learning- Independent Campus policy, the ideas of the policy itself remain obvious—supporting graduates' employability and linking them to the job market. Thus, the “Independent Learning- Independent Campus” policy can be an excellent solution to minimize Indonesia's unemployment rate, which has reached 8 million in 2023.


DR. RONNY WALEAN

Vice President for Academic Affairs
Universitas Klabat



MERCURY BIOACCUMULATION IN AQUATIC ORGANISMS: A COLLABORATIVE RESEARCH VENTURE FROM THE GALAPAGOS ISLANDS TO LAKE TANGANYIKA, AFRICA

Dr. George Jackson

Professor, Earth and Biological Sciences

Loma Linda University

Research expeditions were conducted in both the Galapagos Islands and on three trips to Lake Tanganyika in the countries of Burundi and Tanzania. Research explored mercury levels in aquatic organisms at both of these locations. High levels of mercury in aquatic organisms that are consumed can have negative effects on human health. Mercury bioaccumulates in aquatic food chains, so species higher up the food chain typically have higher levels of mercury. During both expeditions, mercury accumulation was explored in invertebrates in the Galapagos and in fish in Lake Tanganyika. Mercury levels were variable in Galapagos crabs, with some populations showing surprisingly high levels. As expected, mercury levels in Lake Tanganyika fish were relatively low but did show evidence of patterns possibly related to sources of pollution.



MOVING FORWARD TOGETHER: COLLABORATING FOR THE FUTURE

DR. WILLIAMS KWASI PEPRAH

Associate Professor of Finance

Andrews University

Businesses face extraordinary difficulties and opportunities in an era of rapid technical and technological breakthroughs, fluctuating market dynamics, and increasing consumer tastes. "Moving Forward Together: Collaborating for the Future" in business examines how collaboration is essential for success in this changing environment. This comprehensive presentation delves into how various academic disciplines and businesses can harness the power of research collaboration to drive innovation, foster resilience, and secure sustainable growth.



INTELLECTUAL HUMILITY IN RESEARCH AND INTERDISCIPLINARY COLLABORATION

DR. IKE DE LA PEÑA

*Associate Professor, Pharmaceutical
and Administrative Sciences
Loma Linda University*

Research can be strengthened by collaborations. However, collaborations, i.e., interprofessional collaboration, often encounter obstacles such as power dynamics, varying levels of engagement, contrasting ideologies and mistrust among team members. This presentation will discuss the reasons for both success and failure of collaborations. Importantly, it will cover the concept of intellectual humility (IH) and provide reasons for how it might improve interprofessional/interdisciplinary research collaborations. Empirical data demonstrating the correlation between attitudes toward interprofessional collaboration and levels of IH will be presented. Finally, participants will gain practical insights on developing IH to advance as researchers and empower interdisciplinary collaborative research.

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GWAYNE F. ACLON

Adventist University of the Philippines

Gwayne Aclon is currently the Guidance Counselor at AUP Academy.

Influence of Microsystem Environment on Learning Motivation of Senior High School Students

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Students' learning motivation can be caused by a variety of factors, including their relationships with family, teachers, peers, and others. To achieve the goal of being motivated, relevant factors are important to identify and consider. The students' environment, or different relationships around the learners, is known as the microsystem environment. Thus, this study aimed to determine the influence of the microsystem environment on the learning motivation of senior high school students. One hundred students were randomly selected to be the participants of this descriptive-correlational study. The findings show that students have highly positive microsystem environments, such as relationships with their peers (mean = 3.88; SD = 0.78), with teachers (mean = 3.74; SD = 0.64), and with their family members (mean = 3.85; SD = 0.99). They also have good external and internal learning motivations. Students' relationships with their families have a weak positive influence ($r = 0.345$) on their external motivation. Additionally, students' relationships with their teachers ($r = 0.473$) and peers ($r = 0.492$) moderately influence their external regulations. This result implies that if the students have positive relationships with peers and teachers, they are more effective in completing their tasks, achieving their goals, and fulfilling certain expectations or behaviors. Furthermore, females are more motivated to learn compared to males. Lastly, this study concluded that external regulation, while taking relationships into account, has a significant influence on the learning motivation of high school students; however, introjected regulation shows no significant impact. Further study on this topic is needed to gain a deeper understanding of the specific aspects of the microsystem environment that can either enhance or impede students' motivation to learn.

Keywords: *learning motivation, microsystem environment, introjected regulation, external regulation*

Relationships can often heavily influence one's life. Identifying these relationships provides an insight into how one might behave. Such as how these relationships will affect a student's life concerning their learning motivation. In the relationship between a student and a teacher, depending on the connectedness of the relationship, it reveals the differences in roles and emotions in the class (García-Moya et al., 2019). This demonstrates the range of feelings in the classroom based on how connected or distant a student may be from a teacher.

A microsystem environment is the relationships someone of youth might have and the environment they surround themselves with. Relationships with peers, family, school personnel, and health services are what a microsystem is (Youth.gov, 2020). Teenagers are typically affected by their social environment in adolescence, since teenagers primarily engage in peer interaction (Moldes et al., 2019).

The extent to which students feel personally accepted, respected, included, and supported by others in the school social environment either motivates or demotivates them to learn. Students believe that adults in the school care about their learning and about students as individuals (García-Moya et. al., 2018).

Extrinsic motivation consists of four dimensions: external regulation, introjected regulation, identification regulation, and integrated regulation. External regulation results from external demand or discipline, such as performing a task because someone asked you to do so. Introjected regulation arises from dread or duty; it is a result of how the mind uses other people's perceptions to motivate people out of a fear of their disapproval or disappointment. Identification regulation is a motivation brought about by personal values influenced by external sources. Integrated regulation happens when someone does something for their personal values or benefits and is self-initiated. (Ryan & Deci, 2000).

Often, people suffer from a lack of motivation when there is no intent to accomplish a task. However, motivation is essential to education because it is a major factor that can propel people toward independent and autonomous learning. It is a complicated system that is individually organized, making it challenging to provide specific advice.

Despite our biological need for learning, teachers and students often struggle to focus their instruction and update their learning in ways that will help them succeed academically. Motivation is impacted by a variety of internal and external influences. Personal, social, and cognitive aspects; task values; goals; and perceived costs and benefits are some of the dimensions that play a role in motivation regulation.

A student's motivation can be caused by a variety of factors, including their relationships with family, teachers, peers, and others (Cayubit, 2021). This study is crucial as it will help several students achieve and succeed. In helping the students gain their motivation, it has studied the relationships of students with their peers and teachers (Trigueros et al., 2020).

The microsystem environment in this study covers three major relationships: relationships with peers, with school personnel, and with family members. This influences the learning motivation of the student, regardless of sex, by comparing the relationship between the microsystem environment and the various attributes it may create. Attributes include connectedness, fear, expectations, and praise.

When teachers and students develop friendly relationships, students can share subjects of interest or discuss personal problems. Thus creating a safe environment where students can carry themselves in noticeably more motivated ways (Jaasma and Copper, 1999; Lau, 2003). Teachers establishing friendly and effective communication with students is crucial to creating a positive learning environment for the class, states Erden (2005). The teacher's communication abilities are crucial to the student's motivation in class (Yilma et. al., 2017).

Walker (2018) found that when teachers create an environment where students can express personal problems, sensitivity and compassion affect the students in profound ways. Gilbert (2017) states that feelings of compassion can act as motivators. When one can share and express their own ideas, that idea-sharing process can be very beneficial. Through idea sharing, the students can exchange ideas and receive feedback on their own ideas (Köhler et. al., 2015). When students express their ideas with their peers, they are finding improvement in the ideas that they have developed.

Maunder and Monks (2018) found that when one can become friends with their peers, their levels of self-worth are reported to be higher. Their findings confirm that getting along with one's peers creates reciprocated friendships and is important for one's development. Therefore, simply being able to get along with one's peers creates positive outcomes for oneself and anyone who creates a friendly peer relationship with them.

Factors that could affect a student's performance in school can be seen in whether the student's family is providing proper guidance and motivating their child to have healthy interactions with their environment. Having the support of family members in a student's learning experience impacts how students learn in a positive way; it is essential for "building success in achieving learning outcomes," as quoted from Schunk (2013). In sum, a student's family members' participation in their education and providing a safe learning environment at home can help that student develop feelings of competence, control, curiosity, and positive feelings about academics (Center on Education Policy, 2012).

The personal nature of emotional problems may also make teenagers reluctant to discuss such issues with their parents. Thus, depending on the family environment, it can strongly influence a student's learning atmosphere in a positive or negative manner (Machmud and Ramadhan, 2022). It reflects whether there is good communication within family members, states Tanjung (2020).

Various research has established relevant information on how to explain the influences of the microsystem environment on learning and motivation. In a study conducted by Machmud and Ramadhan (2022), self-regulation or self-control relates to better learning outcomes as well as influencing higher-quality learning outcomes in the future. It also connects with familial relationships, suggesting that students knowledge grows if parental involvement is applied, where attention and enthusiasm play a role in increasing a feeling of being responsible for a student's own goals. Teacher-student relationships play an important role where different types of behaviors can be applied during learning sessions and activities to increase learning motivation (Wardani et al., 2020).

According to research by Sugiarti et al. (2021), friendships are shown to set certain parameters for self-esteem, especially when input consists of support, recreation, guidance, and meaningful conversation. When negative factors arise, such as conflict, resolution is a self-esteem improver. When friendships are strong, especially through socialization, or when physical appearance is accepted as is, it will increase self-esteem, therefore increasing the drive to learn.

Learning outcomes have grown more sophisticated as a problem while the gap between consequence and achievement widens. In that sense, grades are a factor in learning outcomes, as failure to achieve an average grade on a subject will affect critical learning in the future, which in turn will also impact a nation's growth and stability (Machmud & Ramadhan, 2022).

Thus, this study was conducted to find the influence of the microsystem environment on the learning motivation of high school students. To provide support regarding this research, two theories are referenced to aid in gaining a better understanding of the learning motivation of students. Theories cited are self-determination theory proposed by Deci & Ryan (2009) and expectancy theory proposed by Vroom (1964).

The Self-Determination Theory (SDT) discusses how the idea of motivation relates to human motivation, development, and wellness. It consists of five sub-theories: cognitive evaluation theory, organizational integration theory, causality orientation theory, basic psychological needs theory, and goal content theory. However, due to this study's focus on extrinsic motivation, only cognitive evaluation theory and organizational integration theory are cited.

Cognitive evaluation theory (CET) explains the impact of external consequences on internal motivation (Gopalan et. al., 2017). This theory refers to a person's desire to establish a relationship of connectedness, respect, and trust with others or alongside their environment (Luo & Zheng, 2018). Organismic Integration Theory (OIT) identifies different types of extrinsic motivation and specifies the consequences and unique characteristics (Liem and McInerney, 2018). It is the emphasis on competence at this impersonal or motivational stage (Gopalan et. al., 2017).

Liem and McInerney (2018) state that this sub-theory describes how learners can change behavior that was initially externally requested into self-endorsed behavior. So, individuals can experience a sense of autonomy even when behaviors are extrinsically rewarded (Moss, 2016).

Expectancy theory by Vroom (1964) suggests that a person, or more specifically, a student, will act or behave in a particular way as they are motivated in some way by their study environment. It demonstrates how motivation is connected to everyone (Gopalan et. al., 2017). According to Gopalan (2017), receiving recognition for one's efforts serves as its own form of motivation.

Methodology

Research Design

This study utilizes a descriptive and correlational research design. This research design has been chosen because it explores the relationship between two variables and how strongly they are

connected. The two variables in this study are a microsystem and learning motivation.

This study is descriptive as well, due to its aim to describe a population. The data that was utilized to assess participant relationships and learning motivation was analyzed, interpreted, and described using descriptive statistics.

Population and Sampling Techniques

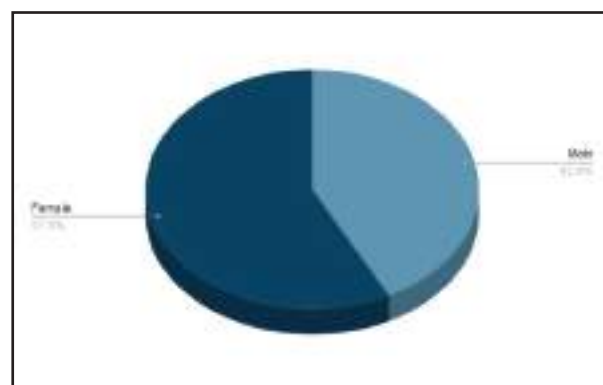
This research study was conducted at a faith-based academy during the school year 2022-2023. From its total population of 647 students, including online students, the sample size aims to include at least 100 students who are currently enrolled at AUP.

This study used a simple random sampling technique for impartial responses and to ensure the freedom of respondents. This technique provides a statistical population in which each member has an equal probability of being chosen to be an unbiased representation of a group. It is a type of probability sampling in which researchers select participants from the population. This allows others to have a chance of being selected.

Figure 1 shows the distribution of the participants by their sex. The majority of the participants in the study are female, with fifty-seven, or 57.6%, while forty-three, or 42.4%, of the remaining participants are male.

Figure 1

Distribution of the Participants according to Sex



Instrumentation

The chosen data collection method is through questionnaires utilizing a Likert scale of 1 to 5. 1 represents strongly disagree and 5 represents strongly agree. The content of the questionnaire will exhibit the necessary questions needed to gain an understanding of the link between a microsystem environment and learning motivation. These questionnaires were formulated with the guidance of different experts in the study and readings from relevant publications. The questionnaire included six sections, which are:

1. Profile of the Respondents Survey. It gathered the profile of the respondent and their status in terms of sex.
2. Relationships with Teachers. This part consists of questions that evaluate the factors of a respondent's relationship to their teacher and how they can affect the microsystem environment.
3. Relationships with Peers. This area assesses the student's relationship with their peers. These responses affect the factors of the microsystem relationship of students with peers.
4. Relationship with Family. This section contains questions which assess the factors that a respondent may have with a relationship to family which in turn can affect the microsystem environment.
5. External Regulation. It includes questions that inquire about the respondents' external regulation.
6. Introjected Regulation. It includes questions that inquire about the respondents' perceived regulation.

Table 1 below presents the reliability of each subscale of the instruments used and were determined through Cronbach's alpha. Dimensions of the microsystem environment in terms of relationships with teachers are acceptable with a Cronbach Alpha of 0.743; relationships with peers and relationships with family are good and excellent with a Cronbach Alpha of 0.870 and 0.914, respectively. Dimensions of learning motivation in terms of external regulation and internal regulation are good, with Cronbach Alphas of 0.852 and 0.879, respectively.

Table 1

Reliability Test Results of Microsystem Environment and Learning Motivation

Variables	Number of Items	Cronbach Alpha	Verbal Interpretation
Microsystem Environment			
1. Relationship with Teachers		0.743	Acceptable
2. Relationship with Peers	5	0.870	Good
3. Relationship with Family	5	0.914	Excellent
Learning Motivation			
1. External Regulation	8	0.852	Good
2. Internal Regulation	8	0.879	Good

Data Gathering Procedure

The questionnaire was distributed through an online survey with the instrument prepared by the researchers after the approval of the Ethical Research Board (ERB). A request was sent to the Adventist University of the Philippines Academy Department principal as well as the respondents' class advisor. Through the advisor's permission, the respondents were informed about the study and its goals. After being informed, the respondents will get to decide whether they would like to participate or decline the offer. The Google Forms link to the survey questionnaire and the ERB authorization were provided to the participants of the study through Facebook Messenger.

Ethical Considerations

The ERB consent form consists of the study's goal and objectives, as well as the statement for non-disclosure of the respondent's answers and information. As well as a letter that states the purpose of the study, voluntary participation, and discretion to withdraw from the study any time they feel the need to do so. Anonymity and confidentiality were practiced throughout the entire study.

Analysis of Data

To provide the appropriate statistical treatment for understanding, the acquired data was tabulated in Jamovi version 2.25. The respondent profiles were divided into categories using frequency and percentage. To ascertain their microsystem and their learning motivation, the mean and standard deviation were used. The level of potential correlation between the variables was assessed using Pearson-Moment correlation. To determine which aspect of the independent variable had an impact on the dependent variable, multiple regression analysis was used. The difference between the participants' microsystem and their learning motivation when their sex is taken into account was measured using a T-test.

Results And Discussion

Table 2 consists of the overall mean of the respondent's microsystem environment and the external and internal regulation of their learning motivation. The respondents agreed highly on their relationship with peers ($m = 3.88$; $sd = 0.780$), relationship with teachers ($m = 3.74$; $sd = 0.635$), relationship with family members ($m = 3.85$; $sd = 0.985$), external ($m = 3.78$; $sd = 0.740$), and introjected regulation ($m = 3.77$; $sd = 0.730$). This result implies that high school students have a good relationship with their peers, teachers, and family members. They are also motivated, both externally and internally.

Table 2

Overall Mean of Perceived Microsystem Environment and Learning Motivation

Variables	Mean	SD	Scaled Response	Verbal Interpretation
Microsystem Environment				
1. Relationship with Peers	3.88	0.780	Agree	High
2. Relationship with Teachers	3.74	0.635	Agree	High
3. Relationship with Family Members	3.85	0.985	Agree	High
Learning Motivation				
1. External Regulation	3.78	0.740	Agree	High
2. Introjected Regulation	3.77	0.730	Agree	High

According to Ryan and Deci (2009), teachers are crucial in encouraging students to participate in educational activities in their environments of learning. The main objective of teachers in the classroom should be to engage students in learning and keep them interested in what they are studying (Filgona et. al, 2020). When teachers implemented cooperative learning, they found that it not only benefited the student but as well as the teacher, stating that it gave more structure to their lessons and were easier to manage but, also finding that it made their lessons more challenging. Students found cooperative learning to make the classroom happier than usual and created a far more enjoyable learning environment (Gillies and Boyle, 2009).

Students agree that teachers are approachable for assistance in assignments with any method through online means were used (Qayyum, 2018). This can be attributed to a factor of distrust in sharing personal problems due to teachers not being involved with their students (Roorda et al., 2019).

Mcneal (2014) observed that when parents try to invest time and attention in their child, that child performs better academically. Further, he observed that when parents try to invest time and attention in their child, that child performs better academically. When family members can volunteer to contribute to household work, it teaches the child to have more engagement towards competence in collaborative integration, which can translate into other skills, such as planning, self-regulation, and attention in which will benefit the student in the future by setting them up to have such skills in school. Ginty and Harding's (2014) findings, they were able to discover that getting assistance from peers enhances the learning experience of students. Retrieving help from peers created a heightened sense of awareness in and of the learning environment. When peers are willing to help with assignments, they are increasing the flow of communication (Glynn et.al, 2016).

Schwandt (2002) states that when a student is free to gain support from peers it creates knowledge and understanding based on lived experiences. When retrieving support coming from peers, students are more likely to thrive, go beyond their capabilities, and become more academically achieved (Olalekan, 2016).

Moreover, external regulation occurs when discipline or demand from schools, families, or peers increases motivation in a learning activity. Vansteenkiste, et al.(2005) found that external regulation has a negative relationship with academic achievement and creates a work-avoidance practice. External expectations are one of the driving forces of external regulations.

Students who are mainly motivated to be academically achieved due to external motivators will only engage in study practices to avoid punishments, retrieve rewards, or try to meet the pressures of others. Horyna (2011) found that the respondents in their study agree that they only wish to carry on their studies to find a better, higher-paying job, which agrees that many students only aim to achieve high grades because they wish to live a good life. When pressure is applied in the learning environment, it produces students who are externally regulated and creates conflict within the environment (Vansteenkiste et al., 2009; Olsson, 2008).

Jong (2016) observed that students who regulate their motivation through introjection seek for others to think that they are smart, wise, or skillful. Galloway et al. (2001) found that when students feel pressured to achieve academically, they will often prioritize doing homework and becoming academically successful over personal hobbies, feeling obligated to get good grades.

Students are found to get good grades to avoid guilt or shame when a student observes their peers achieving good grades and that student is not achieving the same level of good grades. That student feels shame or guilt for not being able to attain good grades (Proudfoot, 2022). Morales (2010) found that students are likely to feel special and more important when their achievements are recognized.

Wentzel (1991) argued that students want to be accepted by their peers. Students are motivated to get good grades when they know that it will prevent rejection from peers. Galloway et al. (2001) find that students continue to do homework so that they can achieve good grades and present their academic achievements to their parents. Schneider and Lee (2001) found that introjected, regulated children associate good grades with their parents' pride and happiness.

Relationship Between Microsystem Environment and Learning Motivation

Table 3 presents the results of the study on the relationship between a student's microsystem environment and their learning motivation. External regulation is significantly related to relationships with teachers and relationships with peers, with correlation coefficients of 0.473 ($p = 0.002$) and 0.492 ($p = <.001$). However, external regulation is slightly significantly related to relationships with family, with correlation coefficients of 0.345 ($p = 0.025$). The relationships with teachers and peers are moderately positive, which indicates that the relationships with teachers and relationships with peers do significantly impact a student's external regulation dimension of motivation. Among each of the dimensions of the microsystem environment, motivation is only significantly related to relationships with peers, with correlation coefficients of 0.416 ($p = 0.006$). The relationship is moderately positive; therefore, relationships with peers significantly impact learning motivation.

Table 3

Relationship of Microsystem Environment to Learning Motivation

	External Regulation	Introjected Regulation	Motivation
Relationship with Teachers			
<i>Pearson Correlation</i>	0.473**	0.013	0.273
	0.002	0.933	0.081
<i>Verbal Interpretation</i>	Significant	Not Significant	Not Significant
Relationship with Peers			
<i>Pearson Correlation</i>	0.492**	0.253	0.416**
	< .001	0.106	0.006
<i>Verbal Interpretation</i>	Significant	Not Significant	Not Significant
Relationship with Family			
<i>Pearson Correlation</i>	0.345*	0.039	0.215
	0.025	0.806	0.172
<i>Verbal Interpretation</i>	Significant	Not Significant	Not Significant

Moldes et al. (2019) state that during the adolescent stage of teenage development, peer pressure is often found. Therefore, high school students are more likely to search for and look for comfort from their peers. Peers can influence one another and, consequently, will copy what their peers are doing. High school students, in their adolescent years, tend to favor communicating with their peers during this period of their lives. Thus, it is clear to see the effect that relationships with peers have on students.

However, peer influence among adolescents does not necessarily mean that it will affect them in a negative way. It varies depending on how the peers are influencing the group (Mosha, 2017). Boehnke (2008) states that an influenced student who is motivated by their peers will become more academically accomplished. In gaining needed support from peers, students tend to excel, exceed their capability, concentrate more on one's studies, and succeed in academic tasks in a learning environment (Olalekan, 2016).

Ito et al. (2013) discovered that when students observed someone who had gained an interest in learning a subject, those students found that they had acquired a greater interest in the subject. Becoming active in learning is promoted by relationships with peers. Peer observation and motivation interact with each other and actively influence one another (Okada, 2020).

Predictors of Students' Learning Motivation

Table 4 displays the results of the regression analysis using motivation as the dependent variable. The interpretation presents that the total variance is explained by only one predictor, $F(3, 38) = 6.20$; $p = 0.048$. Of this total variance, 43% of students' learning motivation was explained by their relationships with peers. This implies that relationships with their peers greatly influence their learning motivation.

Table 4

Regression Analysis of Student's Motivation

Model	R	R ²	Adjusted R ²	df1	df2	F	t	p
1	0.430	0.185	0.121	3	38	6.20	3.427	0.048

When observing peers, the more diverse those peers are, the more likely it is that those who are observing those peers are more motivated to actively participate in learning activities (Ohtani et. al., 2013). Chen (2008) states that "peers can be a powerful source of support for students.". When older adolescents spend time with their peers, they tend to rely on their peers for advice, approval, and support from them (Brown, 1990; Csikszentmihalyi and Larson, 1984; Savin-Williams and Berndt, 1990). This is why students are "more susceptible to peer influence on their academic engagement, which explains the positive relationship of perceived peer support (Chen, 2008) and why a student's relationship with peers can predict a student's learning motivation.

Difference in Participants' Learning Motivation When Sex is Considered

Table 5 presents the results that there is a significant difference in participants of the study in terms of interest when grouped according to sex. Male participants (39) had a mean of 3.49 and a standard deviation of 0.610, while female participants (53) had a mean of 4.04 and a standard deviation of 0.605 with a t-value of 0.650 and associated probability of 0.006. This states that females tend to have higher learning motivation.

Table 5

Comparison of Students' Motivation to Serve When Sex Was Considered

	Sex	N	Mean	SD	t	Sig	Verbal Interpretation
Motivation Mean	Male	39	3.49	0.610	-2.93	0.006	Significant
	Female	53	4.04	0.605			
	Total	92					

Yunus and Ali (2009) find that in their study, female students express a higher level of effort in learning mathematics, finding that the significant difference resulted in overall motivation scores that conclude that female students have more learning motivation.

However, Ersnali (2015) findings agree with that statement as well, conveying that "girls have higher levels of learning motivation when compared with those of the boys" concluding that female students have more motivation when trying to learn. Horyna (2011) as well found that "females were to be significantly more motivated than males using constraints or in receiving some type of reward, and also if engaging in a behavior judged to be of personal value.

Conclusion and Recommendations

This study concludes that relationships with family members showed yet another weak connection with personal problems. Notwithstanding this, the connection is also strong, showing that family members, like the former two relationships mentioned, show a strong connection to the learning motivation of students. External regulation, while taking relationships into account, has a significant impact on learning motivation in high school students, while introjected regulation shows no significant impact. This is a significant difference between the learning motivation of male and female students.

This study recommends that sizable social links, or “friend groups,” which are more common today, be enhanced to help students be more motivated to learn. Further study on this topic is needed to gain a deeper understanding of the specific aspects of the microsystem environment that can either enhance or impede students’ motivation to learn.

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“Ang Hirap Magsalita ng Filipino, Bakit Kaya?” A Case Study Among Non-Filipino Speakers

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The environment plays an important role in developing language fluency. The environment includes the geographical location and significant people like parents, siblings, friends, and teachers. Geographically, the dialects fluently spoken at Central Philippine Adventist College are Hiligaynon, Cebuano, and English. As observed, the pupils of Central Philippine Adventist College Elementary School (CPACES) struggle with Filipino language fluency. Many cannot speak the Filipino language fluently, which challenges their learning in classes using the Filipino language as a medium of instruction. This study aimed to determine the difficulties in speaking the Filipino language fluently among CPACES pupils. Purposive sampling was used. Five pupils were interviewed using validated guided questions. This study utilized a qualitative case study design. Specifically, the framework of Ranan was employed to analyze the data. The study found that the mother tongue of the CPACES non-Filipino speakers is English, and they had not been exposed to the Filipino language. This non-exposure and the absence of somebody motivating them to speak Filipino have led the participants' to hardly understand Filipino. Further, their parents did not introduce Filipino learning materials and do not speak Filipino. So, to help CPACES non-Filipino speakers become fluent in the Filipino language, parents and significant others surrounding them must intentionally use Filipino at home and school, find ways to access Filipino reading materials, and converse with them using the Filipino language.

Keywords: *Filipino language fluency, language acquisition, non-Filipino speakers, Filipino language, case study*

Speaking different languages confuses language learners, which hinders their language fluency. The acquisition of the Filipino language may come easily to students who live in the Tagalog Region. However, in consideration of the myriad dialects being spoken in diverse households in Visayas and Mindanao, students may find difficulty using the Filipino language (Tana, 2021).

Co (2023) also expressed her observation in her article, "When Filipino Kids Can't Speak Filipino," that a growing number of kids and their parents in Metro Manila and other major Philippine cities clearly prefer using English over Filipino or their regional tongue. The issue has existed for a while. Depending on the method of classification, the number of languages spoken in the archipelago of the Philippines ranges from 120 to 187. Many of these are already in risk since they are no longer being used.

In addition, Summit Express (2018) stated that teaching Filipino and "Panitikan" remains a struggle for most students at the elementary level. While some students could easily identify and comprehend English words, learning Filipino is becoming a cause of frustration and struggle for some.

Many parents today want their children to speak English so that they will have a competitive advantage when they are adults and seeking work. On the other hand, although some people do not believe that there are any advantages to learning, using, and speaking Filipino well, we should also be aware of the significance of the Filipino language since it always comes in second to English (Batara, 2023).

Zarkasyi (2022) affirmed that the environment plays a major role in language development. The environment plays an important role in almost everything we do and learn. It plays an especially critical role in influencing language development as early as infancy, beginning with its use in the home through vocabulary, tone, modeled reading, attitudes about reading, and print- rich environment that leaves language everywhere.

Communication using the Filipino language is one of the major problems that Central Philippine Adventist College Elementary School (CPACES) pupils face. Pupils are not fluent in using Filipino, and this is a serious problem for teachers who are teaching Filipino-related subjects. According to the CPACES principal, about 50% of elementary school pupils can't communicate properly in Filipino. He added that students' performance in Filipino-related subjects is low compared to other English-related subjects. This was also observed by the researchers every time they were assigned to observe the CPACES classes during their field study subjects. There were pupils who could not communicate in Filipino and understood the lessons in Filipino subjects. Because of this, the researchers noticed that the learners were less interested in learning any Filipino-related subjects, which was also supported by their school principal.

Thus, this study was conceptualized with the main purpose of determining the difficulties of Central Philippine Adventist College Elementary School (CPACES) pupils in speaking the Filipino language fluently. Specifically, focusing on answering the questions of why CPACES pupils cannot speak Filipino fluently and the different ways in which the environment (parents, teachers, friends, learning materials) aids in Filipino language acquisition. With these questions, the researchers aimed to formulate an action plan to help parents, teachers, and principals solve the difficulties of elementary school pupils speaking Filipino.

Methodology

Research Design

This study is a qualitative-case study. Qualitative research is an in-depth understanding of social phenomena in their natural settings. It emphasizes the "why" rather than the "what" of social phenomena and relies on human beings' first-hand experiences (The University of Texas at Arlington, 2016).

A case study is an in-depth/comprehensive analysis of one individual, group, or event (Cherry, 2022). The focus of this study was to determine the reasons behind the difficulty of speaking the Filipino language fluently among CPACES pupils. Therefore, a qualitative-case study is the appropriate design to answer this inquiry because case studies help analyze current situations, where several students in CPACES are having difficulties speaking Filipino.

Population and Sample

The students at Central Philippine Adventist College Elementary School who were formally enrolled in the academic year 2022–2023 make up the population of this study. The researchers employed purposive sampling to draw a sample from the population. Purposive sampling, also known as judgement sampling, is frequently employed in qualitative research, as McCombes (2022) noted, where the researcher wishes to learn in-depth information on a particular phenomenon rather than draw statistical judgments or where the sample is relatively tiny. The five students who were picked met the following criteria.

1. The student must be formally enrolled for the school year 2022–2023.
2. Students that are struggling in their Filipino class
3. Recommended by their teachers as participants in this study.
4. Parents must grant permission for their child to take part in the study.

The researchers were able to identify five students who met the criteria. Each grade level is represented, starting in Grade II.

Instrumentation/Materials

The researchers formulated guided questions for the interview. Questions were suggested and checked by the three language professors, who were also their panel members. After final editing of the questionnaire, it was printed, and those

participants were individually interviewed using the guided questions, and the answers were recorded and transcribed.

Data Analysis

The researchers used the framework of Raman (2018) to analyze the collected data from the interview. In this study, the researchers have followed the specific steps formulated by Raman in his article "A Framework for Case Analysis."

First step: read and analyze the situation. In this step, the researchers reviewed the transcribed data, took notes, highlighted relevant facts, and underlined vital problems.

Second step: define the problem statement. This is where two to five key problems were identified. Questions such as, Why do they exist? Furthermore, who is responsible for them was considered.

Third step: analyze the environment. In this step, the researchers could already see how the environment contributes to the existing problem. They took note of it and analyzed what the contribution was or what was lacking in the environment provided.

Fourth step: Develop alternatives. A fitted solution to the problem was selected and made through the uncovered possible solutions.

Fifth step: identify and analyze viable alternatives. The researchers are now listing viable alternatives or solutions to the problem.

Sixth step: propose an action plan. In this part, the researchers were already formulating a proposed action plan based on the problem identified.

Ethical Considerations

The researchers applied the principles of ethics developed by Bhandari (2023). Concerning participation in this study, adequate confidentiality of research data was ensured by assuring the participants that their answers would be confidentially kept by the researchers and their names would not be written in the study, only their responses.

Furthermore, the protection of the privacy of research respondents was ensured. Also, full consent of the teachers and the parents was obtained by writing each parent of the pupils who were endorsed by the teachers to participate prior to the study. Moreover, any type of misleading information as well as the representation of primary data findings in a biased way were avoided. Additionally, the researchers acknowledged works by other authors used in any part of the study. Lastly, any type of communication in relation to the research was done with honesty and transparency, free of plagiarism or research misconduct, and the results were accurately represented.

Results and Discussion

Reasons Why Participants Have Difficulty in Speaking the Filipino Language

Table 1 presents a tabular presentation of why the participants have difficulty speaking the Filipino language fluently. There are three themes presented, namely, using English as their mother tongue, lack of motivation, and difficulty understanding the Filipino language.

Table 1

Reasons Why Participants Cannot Speak Filipino Language Fluently

Existing Problem	Significant Lines
Using English as a Mother Tongue	Uhmmm... Technically, I grew up speaking English, so I got used to it and developed it."
	"I use the English language because English is the first language that I have learned. And because that is the first one that I have learned, the Filipino language is just one of my subjects."
	"Uhmm... Because my parents taught me to speak Ilonggo when I was little and English they didn't teach me. I... I only learn, I only hear it... like with my friends, and in the... cartoons, and I learn it. "
Lack of Motivation	"Well, There's not really much that shedoes;, it's just that I'm only encouraged by how she teaches us... Or her teaching techniques. "
	"They've not motivated me. They never force me to learn the Filipino language."
	"Because I was not really forced to learn it or I was not really influenced."
	"Nothing " "The way they motivate me... they don't actually motivate me, I'm just the one motivating myself to learn Filipino and become better."
Difficulty in Understanding Filipino Language	"Because I don't understand Filipino."
	"The English language... because I cannot understand Filipino, and it's easier for me to understand if it is English."

Table 1 presents the reasons why CPACES pupils cannot speak the Filipino language fluently. It shows that there are three reasons, such as: (1) using English as a mother tongue; (2) a lack of motivation; and (3) difficulty understanding the Filipino language. For this reason, Batara (2023) said in his article, "Why you should encourage your child to love the Filipino language." More subtle than English and lovely, Filipino is a representation of who we are as a nation. It is crucial to our identity as a people that we encourage

our children to have a passion for Filipino culture because it gives them a sense of pride and belonging. However, a parent may wonder how they might best inspire their child to value Filipino culture.

Another observation that was made by Torralba (2005) is that, when using a language, one should be able to speak and listen with proficiency. Even while they can understand it, many parents worry that their kids may struggle to speak Filipino - nakakaintindi pero hindi nakapagsasalita. She further said that there are many kids in the Philippines who speak English as their first language daily, both in urban and rural locations. Because they were raised in the YouTube and Spotify eras, they hardly ever chose local material. They don't even hear or speak Filipino with their playmates.

The Influence of Environment in Filipino Language Acquisition

This portion presents the tabular presentation on how the environment influences Filipino language acquisition. Three themes emerged, namely: using the Filipino language in daily conversation, the presence of reading materials in Filipino, and watching Filipino educational videos.

Table 2

Perceived Ways on How the Environment Aid in the Acquisition of Filipino Language

Ways	Significant Lines
Using the Filipino Language in daily conversation	"Uhhh... Ilonggo, a little English, but we speak Ilonggo."
	"It depends on the situation, but since I speak in dialect, it's usually English, Bisaya and Ilonggo. "
	"We just talk... In different languages like Ilonggo, Bisaya and English. "
Reading materials in Filipino are present at home and at school	"In my school, they both speak English and Filipino, but the educational materials that are pasted on the walls are the English language."
	"Hmmm, English and Filipino, but more in English. Last time in our Bible, we had to... we had to... I think we have to translate it, and you have to write the answer in our dialect, Ilonggo, but it was the last time."
Watching Filipino educational videos	"I usually watched "Peppa Pig" because I really like the British accent and I learned a lot from it. I also like to listen to podcasts and I like Australian English.
	"English language, especially on Youtube. I really love to watch the educational videos, the different animals, plants, and trees."

Table 2 presents the different ways that the environment aids in Filipino language acquisition. The ways in which the environment influences language acquisition is: (1) using Filipino in daily conversation; (2) reading Filipino materials at home and at school; and (3) watching Filipino educational videos. But the significant lines mentioned that participants speak their dialect, or English. There are participants speaking English and Filipino in their previous school, but there are no posted or available materials written in Filipino or no reading materials available in Filipino. The participants are also only watching educational materials in English and not in Filipino.

EF English Proficiency Index (2017) affirmed that one of the best English- speaking countries in Asia is the Philippines. In addition, younger people are said to tend to speak better English than the older generations. Some attribute this to the practice of many Filipino parents conversing with their children in English almost exclusively.

Moreover, a significant study by Augusto (2021) entitled *Grit as a Factor in Improving Students' Reading Comprehension in Filipino: A Correlational Study* showed that 43% of pupils in grades 4 to 6 had reading comprehension skills in Filipino that were below satisfactory levels, indicating that they required intervention to improve. The kids' reading comprehension was also significantly impacted by the language's unfamiliarity. He also encourages them to read more books published in the Filipino language so they can become more familiar with it.

There is nothing wrong with teaching your child English or speaking it at home, but parents should also try to teach and converse with their children in Filipino. Rather than concentrating on raising a child who is fluent in English, why not raise a child who is also proficient in Filipino? Teaching your child some ABAKADA reading will aid in their brain development as well as the formation of new connections between brain cells. As your child learns and loves their native tongue, you'll not only help them become smarter, but you'll also help them develop a sense of identity and pride in their country (Batara, 2023).

Further, Santiago (2023), in his article "Five Ways You Can Help Your Kids Learn and Love Filipino Language," said that one of the finest methods to teach our kids a new skill in the social media and internet video era is to introduce them to instructional videos. You can start by exposing them to web videos that are in Filipino so they can learn the language and understand what is being said. You can also take them to see Filipino plays and performances so they can observe the language in action. They can learn how lovely the language is by hearing it employed in many types of art if you expose them to songs and poetry both spoken and written in Filipino. You can discuss with them how they felt after hearing a song, poem, or performance, as well as how they could convey their feelings and opinions in Filipino to them.

Conclusions and Recommendations

Speaking Filipino is difficult in the Philippines' Visayas and Mindanao regions, where it is solely spoken as a second language. Despite being the national language of the Philippines, Filipino is not everyone's mother tongue; hence, many Filipinos still struggle with speaking it fluently. As a result, teachers of Filipino courses from elementary to college frequently run into this issue since their pupils have a hard time speaking and understanding Filipino. This study aimed to determine the difficulties in speaking the Filipino language fluently among CPACES pupils. Answering problems like "why can't CPACES students speak Filipino fluently?" and "how does the environment (parents, teachers, friends, learning materials) influence Filipino language acquisition" in particular? With the help of these inquiries, the researchers hoped to create an action plan that would assist parents, teachers, and principals in addressing the Filipino language barriers that elementary school students face.

Moreover, this paper discovers that several pupils in CPACES are having difficulties speaking and understanding the Filipino language because their mother tongue is English, and they also lack motivation to learn and speak Filipino because their parents are not motivating them to use it. They communicate with them in English or in the Visayan dialect. One more is that their friends, classmates, and teachers speak to them in English or in their dialect. Further at home, they are not provided reading materials in Filipino, and they always watch educational materials in English.

Therefore, the environment has a big role to play in the language acquisition of a child. Learning a second language is intentional, and learning is easier if the environment is rich with reading materials and educational videos in Filipino. If people around them are using it, there is no doubt that the child could not be fluent in speaking it.

For this reason, the study recommends that elementary teachers use a range of techniques to develop a welcoming and encouraging learning

atmosphere that encourages a love of the Filipino language and culture. Additionally, teachers should incorporate lessons that improve Filipino language acquisition, and CPACES students should take an active role in their own language development. Then, parents must encourage and assist their kids in learning Filipino while establishing in them the value of the language as a part of being Filipino. They should also help and guide their children in reading Filipino books and practicing speaking Filipino words at home.

Proposed Action Plan

This section presents the proposed action plan to help those CPACES pupils become proficient in speaking the Filipino language. Not only the CPACES pupils but also those schools in the Visayas region that are experiencing the same problem.

As Filipino citizens, it is a must for us to learn and use the Filipino language because this is important for us to preserve our culture and to achieve unity among Filipino people. So as Filipino parents and teachers, there is a need for us to teach our children the Filipino language and teach them to love it because if they are using the language, they are also carrying out the Filipino culture because language and culture go together. Through this, we Filipino people, young and old, are preserving and enriching the unique culture we inherited from our forefathers.

So, the researchers proposed an action plan based on the result, which shows that the environment plays a major role in the language acquisition of learners.

Rationale: After analyzing the results of this study, it was found that the CPACES pupils are having difficulty speaking Filipino and understanding Filipino subjects because they speak English at home and at school, they lack motivation to speak it because they are not encouraged by their parents to use it, there are no available reading materials at home and at school, and they only watch educational videos in English. So, it is confirmed that a rich environment is necessary for Filipino language acquisition.						
Goal: To be able to formulate a proposed action plan for the elementary pupils to help the elementary schools and the parents provide a rich environment that will enhance the acquisition of the Filipino language.						
Findings	Objectives	Action Plan	Time Frame	Persons Involved	Budget	Success Indicator
Pupils are speaking in English at home and at school.	Develop an awareness program on the importance of using the Filipino language.	The CPACES principal schedules a PTA meeting, and a part of the meeting is a seminar for parents on the importance of Filipino language and how to make the environment rich and conducive to learning Filipino language.	November 2023	Principal, teachers, the researchers as the resource person	10,000	When the parents have verbalized the importance of learning and using the Filipino language and have started to provide reading materials and videos in Filipino at home.

[table continues on the next page]

Lack motivation to speak Filipino language	Create programs that will inspire the pupils to speak the Filipino language, appreciate it, and learn to love this language.	The elementary schools prepare programs for the month of August as the Philippines is celebrating "Buwan ng wika." In this month, the school can design programs every week promoting speaking and loving the Filipino language.	Regularly doing it every month of August	Principal, Teachers, pupils, and parents	It depends upon the kind of program.	When pupils started to speak Filipino and verbalized that they were starting to love the Filipino language.
Pupils are experiencing difficulty in speaking and understanding the Filipino language	Use varied teaching strategies in Filipino subjects and other related subjects using Filipino as a medium of instruction.	The elementary teachers prepare learning exercises and drills to enhance vocabulary skills, spelling, and, most importantly, speaking Filipino fluently.	During class schedule in Filipino and other related subjects	Subject teachers, advisers, and parents	It depends upon the material needed	When they are not having difficulty understanding the Filipino accents when they are using can already speak it fluently.
	Expose the children to reading materials and videos that are in Filipino	The parents have to intentionally provide the children with reading materials in the home and schedule them even once a week to watch educational videos in Filipino and bring them to programs and events that the language used is in Filipino.	At home during weekend and holidays	Parents and care givers	5,000	When the children have verbalized that they already love the Filipino language and are willing to learn more and speak it,.

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Perceived Stress Level, Coping Strategies, and Protective Factors: A Study of Patients with COVID-19 Infection

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The current study aimed to examine the emotional disturbances as participants have experienced various thoughts, feelings, and reactions due to the COVID-19 infection. Survey questionnaires were collected from 59 patients with COVID-19 infection as the selection criteria. Further, an interview of 14 patients with the COVID-19 infection was incorporated into the study to examine their stress levels, coping strategies, and how they responded during the recovery period. Participants in the study were students, faculty, and staff at the university and were isolated after they were confirmed positive for COVID-19 infection. The revised Perceived Stress Scale (PSS) and Depression, Anxiety, and Stress Scale (DASS-21) were employed to measure the perceived stress level, depression, and anxiety, while the Ways of Coping Scale (WCS) was also used to examine the coping strategies. The study result was statistically significant ($p = .019$) in terms of the Ways of Coping Scale (WCS), while a significant correlation was found in terms of the status of participants and the location of quarantine. Further, DASS-21 was significantly correlated with days of recovery and PSS. The study also revealed that participants did not significantly experience high levels of stress, depression, and anxiety due to coping strategies and contributing factors such as a supportive and caring environment. Moreover, adequate rest and prayer were some of the coping strategies employed by the patients. The implications of the study highlighted the importance of support systems and interventions for individuals infected with COVID-19.

Keywords: *COVID-19 infection, perceived stress level, coping strategies, protective factors*

The COVID-19 pandemic crisis has confronted many educational institutions across the globe. In Thailand, there have been 4,063,844 confirmed cases of COVID-19 (data from January 3, 2020, to April 19, 2022), with 27,135 deaths (World Health Organization, 2022). Additionally, as of April 10, 2022, a total of 131,009,123 vaccine doses had been administered (World Health Organization, 2022). Apparently, the pandemic has brought unprecedented challenges since the coronavirus outbreak, affecting the emotional and psychological well-being of people who have been infected by the coronavirus. As a result, more than 100 countries have implemented lockdowns, resulting in the need to shift from face-to-face instruction to online learning classes (Kwok et al., 2020). When schools are closed, it causes fear and uncertainty, while social distancing has brought significant alterations in the dynamics of relationships, thus creating feelings of loneliness. (Smith & Lim, 2020). Some students who have lost connections on a school campus have experienced loneliness and isolation (Zhai & Du, 2020). Some students have encountered issues related to online classes, such as the lack of resources and limited access to the Internet (UNESCO, 2020). A cross-sectional study (Woday Tadesse, et al., 2021) revealed that the level of anxiety, stress, and depression disorders is high among college students due to the COVID-19 lockdown. On the other hand, because of the pandemic, teachers have also accumulated a significant stress level as they must adjust to provide online instruction (Besser et al., 2020). This stress is usually associated with symptoms of anxiety, depression, and sleep disturbance due to the increased workload resulting from online instruction (Ng, 2007). Since little research has investigated the first-hand experiences of individuals who contracted the coronavirus disease, this study will focus on the perceived stress levels, emotional challenges, and coping strategies and identify protective coping strategies employed by the COVID-19 patients.

Stress and Related Emotional Challenges

Stress is a response to a perceived physical and psychological threat, usually accompanying an emotional response like anxiety (Daviu et al. 2019). Anxiety, depression, and stress are some reactions to life's challenges, like the COVID-19 pandemic. Several studies have recognized that any stressful event has a significant mental health impact on affected individuals (Schwartz et al., 2019). For instance, the impact of COVID-19 is fear, worry, and anxiety, and young people appear to be particularly affected by reduced social connectedness and increased loneliness (Tasso et al., 2021). Although previous studies revealed that older people had the highest levels of anxiety during the COVID-19 pandemic (Hyland et al., 2020), college students also experience anxiety and depression in varying degrees (Chang et al., 2020). For instance, Americans aged 18–29 had the highest reported rates of psychological distress during the pandemic (Keeter, 2020). Therefore, universities should pay attention to the psychological status of students and come up with support programs to address the high possibility of increased stress, anxiety, and depression due to the coronavirus (World Health Organization, 2020). A descriptive-phenomenological study comprising 17 COVID-19 patients revealed that the experience of fear and stress was one of the main themes extracted from the interviews (Jamili et al., 2022). Likewise, a qualitative study by Sun et al. (2021) revealed the negative attitudes of COVID-19 patients, such as fear, denial, and stigma, during the early stages. In terms of the psychological state of COVID-19 patients, a cross-sectional study involving 100 hospitalized patients emphasized that loneliness and isolation are the most common significant themes (Patil S.T. et al., 2021), while quarantine and loneliness were sources of distress (Toulabi et al., 2021). Additionally, data analysis showed that one of the sources of anxiety in COVID-19 patients was the disease being recognized as a stigma. Also, a study by Guo et al. (2020) compared the

mental status among patients who tested positive for COVID-19 and recruited matched controls who were COVID-19 negative. This study revealed that COVID-19 patients had higher levels of depression, anxiety, and post-traumatic stress symptoms compared to non-COVID-19 controls. In another study by Yildirim et al. (2022), it was found that the occurrence of emotional disturbances in patients with COVID-19 was high; however, the anxiety level declined during the hospitalization period, and the depression level increased.

Coping Strategies

One effective strategy to reduce stress is through coping style, which means exerting efforts to decrease stress. These efforts can come from behavioral and cognitive aspects, which are either positive or negative. Therefore, a negative coping style is associated with a higher score for depression and anxiety (Liang et al., 2020). Effective coping strategies for challenging situations are essential because individuals with positive coping skills have been found to have fewer symptoms of anxiety and stress during the COVID-19 pandemic (Wang et al., 2020). There are different categories of coping strategies: emotion-focused, problem-focused, and avoidance focused. Emotion-focused or reactive attempts to regulate feelings and emotional responses to the stressor. Problem-focused coping refers to acting on the stressor, the environment, or oneself to address the problem to decrease or eliminate the stress (Lazarus, 1993).

Problem-focused coping is more effective in controllable stressful situations, but emotion-focused coping is more effective in uncontrollable stressful situations (Endler, 1997). A study reported that the most common coping strategies used by healthcare workers included acceptance of the critical situation and the use of a positive outlook while working (Wong et al., 2005). Likewise, Khalid et al. (2016) outlined that a positive attitude in the workplace had the biggest impact on reducing staff stress.

Protective Factors

Protective factors are conditions or attributes that help people deal more effectively with stressful events and mitigate or eliminate risk in families and communities (Masten, 2001). People with the COVID-19 infection may experience a certain level of stress. It has been suggested that the ability to regulate positive (Tugade & Fredrickson, 2004) and negative emotions (Troy & Mauss, 2011) is crucial for promoting resilience and protection against stressors.

Social Support. Having a good support system is essential during the COVID-19 pandemic. Social support helps people survive any fear and anxiety (Duan et al., 2020), while individuals with access to more social resources, such as social support, have better health outcomes than others with fewer social resources (Baek et al., 2014). A study on health care workers who became patients with COVID-19 found that they used their professional knowledge and gained support from others and community resources to address negative psychological reactions (Du et al., 2022).

Spirituality. According to Bornet et al. (2019), most studies have shown that religious involvement and spirituality are associated with better health outcomes, including greater longevity, coping skills, health-related quality of life, and less anxiety, depression, and suicide. Several studies have shown that addressing the patient's spiritual needs may enhance recovery from illness (Mueller et al., 2001). During the COVID-19 pandemic, patients needed to overcome the feeling of isolation in different ways. Among several coping strategies, spiritual and religious beliefs were important to these patients, as noted by some studies (Lucchetti et al., 2020). For instance, a study revealed that there is a statistically significant and positive relationship between praying to God and a belief that the current situation is the outcome of God's will (Saud et al., 2021)

Optimism and attitude. Studies from 2020 showed that gratitude was associated with better mental health. Grateful participants reported less anxiety and depression and better subjective well-being during the COVID-19 pandemic (Bono et al., 2020). Gratitude, as a trait, is reflected in the ability to be aware of positive things in life. It is manifested in an appreciation of what one is fortunate to have and in thankfulness to others (Wood et al., 2011). Studies have shown that participants who experienced gratitude were more resilient and coped better with stress. They also recovered quickly from illness and enjoyed better physical health (Sirois & Wood, 2017). Participants who reported higher levels of optimism are more resilient to stress and more likely to use adaptive coping strategies (Conversano et al., 2010).

Healthy diet. A good and balanced diet is thought to be a protective factor against COVID-19. Micronutrients such as proteins, dietary fiber, short-chain fatty acids, and omega-3 polyunsaturated fatty acids may have a positive effect during COVID-19 infection and potentially improve the prognosis of COVID-19 (Gao et. al., 2021).

This study is anchored on the conceptual framework presented in Figure 1. Hence, the purpose of the study was to investigate the perceived stress level, coping strategies, and protective factors through the following research questions:

1. What is the specific perceived stress level encountered by the participants who have experienced COVID-19 infection?
2. What other emotional challenges have the participants experienced during the COVID-19 infection?
3. What are the specific coping strategies employed by the participants who had experienced COVID-19 infection?
4. What specific protective factors enable respondents to deal with perceived stress and other emotional challenges concerning the COVID-19 infection?
5. Is there a significant difference between the Perceived Stress Scale (PSS), Depression, Anxiety, and Stress Scale (DASS-21), Ways of Coping Scale (WCS), and Protective Factors (PFs) when location of the quarantine and the status of the patients are considered?

Figure 1
Conceptual Framework



Methodology

This study employed a quantitative research design and a personal interview. The participants are students, faculty, and staff at the Asia-Pacific International University. Respondents with COVID infection served as the sole inclusion criteria for the investigation. The demographic characteristics of participants

were status, place of confinement, manifestation of symptoms, and days of recovery. The study was administered using Google Forms, and data were collected online. The revised Perceived Stress Scales (PSS-10) were administered to measure the level of stress and answer some emotional challenges participants have experienced during the recovery period. To measure other emotional challenges such as anxiety and depression, an assessment tool called the Depression, Anxiety, and Stress Scale (DASS-21) was used. DASS 21 is a reliable tool widely used to assess the emotional distress in clinical and non-clinical populations (Lovibond, 1998). Further, a revised questionnaire called the Ways of Coping Scales (WCS) has eight coping scales and was used to explore the coping processes of the respondents. To examine the protective factors, a self-constructed survey was made with eight statements targeting the four dimensions: physical, mental, social, and spiritual faculties.

Demographic data presented in Table 1 indicated that the respondents (N = 59) were from Asia-Pacific International University (AIU) and participated in the study by answering the online survey questionnaire. The sample size is relatively small because the survey was voluntary and designed only for participants who have contracted

COVID-19. Two official announcements (through SARRA) were given to students, faculty, and staff to remind and encourage them to participate in the study. To get a deeper perspective on the study, an interview was included in the study. Participants (10 students, two faculty members, and two staff) were interviewed and asked about their emotional and psychological well-being. Based on their status, the majority of respondents are students (67.8%), while faculty members (20.3%) ranked second, and the staff has the fewest participants (11.9%). Further, most of the respondents had been quarantined in the dorm (49.2%), while others were isolated in other facilities (23.7%) and faculty houses (20.3%). Only a few participants were brought to the hospital (5.1%) and Mission Health Promotion Center (MHPC) (3.4%), a facility or institution near the AIU campus. The manifestation of COVID-19 symptoms among the respondents indicated low to mild symptoms (72.9%), while severe symptoms are quite low (3.4%). In addition, some participants have no symptoms (23.7%) despite being tested positive for COVID-19 through the ATK test results. Likewise, most respondents recovered within 6-8 days (35.6%). Moreover, respondents have been isolated as part of the university health protocol and government regulations to curb the spread of the virus.

Table 1

Demographic Information on Participants

Status of participants	Frequency	Percent
Students	40	67.8
Faculty	12	20.3
Staff	7	11.9
Location of quarantine		
Dorm	30	50.8
Hospital	3	5.1
MHPC	2	3.4
Faculty House	12	20.3
Other Facilities	14	23.7

[table continues on the next page]

Manifestation of symptoms		
No Symptoms	14	23.7
Low/Mild Symptoms	43	72.9
Severe Symptoms	2	3.4
Days of recovery		
Less than 5 days	15	25.4
6-8 days	21	35.6
9-11 days	15	25.4
12-14 days	7	11.9
more than 15 days	1	1.7

To ensure ethical practices in the research process were observed, an approval request was sought from the university's Institutional Review Board (IRB). Participation in the study was voluntary, and the protection of participants' personal data was guaranteed. A period of two to three months was set for data collection. The survey questionnaire targeted the demographic profile of the respondents, and frequency, mean, and percentage tools were used, including one-way analysis of variance (ANOVA) and Pearson's correlation as a statistical tool. Aside from the survey, the research also conducted an interview with participants with COVID-19 infection to add richer details and make the results more credible.

Results and Discussion

Perceived Stress

To measure the stress level of participants, the Perceived Stress Scale (PSS) was administered using the 10 questions presented in Table 2. PSS is a stress assessment instrument that would help the researchers understand how participants' responses to a situation like the COVID-19 pandemic affect their feelings and their perceived stress. The mean indicates the average ratings of the 59 respondents on each item of the questionnaire, while the standard deviation describes the spread of the data and how the values are close to the mean. Based on the Perceived Stress Scale (PSS), item number four has the highest rating ($M = 2.46$, $SD = 1.02$) among all questionnaire items. This suggests that the respondents almost never felt low about handling challenges due to the coronavirus. Generally, the respondents did not perceive that the COVID-19 infection had so much impact or caused much stress. This is because most respondents were either asymptomatic or had experienced low or mild symptoms. A recent study supported this finding, where 195 patients in the Maldives found that symptomatic patients were more stressed compared to asymptomatic patients (Dey, R.K., et al., 2022).

Table 2

Perceived Stress Scale (PSS)

Questions	M	SD	Verbal Interpretation
1. When you had COVID-19 infection, how often did you feel upset because of something that happened unexpectedly?	1.64	1.03	Almost Never/ Low
2. When you had COVID-19 infection, how often did you feel that you were unable to control the important things in your life?	1.68	1.121	Almost Never/ Low

[table continues on the next page]

3. When you had COVID 19 infection, how often did you feel nervous and stressed?	1.73	1.26	Almost Never/ Low
4. When you had COVID-19 infection, how often did you feel confident about your ability to handle your personal problems?	2.46	1.02	Almost Never/ Low
5. When you had COVID-19 infection, how often did you feel that things were going your way?	1.97	1.14	Almost Never/ Low
6. When you had COVID-19 infection, how often did you feel that you could not cope with all the things that you will have to do?	1.66	1.2	Almost Never/ Low
7. When you had COVID-19 infection, how often did you feel to control irritations in your life?	1.93	0.98	Almost Never/ Low
8. When you had COVID-19 infection, how often did you feel that you were on top of things?	1.71	0.95	Almost Never/ Low
9. When you had COVID-19 infection, how often did you feel angry because of things that were outside of your control?	1.39	1.18	Never/Very Low
10. When you had COVID-19 infection, how often did you feel difficulties were piling up so high that you could not overcome them?	1.42	1.07	Never/Very Low

Note: Means are based on scale of 1 never to 5- very often (1.00 - 1.49 never/very low; 1.50-2.49 almost never/low, 2.50-3.49 sometimes/moderate; 3.50-4.49 fairly often/high, and 4.50-5.00 very often/very high)

Emotional Challenges

Table 3 below shows the Depression, Anxiety, and Stress Scale (DASS-21) consisting of 21 statements, which has three subscale scores for depression, anxiety, and tension/stress and is designed to measure the negative emotional states of depression, anxiety, and stress. Based on DASS-21, item number five received the highest rating ($M = 1.25$, $SD = 0.96$) among all questionnaire items. This suggests that the respondents have experienced some panic due to the COVID-19 infection. Item number three got the second highest rating ($M = 1.12$, $SD = 1.04$), which means participants have experienced some degree of feeling downhearted and blue. Generally, the respondents did not think that the COVID-19 infection has caused depression, anxiety, and a high level of stress.

Table 3

Depression, Anxiety and Stress Scale (DASS-21)

Questions	M	SD	Interpretation
1. When I had COVID-19 infection, I found myself getting agitated.	0.93	0.79	Some of the time
2. When I had COVID-19 infection, I found it difficult to relax.	0.97	0.93	Some of the time
3. When I had COVID-19 infection, I felt down-hearted and blue.	1.12	1.04	Some of the time
4. When I had COVID-19 infection, I was intolerant of anything that kept me from getting on with what I was doing.	0.68	0.84	Some of the time
5. When I had COVID-19 infection, I felt close to panic.	1.25	0.96	Some of the time
6. When I had COVID-19 infection, I was unable to become enthusiastic about anything.	0.92	0.97	Some of the time
7. When I had COVID-19 infection, I felt like I wasn't worth much as a person.	0.53	0.73	Some of the time
8. When I had COVID-19 infection, I felt that I was rather touchy (easily upset, offended, or irritated).	0.93	1.03	Some of the time

[table continues on the next page]

9. When I had COVID-19 infection, I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	0.58	0.72	Some of the time
10. When I had COVID-19 infection, I felt scared without any good reason.	0.61	0.85	Some of the time
11. When I had COVID-19 infection, I felt that life was meaningless.	0.81	0.9	Some of the time
12. When I had COVID-19 infection, I found it hard to wind down.	1.07	0.93	Some of the time
13. When I had COVID-19 infection, I was aware of the dryness of my mouth.	0.75	0.88	Some of the time
14. When I had COVID-19 infection, I couldn't seem to experience any positive feeling at all.	0.88	0.79	Some of the time
15. When I had COVID-19 infection, I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion).	0.68	0.86	Some of the time
16. When I had COVID-19 infection, I found it difficult to work up the initiative to do things.	1.02	0.92	Some of the time
17. When I had COVID-19 infection, I tended to over-react to situations.	0.56	0.88	Some of the time
18. When I had COVID-19 infection, I experienced trembling (e.g., in the hands).	0.75	0.84	Some of the time
19. When I had COVID-19 infection, I felt that I was using a lot of nervous energy.	0.68	0.88	Some of the time
20. When I had COVID-19 infection, I was worried about situations in which I might panic and make a fool of myself.	0.66	0.82	Some of the time
21. When I had COVID-19 infection, I felt that I had nothing to look forward to.	0.39	0.72	Did not apply to me at all

Note: Means are based on a scale of 0 did not apply to me at all to 3 most of the time (0.00-0.49- did not apply to me at all; 0.50-1.49 some of the time; 1.50-2.49 - A good part of the time; 2.50-3.00- most of the time).

Coping Strategies

Table 4 below indicates the Ways of Coping Scale (WCS), consisting of 24 statements. Interestingly, the WCS revealed prayer ($M = 4.44$) as an essential, specific coping strategy during the COVID-19 infection. Meaning the respondents found an anchor and hope through prayer; either they prayed for themselves or they would like someone to pray for them. It is also understandable that most respondents avoided being with people in general ($M = 4.02$) because they were in quarantine to curb the spread of the coronavirus on campus. In addition, most respondents generally agreed that drinking, smoking, or using drugs was not the best coping strategy.

Table 4

Ways of Coping Scale (WCS)

Statements	M	SD	Interpretation
1. When I had COVID-19 infection, I tried not to act too hastily or follow my first hunch.	3.66	0.96	Agree
2. When I had COVID-19 infection, I tried to analyze the problem to understand it better.	3.83	1.05	Agree
3. When I had COVID-19 infection, I tried to keep my feelings from interfering with other things too much.	3.73	0.93	Agree
4. When I had COVID-19 infection, I wished that I could change what is happening or how I feel.	3.63	1.08	Agree
5. When I had COVID-19 infection, I wished that the situation would go away or somehow be over with.	3.85	1.08	Agree
6. When I had COVID-19 infection, I wished a miracle will happen.	3.58	0.97	Agree
7. When I had COVID-19 infection, I tried to forget the whole thing.	2.64	1.08	Undecided

[table continues on the next page]

8. When I had COVID-19 infection, I felt that time would made a difference- the only thing to do is to wait.	3.95	0.97	Agree
9. When I had COVID-19 infection, I accepted my situation, since nothing could be done.	3.95	0.96	Agree
10. When I had COVID-19 infection, I talked to someone about how I was feeling.	3.76	1.01	Agree
11. When I had COVID-19 infection, I talked to someone to find out more about the situation.	3.66	1.01	Agree
12. When I had COVID-19 infection, I prayed.	4.44	0.79	Agree
13. When I had COVID-19 infection, I rediscovered what is important in life.	3.80	0.98	Agree
14. When I had COVID-19 infection, I was inspired to do something creative.	3.61	1.02	Agree
15. When I had COVID-19 infection, I looked for the silver lining, so to speak; tried to look on the bright side of things.	3.90	0.89	Agree
16. When I had COVID-19 infection, I criticized or lectured myself.	2.71	1.1	Undecided
17. When I had COVID-19 infection, I realized I brought the problem on myself.	2.69	1.24	Undecided
18. When I had COVID-19 infection, I made a promise to myself that things would be different next time.	3.41	1.02	Undecided
19. When I had COVID-19 infection, I got away from it for a while; tried to rest.	3.81	0.96	Agree
20. When I had COVID-19 infection, I tried to make myself feel better by drinking, smoking, or using drugs.	1.81	1.28	Disagree
21. When I had minor COVID-19 infection, I jogged or exercised (indoors).	3.03	1.22	Undecided
22. When I had COVID-19 infection, I tried to keep my feelings to myself.	3.10	1.04	Undecided
23. When I had COVID-19 infection, I avoided being with people in general.	4.03	1.05	Agree
24. When I had COVID-19 infection, I kept others from knowing how bad things are.	3.02	1.14	Undecided

Note: Means are based on a scale of 1 strongly disagree to 5 strongly agree (1.00 - 1.49 Strongly Disagree; 1.50–2.49 Disagree; 2.50–3.49 Undecided; 3.50–4.49 Agree; 4.50–5.00 Strongly Agree).

Protective Factors

Table 5 below shows the Protective Factors (PFs), a self-constructed questionnaire that addressed the four aspects of the respondents: mental health (items 1 and 2), physical health (items 3 and 4), social aspect (items 5 and 6), and spiritual aspect (items 7 and 8). Interestingly, most respondents agreed that proper rest and a healthy diet are essential to boosting one's immune system ($M = 4.00$). Additionally, they believed in the importance of having a support system, either through family ($M = 3.88$) or friends ($M = 3.71$), who would offer words of encouragement and emotional support. Further, although they tested positive for COVID-19 infection, most believed such experience reminded them to nurture their spiritual life ($M = 3.76$).

Table 5

Protective Factors (PFs) Questionnaire for COVID-19 Patients

Statements	M	SD	Interpretation
1. Despite getting infected, I was able to look at the positive side and remain grateful	3.56	1.25	Agree
2. I tried to remain optimistic and calm even though I was diagnosed with COVID-19 infection	3.58	1.13	Agree
3. When I had COVID-19, I believed that proper rest and healthy diet were important to boost my immune system	4.00	1.17	Agree
4. When I had COVID-19 infection, I was able to access and eat healthy food and exercise when possible	3.58	1.15	Agree

[table continues on the next page]

5. When I had COVID-19 infection, my family offered words of encouragement and supported me	3.88	1.13	Agree
6. When I had COVID-19 infection, I had good circle of friends who were willing to lend their ears	3.71	1.60	Agree
7. Although I tested positive for COVID-19 infection, I believe the experience has helped nurture my spiritual life	3.76	1.24	Agree
8. I spent time in online worship services, prayer, and Bible reading during the quarantine period	3.61	1.21	Agree

Note: Means are based on a scale of 1 strongly disagree to 5 strongly agree (1.00 - 1.49 Strongly Disagree; 1.50–2.49 Disagree; 2.50–3.49 Undecided; 3.50–4.49 Agree; 4.50–5.00 Strongly Agree).

Correlation Between Perceived Stress, Emotional Challenges, Ways of Coping, Protective Factors, Location of Quarantine and Status of Participants

Table 6 below indicates a significant correlation between the location of the quarantine and the status of the patients, either students or faculty and staff members. There is a significant correlation in status, where most respondents are students with COVID-19 infection who have been isolated in the dormitory, while faculty and staff were quarantined at their respective houses. Moreover, the days of recovery from COVID-19 infection have a correlation with DASS-21, while a significant correlation also shows between DASS-21 and the PSS.

Table 6
Correlations

	Location of Quarantine	Manifestation of Symptoms	Days of Recovery	PSS	DASS-21	WCS	PF
Status of Participants	.411** .001	.132 .319	.136 .305	-.216 .101	-.118 .373	.089 .504	.164 .214
Place of Quarantine	1	.141 .288	.187 .155	.177 .180	.012 .931	.014 .918	.214 .103
Manifestation of Symptoms		1	.016 .906	.124 .349	-.048 .717	-.006 .964	.219 .096
Days of Recovery			1	.203 .123	.285* .029	-.010 .941	.205 .119
PSS				1	.454** .000	-.045 .734	.104 .435
DASS-21					1	-.023 .861	-.071 .595
WCS						1	.067 .616
PF							1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7 below indicates the analysis of variance (ANOVA). The results show a statistically significant difference ($p = .019$) in terms of the Ways of Coping Scale (WCS). However, there was no statistically significant difference in the mean score between Perceived Stress Scale (PSS) and Depression, Anxiety and Stress Scale (DASS-21).

Table 7
ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
PSS	Between Groups	2.655	4	.664	1.478	.222
	Within Groups	24.260	54	.449		
	Total	26.915	58			
DASS-21	Between Groups	3.526	4	.882	1.504	.214
	Within Groups	31.660	54	.586		
	Total	35.186	58			
WCS	Between Groups	4.019	4	1.005	3.244	.019
	Within Groups	16.727	54	.310		
	Total	20.746	58			

Table 8 below shows the result of the interview with students, faculty, and staff. Some identified issues for students are related to boredom because they were quarantined, feeling a little stress because of missing some classes, having sleeping problems, and worrying they might infect others. This stress reaction is similar to a previous study with COVID-19 patients, where most felt stressed regarding the risk of transmitting the disease to their family members and were scared by COVID-19 during the first week of infection (Karimi et al., 2022). Some coping mechanisms employed by the participants are prayer, read books like the Bible and Ellen White books, and being optimistic or having a positive attitude. What also helped the participants in the recovery process were prayer and emotional support offered by their friends, teachers, and family members. The location of quarantine has a significant impact during the recovery period. For instance, one faculty member admitted that being quarantined at home helped him recover quickly. Knowing his wife was just at home and taking care of him gave him a sense of comfort. This experience may be a completely different scenario for most international students with who are far from their loved ones.

Table 8
Interview with COVID-19 Patients

Name	Highlights of the Interview	Identified Issues
Student 1	The quarantine period seems too long, and I feel bored inside the room.	Bored
Student 2	I cannot sleep well during the first two nights because of a fever.	Sleeping problem
Student 3	I am not sure how to tell this because I feel like the longer we stay in the room, the more people get infected. It has been three days already, and I still feel so stressed. My body is weak, and I cannot sleep well. I cough and feel dizzy sometimes.	Stress Couldn't sleep
Student 4	I had a minor cough, but I used the quarantine time to read the Bible and books of Ellen White. I appreciated the emotional support and prayer of my teachers and dorm dean.	Read the Bible
Student 5	I had sore throat and I worried about missing the class.	Worry about the class
Student 6	I was stressed out because of being stuck in a room, and not being able to exercise outside or in the gym.	Stress
Student 7	I was feeling better physically but emotionally low because I can't exercise. I just get fresh air and sunlight through the window. I pray about my relationship with God and pray for my family for their safety.	Stress Prayer

[table continues on the next page]

Student 8	I worried about catching up with my classes and missing some works.	Worry
Student 9	Although I had a cough, I believed God is caring for all of us. I appreciated the emotional support and prayer.	Faith in God
Student 10	I felt dizzy because of the medicine. I must admit it was really boring inside the room as I was quarantined for four days.	Bored
Staff 1	I was in nine days quarantined in my house. I was a little stressed out and worried because my friend might be infected, or my COVID-19 infection could affect others. I just took a rest. I also took a medicine because I had a high fever.	Stress Rest
Staff 2	I was quarantined at home for ten days. I had a headache and fever, and I could not sleep well for two nights, so I took a medicine. I was not really stressed because I was not busy at work when I got the infection. My boss and colleague have delivered food, and they prayed for me as well.	Social support Prayer
Faculty 1	I took the ATK test after realizing I had a minor fever. I was isolated in a separate room so my wife and children would not be infected. Although I was thinking about my classes and other responsibilities, I remained optimistic. I read books. A colleague sent me fruits and prayed for me online.	Read books Social support Prayer Optimism
Faculty 2	I was quarantined at home for about two weeks and had an extreme cough, slight fever, and difficulty breathing, so I could not sleep for a few nights. However, I have a positive attitude despite of COVID-19 infection. Unlike before, the strain was not deadly, and knowing that my wife and family members were just there to take care of me gave me a sense of comfort. The stress was not directly related to the infection, but the consequences made me stressed, like traveling. I was stressed because I could not travel and bought a plane ticket already.	Support from family Stress

Conclusion

The study revealed how students, faculty, and staff responded during the COVID-19 pandemic. While contracting coronavirus is emotionally upsetting, participants shown their stress level, anxiety, and depression were not high. This finding is supported based on the demographic profile where participants with COVID-19 infection exhibited a low or mild symptoms while some of them have no symptoms at all. Additionally, most of the participants have recovered within 6-8 days. Nevertheless, some respondents do not feel confident about their handling personal problems (PSS), while others have close to panic (DASS-21) during the COVID-19 infection. Furthermore, the university has taken some significant support such as unique accommodation to classes, online counseling, donating food and vitamins, and offering emotional support and prayers during the

quarantine period. Online counseling and prayers served as an avenue for listening and improving the mental health of college students.

Limitations and Recommendations

One specific limitation of this study was the unbalanced sample size used. Data collection showed that a more significant number of respondents comprised students over faculty and staff; thus, intervention support may vary depending on their status. Therefore, creative and customized advising, such as effective online counseling to address the unique challenges of students, may require further support or studies and literature. Because it is hard to tell the scope and impact of the coronavirus, more structured and tailored interventions related to psychological care should be catered to people so they can better cope with COVID-19 infection.

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Pakikipagsapalaran sa Ibayong Dagat: A Transcendental Phenomenological Study of the Lived Experiences of Overseas Filipino Workers

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Overseas Filipino Workers (OFWs) are tagged as the modern heroes of our time. They leave their homes and work abroad to provide for the needs of their families. However, working abroad is not as glamorous as it seems. OFWs must travel to foreign lands, work away from their families, and deal with the difficulties of working there. Anchored on resiliency theory, this transcendental phenomenological study intends to capture the lived experiences of domestic helpers in the Middle East and describe the context of their experiences. This study was participated by seven OFWs who have worked abroad for at least two years. Their participation was purely voluntary, and they were assured of their anonymity and the confidentiality of their responses. Data was gathered through interviews, and the Moustakas data analysis framework was adopted for its analysis. The findings of the study revealed that OFWs must endure physical and emotional assault as well as battle against loneliness and homesickness. Despite the hardship, the participants are grateful to God for the support of their family and the financial freedom they have attained. Their experiences are characterized by resiliency—rising above adversity and sustaining a positive outlook. It is recommended that the government initiate precautionary measures to assess recruiting agencies to ensure the safety of OFWs and promote stronger ties with countries employing them. OFWs must undergo training that will help them cope with their environmental stressors. Further, a descriptive study should be conducted on the impact of working abroad on the well-being and spirituality of migrant workers.

Keywords: *Overseas Filipino Workers, transcendental phenomenology, resiliency*

Working abroad has long been a way for Filipinos to secure a better future for themselves and their families (OWWA, 2022). Despite the risks, many Filipinos still want to work as Overseas Filipino Workers (OFWs) because they believe it is the best way to improve their own and their families' lives. OFWs are the so-called modern heroes of our time. They leave their homes and work abroad to provide for their families, thus contributing to the growth of our country's economy. The Philippines has grown to be a significant source of foreign migrants and one of the primary suppliers of labor to other nations across the globe. For decades, significant numbers of Filipinos have left our country in quest of long-term residence or temporary employment abroad, which has long been attributed to the country's weak economy (Asis, 2017).

In 2021, about 745,000 Filipino workers were deployed overseas, reflecting a 35 percent increase from the previous year. Currently, the number of OFWs across Countries continue to grow as the Philippine peso weakens over the dollar, which is a driving factor for more Filipinos to work abroad (Africa, 2022). A part of the globe that has thousands of Filipino workers is the Middle East. As of January 2020, there were an estimated 2,221,448 Filipinos in the Middle East Region, namely Kuwait, Saudi Arabia, the United Arab Emirates, Qatar, Jordan, Oman, Bahrain, and Lebanon (DFA, 2022).

Working abroad, such as in the Middle East, with a good employer is a dream. . come true to many OFWs, however, it also presents several downsides. Being an OFW is not as glamorous as it seems (Bautista & Tamayo, 2020). They get to travel to foreign lands, but they are always away from their families and friends. They must deal with new challenges, culture shock, and language barriers. They also deal with dangers and difficulties associated with working in a foreign country such as discrimination, work, and personal abuse. Legal protection for OFWs in Saudi Arabia and elsewhere in the Middle East is still woefully inadequate, so it is not surprising if Pinoys in general, are shocked

again and again by new cases of brutal rapes, abuses, or deaths (Conception, 2021). There has been 209 cases of sexual abuse and 31 cases of rape among Filipino migrant workers reported. While there are a lot of reforms in the Middle East, it does not include the household service workers (Ramos, 2021). OFWs around the world have various experiences and challenges which are often overlooked as every country has its own unique culture (Juan, 2009).

OFWs play an important role in the Philippine economy; however, the stories behind their work in different countries and cultures are often unheard of. Many studies have tried to explore the experiences of OFWs; however, experiences vary across countries where a worker is, and the world possesses diverse subcultures and values. The researchers have identified an apparent knowledge gap in prior research concerning the lived experiences of OFWs (Lester, 2019), which emphasized how important it is to comprehend subjective experiences to gain knowledge of people's motivations and choices. Apart from the challenges that the OFWs faced in the Middle East, little is known of the competencies they have acquired or the most common strategies they employed to deal with the challenges and difficulties they have experienced. This is essential for them to be able to adapt to circumstances, which will ultimately mold them over the long run (Cleofas et al., 2021).

This study aimed to know and understand the lived experiences of OFWs in the Middle East. Specifically, it seeks to answer the following questions: (1) What are the lived experiences of OFWs in the Middle East? And (2) What are the contexts of the experiences of OFWs in the Middle East?

Methodology

Research Design

This study used a qualitative research method, specifically phenomenology. It is a research design that is concerned with the lived experiences of

the participants. According to Creswell and Poth (2018), phenomenology intends to gain a deep understanding of a particular phenomenon and create meaning out of it. Creswell and Poth (2018) cited two types of phenomenology: hermeneutic and transcendental phenomenology. However, this study adopted transcendental phenomenology. It was the most appropriate for this study because it allowed the researchers to examine the what's and how's of the participants experiences.

Population and Sampling Techniques

The participants of this study were seven Filipino domestic helpers who have worked in the Middle East for at least two years. Purposive sampling was used as a sampling technique in choosing them, and the selection criteria adopted were: (a) having worked in the Middle East for at least two years; and (c) being willing to participate in the study. Three of the participants have worked in Saudi Arabia: two from Kuwait, one from Qatar, and one from Lebanon. In terms of their work experience as OFWs, two have worked for two years, four (4) for three years, and one for four years.

Data Gathering Method

This study made use of phenomenological interviews as a data collection method. To avoid losing relevant data and information, the researchers asked permission from the participants to record the interviews through audio recordings. A semi-structured interview was adopted in this study as it recalls the memories and reflections of the participants (Crotty, 1998).

Data Analysis

The data gathered were analyzed using Moustakas' (1994) phenomenological data analysis framework. The process began with the researchers writing down detailed descriptions

and explanations of the phenomenon. Before the analysis of the data, the researchers started putting aside their assumptions and preconceptions about the phenomenon being investigated. The data analysis steps followed were horizontalization, clustering into themes, writing textural descriptions of the experiences, writing structural descriptions of experiences, and doing a textural-structural synthesis to come up with the essence of the phenomenon. Moreover, the study adopted the six universal structures of lived experiences (Moustakas, 1994): time, space, bodily concerns, materiality, causality, and relationship towards oneself and others.

Ethical Consideration

To ensure that the study is free from any harm, particularly to the participants' aspects of life, the researchers secured permission from the research committee. They adhered to and rigorously followed all the committee's suggestions. The researchers requested permission from participants before starting the study. They were notified of the intention of the study, the nature of the study, the data collection procedure, how the findings will be used, and the estimated time spent conducting the study. They were granted the right to refuse or participate, and to secure their confidentiality, their identities were hidden using pseudonyms.

Results and Discussion

Experiences of Domestic Helpers in the Middle East

Based on the interview conducted, the following themes, meanings, and pieces of evidence from the informants emerged: Table 1 below presents the codes, categories, and themes under research question 1. The results show that Filipino domestic helpers abroad have varied experiences that fall under the universal structure of Moustakas.

Table 1*Experiences of Domestic Helpers in the Middle East*

Codes	Themes	Moustakas' Universal Structure
Suffering from Physical Assault Enduring Hunger Fighting Sleeplessness Shedding Lots of Tears Overcoming Homesickness Conquering Fear Dealing Verbal Abuse Battling Loneliness	Combatting the Challenges	Bodily Concerns
Managing Time Efficiently Counting the Passing of Time	Managing Time	Time
Bearing the Long Distance from Family Exploring Other Countries	Discovering the Distance	Space
Connecting with God Self-Grounded	Connectedness	Relationality
Appreciating Families' Support Appreciating Work Gratefulness to God	Gratefulness	Materiality
Poverty Enjoying relatively higher salary than in the Philippines	Financial Freedom	Causality

The study shows that Filipino domestic helpers experience varied challenges like battling with homesickness, suffering from physical and/or verbal abuse, conquering fear, battling with loneliness, and enduring hunger. They were, however, willing to take these risks to raise the standard of living of their families, who have been living in poverty. Other studies have found that the main reason for overseas workers to go through these agonies is for their families to avoid further hardships (Amrith, 2022; Camendan et al., 2022). The result implies that to survive or thrive working away from family overseas, one needs to be physically, emotionally, and spiritually fit. Most of the participants expressed gratitude for the support of their families, gratitude for the opportunity to have a job, and gratitude to God for His constant presence, protection, and provision. A growing body of research has found the positive effects of gratitude. It has a positive relationship with resilience and academic performance (Zainoodin et al., 2021), self-esteem, well-being, higher job performance, and favorable supervisor evaluations (Ward, 2016).

Context of the Lived Experiences of Filipino Domestic Helpers in the Middle East

Table 2 shows the context of the lived experiences of Filipino domestic helpers in the Middle East. This includes their realizations, learnings, pieces of advice to aspiring Filipino overseas workers, and their outlook for the future.

Table 2*Context of the Lived Experiences
of Domestic Helpers in the Middle East*

Codes	Themes
Resilience	Rising Above Adversities
Strong Faith in God	
Children to Finish Studies and Raising the Standard of Living	Maintaining Positive Outlook
Permanent Return to the Philippines:	
More Savings	Hoping for a Brighter future
Wise Spending	

The participants realized that their hard tasks were made more difficult due to the language barrier and the discriminatory treatment of their employers. Being looked down on as people with lower status in life, they were given orders to perform and expected to understand even if instructions were given in their employer's native language. They were required to work longer periods of time without rest periods or days off. Kath recounts that "the situation is so difficult because there are times that I cannot understand the tasks because I cannot understand what they said."

The physical exhaustion of doing daily chores was also magnified by emotional exhaustion due to missing their children and, many times, by giving up their personal needs and happiness to provide for the demands of their family members. Several studies also found discrimination, insufficient language proficiency, lack of cultural competency, poor working conditions, humiliation, social exclusion, and family disruptions to be the usual problems of OFWs.

The result implies that focusing on the reasons why they worked overseas in the first place made them persist and become resilient. Establishing a stronger faith in God gave them hope that their

circumstances would eventually change for the better. Their dreams for their children to be able to finish their studies and eventually land jobs that will help improve their standard of living kept them inspired to keep working abroad and enduring their difficult situations. A participant shared that she learned through her experience that "God's presence is real, and that He always provides and always abides." Another participant confirmed that it is "important to trust God because He is the only one who can provide solutions to our problems".

Faith has been recognized as a coping tool because it enables people to reappraise difficulties, give them significance, and reevaluate them as the path to redemption. In the study of Van der Ham and his colleagues, over 90% of the sample were identified as religious, and many emphasized the importance of prayer and religion in dealing with difficult circumstances. The participants shared that they learned to survive life's perplexities in another country through their faith. Other studies also recognize the importance of entrusting the workers' woes to God to give them a sense of control in handling their challenging situations (Humanitarian Organization for Migration Economics [HOME], 2015; Tuliao, 2014; Vander Ham et al., 2014). It was also found that religious affiliation is associated with high self-esteem, which helps shield workers from abuse and humiliation at work (Nakoncz & Shik, 2009).

Domestic helpers who recently returned home from abroad shared some tips and pieces of advice for those aspiring to be domestic helpers abroad. They mentioned the importance of saving more and spending wisely. Rose and Rhea learned not to send money regularly to their families in the Philippines, but instead they saved their earnings so that they had more money to bring when they came home.

Talisayon (2011) noted that saving is the primary motivation for OFWs to go abroad, but regrettably, they eventually succumbed to "unsound financial management," in which they failed to save even after the end of their contracts. He advised that a

strategy should be put in place for managing the needs of migrant workers' financial resources and savings to guarantee that the rewards of their labor won't be lost or wasted.

Essence

Overseas Filipino workers are hailed as modern heroes.

Yet sadness, anxiety, fear, and hunger were their dreaded foes.

Faith and confidence in the Almighty are their sure means to survive.

Concern and love for family are the very reasons they continue to thrive.

Leaving families behind in search of a better future.

Hoping someday their life will be on greener pasture.

Theoretical Framework Revisited

Garmezy (1991) developed a theoretical framework for resiliency. His triadic model advocated three categories of protective variables, including personal traits, a tight relationship with the family, and social support and structure outside of the immediate family. A person's intelligence and character are the main factors in creating resilience. Resilient domestic helpers show that they were persistent despite the adversities they faced. The second aspect of building resilience is one that includes receiving support from family during trying times. Domestic helpers expressed that support from their family and thinking of the welfare of their family helped them become resilient in times of stressful experiences. The third characteristic shared by resilient domestic helpers is divine assistance. Domestic helpers shared that they gave their full confidence to God to help them bounce back and maintain adaptive behavior in times of emotional distress. Garmezy's (1991) resiliency framework allows domestic helpers to determine various solutions and coping strategies when facing various life stressors.

Conclusion and Recommendation

Based on the analysis of the data gathered, the following conclusions were drawn:

Filipino domestic helpers in the Middle East are prone to different challenges, whether emotional, physical, or mental. Being distant from their families and loved ones is heartbreaking. They were piled up with too much workload while at the same time going through discrimination, exploitation, and much worse abuse. Being a domestic helper in a foreign land is not as easy as it seems. They must sacrifice their own health, comfort, and peace to be able to fully support their families. The utmost support of their families is therefore a vital aspect that motivates them to move forward despite the struggles they have encountered. Connection to oneself and to the Almighty is essential for domestic helpers to cope with the challenges they are faced with. Sporting an attitude of gratitude for everything helped them rise above their difficult circumstances.

Based on the findings and conclusions of the study, the following recommendations are brought to light: Government must initiate precautionary measures in assessing all recruitment agencies to ensure the safety of Filipino domestic helpers by preventing illegal agencies from operating. Moreover, they must promote solidarity between countries where Filipino domestic helpers ventured to foster relationships for the sake of advocating their rights as domestic helpers. OFW's are recommended to undergo training and seminars that will help them be prepared to cope with the physical, emotional, or mental stressors they will encounter in their work environment. Moreover, it is suggested that they abide by the legal measures so that, in times of conflict with their employers, the government can assist with their needs. A study could be conducted to thoroughly investigate how Filipino domestic helpers cope with the challenges they experience and what the pros and cons of being a domestic helper are in a quantitative setting.

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Effects of Short-Frequent and Long Practice on the Piano Skills of Music and Non-Music Majors

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This research study sought to find out the effects of short and long hours of practice on the piano skills of music majors and non-music majors to guide those who are taking piano lessons and struggling with their busy schedules. This experimental research used the purposive sampling technique and selected twenty participants, ten of whom are taking a Bachelor of Music in Music Education and ten are non-music majors from some of the faith-based institutions in the Philippines and other countries. The participants recorded their practice sessions and then sent them to the researchers, who observed and evaluated them using a rubric. The 5-point scale assessment was based on six criteria: clarity of phrasing, tempo and rhythm, accuracy of notes, technique (dexterity), and mastery. The data gathered were analyzed using ANOVA. The study showed that both music and non-music majors showed progress when practicing with short, frequent, and long sessions within the two-week span. Based on the analysis, there are mean differences between short-frequent practice and long practice. However, these differences are not statistically significant. Thus, both short-frequent practice and long practice had the same effect on the piano skills of music and non-music majors. For further study, it was suggested that a whole set of piano repertoires be included instead of just one piece to extend the practice time longer than one hour and the experiment period for more than two weeks, involving more participants to make the study more interesting.

Keywords: *short-frequent practice, long-but-once practice, music majors, non-music majors*

Success in learning any instrument involved regular practices as the main factor. There are some questions that arose about how one practices on a regular basis? Some studies say that practicing for a long period of time on the piano is an obvious way to reach an optimal result (Ericsson et al., 1993). Ericsson said that students who have spent hours of daily practice seem to be more successful than those who do not. However, he emphasized that it should come with deliberate practice as well, or else it would not lead to maximal result. As Haroutounian (2014) said, “to develop a skill, it requires a lot of repetition.”

There are several studies and articles that support the idea that short practices are more effective than longer hours of practice. Heifetz (Kageyama, 2020) talks about how to vary the length of daily practice from 1 to 8 hours, and the results suggest that there is often little benefit from practicing more than 4 hours a day; it actually begins to decline after the 2-hour mark. Kageyama (2020) says that he does not believe in practicing too much, and excessive practice is “just as bad as practicing too little.”

This research study seeks to find out if short-frequent practice in piano is more efficient or effective than long hours of practice. Though some short practices have already been studied, the aim of this study is to help music majors and non-music majors who are taking music lessons and are struggling with their busy schedules find possible solutions to cope and be more efficient in planning their schedule of practice so that they will be ready for their piano exam in time. This study benefits piano teachers by guiding their students to have more efficient and planned practice time.

Methodology

Research Design

The researchers used the experimental research design under quantitative research. The research refers to an in-depth detailed study of an individual or a small group of individuals (Hardesty et al., 2018).

Population and Sampling Techniques

The researchers used purposive sampling technique. According to Singh et al. (2018), purposive sampling is a non-random sampling. This sampling, also known as judgmental sampling design, is more dependent on the researcher's ability to select the participants that will provide relevant information to fulfill the objectives of the study (Etikan et al., 2017).

The researchers purposely selected twenty students. Ten of whom are taking Bachelor of Music in Music Education, and ten are non-music students from some of the faith-based institutions in the Philippines and others from outside countries. For the music majors, they should be from level 2 to 5 and have taken formal piano lessons for at least two years. For the non-music majors, they should be from level 2 to level 4 of piano and have taken formal piano lessons for at least two years.

The first five participants are music majors with piano levels 2b, 5a, 5b, 2a, and 5a, respectively, and are doing short-frequent practice, while the next five participants, who are also music majors with piano levels 3b, 5a, 5a, 3a, and 5b, respectively, are practicing with long-but-once practice. For the non-music majors, the first five participants with piano levels 3b, 5a, 4b, 3a, and 4a, respectively, are doing short-frequent and the next five participants with piano levels 3a, 3a, 3b, 5a, and 4a are doing long-but-once practice.

Instrumentation

Several studies have been done to investigate the topic of practice and practice strategies but were unable to gather accurate results by using surveys and questionnaires. The respondents yielded conflicting responses (Chen, 2015). The researchers gave each experimental group a practice log with written instructions for each experimental group to record their practice sessions. Participants were required to send video recordings of them playing the given piece for the

first time, another video on the fourth day and first day of the second week, and another video recording of them playing the same piece at the end of the three weeks period.

Through observations, the researchers may learn about what they are trying to observe that the participants may have difficulty talking about in interviews (Kawulich, 2012). Studying about practice would be difficult with just interviews and questionnaires. Firsthand experience with a setting allows researchers to be open to discovery and inductive reasoning rather than guessing what the context is like (Bryant, 2016). The observation method is really the most appropriate method to use in this study. After observations are done, the researchers evaluate the participants' performances using rubrics.

Table 1

Profile of Music Majors Participants

Pseudonyms	Sex	Distinction	Strategy	Year Level	Piano Level
Cel	Male	Music Majors	Short-frequent	2 nd year college	2b
Mar	Female	Music Majors	Short-frequent	1 st year college	5a
Ann	Female	Music Majors	Short-frequent	2 nd year college	5b
Kay	Female	Music Majors	Short-frequent	1 st year college	2a
Mil	Female	Music Majors	Short-frequent	1 st year college	5a
Nar	Female	Music Majors	Long-but-once	1 st year college	3b
Gle	Male	Music Majors	Long-but-once	2 nd year college	5a
Yi	Female	Music Majors	Long-but-once	2 nd year college	5a
Lei	Female	Music Majors	Long-but-once	2 nd year college	3a
Mir	Female	Music Majors	Long-but-once	1 st year college	5b

Table 2

Profile of Non-Music Majors Participants

Pseudonyms	Sex	Distinction	Strategy	Year Level	Piano Level
Qui	Male	Non-Music Majors	Short-frequent	2 nd year college	3b
Eli	Female	Non-Music Majors	Short-frequent	6 th grade primary	5a
Enn	Male	Non-Music Majors	Short-frequent	9 th grade primary	4b
Kei	Female	Non-Music Majors	Short-frequent	4 th grade primary	3a
Jes	Female	Non-Music Majors	Short-frequent	7 th grade primary	4a
Cla	Male	Non-Music Majors	Long-but-once	10 th grade junior high	3a
Kee	Male	Non-Music Majors	Long-but-once	5 th grade primary	3a
Nic	Female	Non-Music Majors	Long-but-once	8 th grade junior high	3b
Zo	Female	Non-Music Majors	Long-but-once	11 th grade senior high	5a
Len	Female	Non-Music Majors	Long-but-once	12 th grade senior high	4a

Data Analysis

The video recordings were observed and analyzed by the researchers. The researchers evaluated the practice sessions of each respondent by using a rubric.

The objective of the rubric system is to assess how much improvement the respondent gained using the practice strategies. The assessment was based on six criteria: clarity of phrasing, tempo, and rhythm; accuracy of notes; technique (dexterity); and mastery. It was rated on a 5-point scale. 1, for no sign of

progress, 2 for little progress, 2 for moderate progress, 4 for progress that is evident, and 5 for progress that is a lot. The data gathered were analyzed using factorial ANOVA.

Ethical Considerations

Ethical consideration is vital in every research project. Therefore, there are a few steps considered by the researcher to protect the participants' identity and integrity. First, the researcher secured clearance from the Ethical Review Board (ERB). After the approval, the researchers started their data gathering. The researchers maintained confidentiality throughout the observation process. First, the researcher individually contacted the teachers of each participating respondent to ask permission for the participation of their particular student in this study. Upon the permission of the teacher, the researcher then proceeded to contact the participants to ask them to participate in this study, and all the objectives and goals of the study were once again explained to them. Participants were given some time to give their responses. Once participants agreed to participate, the researchers gave detailed instructions to each respondent individually. Participating in this study was voluntary. Participants may think about the invitation to participate before deciding. They may say "yes" now and change their mind later. Since the participants consisted of international participants, it is important that the researchers respect any cultural values and differences that exist yet still be professional in interacting with the participants.

Results and Discussion

Table 3 shows the average score on the piano skills of Group A participants after undergoing two weeks of piano practice. According to the results, non-music majors who practiced less frequently had the highest mean score on dexterity skills, with a mean score of 14.40, followed by dynamics and accuracy of notes, both with mean scores of 12.60. Mastery of the piece has the lowest mean score, which is 8.00. The overall average score for piano skills is 11.833, with a standard deviation of 1.223, which is verbally interpreted as *very good*.

Table 3

Average Score and Verbal Interpretation on the Piano Skills of Group A

Piano Skills	N	Mean	SD	Verbal Interpretation
Clearness of Phrasing	5	12.40	1.817	Very Good
Tempo and Rhythm	5	11.00	1.000	Very Good
Dynamics	5	12.60	2.302	Very Good
Accuracy of Notes	5	12.60	1.517	Very Good
Dexterity	5	14.40	1.517	Very Good
Mastery, Musicality, and Stylistic Interpretation	5	8.00	1.000	Good
AVERAGE	5	11.833	1.223	Very Good

Table 4 shows the average score on the piano skills of Group B participants after undergoing two weeks of long-but-once piano practice. According to the results, the non-music majors who practiced long-but-once piano practice seem to have improved their dexterity too, with mean score of 14.80, a little bit higher than the participants in Group A. Dynamics and accuracy of notes have the same mean score value, with 14.40 as the second highest, followed by clarity of phrasing with mean score of 14.20. The overall average is 13.100, with a standard deviation of 1.223, which is verbally interpreted as *very good*. Among the four groups, Group B is the most improved, with the highest mean score of 13.10.

Table 4*Average Score and Verbal Interpretation on the Piano Skills of Group B*

Piano Skills	N	Mean	SD	Verbal Interpretation
Clearness of Phrasing	5	14.20	3.271	Very Good
Tempo and Rhythm	5	12.80	3.033	Very Good
Dynamics	5	14.40	2.302	Very Good
Accuracy of Notes	5	14.40	2.966	Very Good
Dexterity	5	14.80	1.304	Very Good
Mastery, Musicality, and Stylistic Interpretation	5	8.00	2.000	Good
AVERAGE	5	13.100	1.223	Very Good

Table 5 shows the average score on the piano skills of Group C participants after undergoing two weeks of short, frequent piano practice. According to the results, this group seems to have more improvement in dexterity with a mean score of 14.80. The second skill that has been improved is dynamics, with a mean score of 14.00, followed by tempo and rhythm, with mean scores of 13.60. This group progressed with an overall average of 12.867 and a standard deviation of 1.738, which was verbally interpreted as *very good*.

Table 5*Average Score and Verbal Interpretation on the Piano Skills of Group C*

Piano Skills	N	Mean	SD	Verbal Interpretation
Clearness of Phrasing	5	13.00	2.121	Very Good
Tempo and Rhythm	5	13.60	1.673	Very Good
Dynamics	5	14.00	2.345	Very Good
Accuracy of Notes	5	13.40	2.191	Very Good
Dexterity	5	14.80	2.280	Very Good
Mastery, Musicality, and Stylistic Interpretation	5	8.40	1.817	Good
AVERAGE	5	12.867	1.738	Very Good

Table 6 shows the average score on the piano skills of Group D participants after undergoing two weeks of long-but-once piano practice. According to the results, accuracy of notes seems to be the most improved skill with 14.40 mean score, followed by clarity of phrasing with 14.20 mean score, and then dexterity with 13.60 mean score. This group has the most improved skills for mastery, musicality, and stylistic interpretation among the four groups, with 9.00 mean score. The overall average is 12.733 with standard deviation of 1.441, which is verbally interpreted as *very good*.

Table 6*Average Score and Verbal Interpretation on the Piano Skills of Group D*

Piano Skills	N	Mean	SD	Verbal Interpretation
Clearness of Phrasing	5	14.20	0.837	Very Good
Tempo and Rhythm	5	12.60	1.673	Very Good
Dynamics	5	12.40	3.647	Very Good

[table continues on the next page]

Accuracy of Notes	5	14.40	0.548	Very Good
Dexterity	5	13.80	2.168	Very Good
Mastery, Musicality, and Stylistic Interpretation	5	9.00	1.581	Good
AVERAGE	5	12.733	1.441	Very Good

Each group of participants has different results on what is the most improved skill, yet all participants showed progress. There is a slight numerical difference in the overall average of each group, with 11.833 mean score as the lowest and 13.100 mean score as the highest, which falls into the range of 10 to 14 and is interpreted as very good performance. Practicing every day makes progress on the piano skills. According to Bartrum (2016), productive practice after student's piano lessons and making it a routine will make students realize that it is quicker and easier for them to learn as the day goes by.

Tables 7 and 8 show the comparison of the statistics between students who practiced for short-frequent practice and long-but-once practice. This is to see if the practice frequency has an effect on the piano skills of the participants.

Table 7

Comparison on the Mean Between Short-Frequent and Long Practice

Piano Style	Practice	N	Mean	SD	t	p	Interpretation
Clearness of Phrasing	Short-Frequent	10	12.70	1.889	-1.614	0.124	Non-Significant
	Long Practice	10	14.20	2.251			
Tempo and Rhythm	Short-Frequent	10	12.30	1.889	-0.424	0.677	Non-Significant
	Long Practice	10	12.70	2.312			
Dynamics	Short-Frequent	10	13.30	2.312	-0.082	0.935	Non-Significant
	Long Practice	10	13.40	3.062			
Accuracy of Notes	Short-Frequent	10	13.00	1.826	-1.630	0.120	Non-Significant
	Long Practice	10	14.40	2.011			
Dexterity	Short-Frequent	10	14.60	1.838	0.372	0.714	Non-Significant
	Long Practice	10	14.30	1.767			
Mastery, Musicality, Stylistics Interpretation	Short-Frequent	10	8.20	1.398	-0.419	0.680	Non-Significant
	Long Practice	10	8.50	1.780			

Table 7 shows the mean difference between short-frequent practice and long-but-once practice for each piano skill that was evaluated. The number of participants from both music and non-music majors who practiced short-frequent and participants who practiced long-but-once practice was combined, changing the value of N to 10. Each piano skill shows a numerical difference in their mean score between short-frequent and long-but-once practice. However, using the t-value in Table 8, the significant value ranges from 0.120 as the lowest to 0.935 as the highest, and they are all greater than 0.05. The significance level being considered whether to reject or not reject the null hypothesis was 0.05 and 0.01. The accuracy of notes has the smallest significant value, yet it is still outside the range of being called significant. Since all the significant values are greater than 0.05, it is therefore considered non-significant.

Table 8*The T-value with Equal Variances Assumed*

Piano Skills	Condition	t-value	df	Sig (2-tailed)	Mean Difference
Clearness of Phrasing	Equal variances assumed	-1.614	18	0.124	-1.500
Tempo and Rhythm	Equal variances assumed	-0.424	18	0.677	-0.400
Dynamics	Equal variances assumed	-0.082	18	0.935	-0.100
Accuracy of Notes	Equal variances assumed	-1.630	18	0.120	-1.400
Dexterity	Equal variances assumed	0.372	18	0.714	0.300
Mastery, Musicality, stylistic Interpretation	Equal variances assumed	-0.419	18	0.680	-0.300

Table 8 shows the t-value with equal variances assumed. This value is used to interpret the data in Table 7. According to the results, there is no significant difference between short-frequent practice and long-but-once practice. The researchers came to the conclusion that there is no effect of frequency of practice on the piano skills of the piano students in the faith-based university and other institutions in Silang and faith-based academy in Caloocan or from outside the country. This result contradicts the opinion of Ebbinghaus (1964), as stated by Roediger (1985), who said that memory is retained when doing things with frequent breaks. However, this also extends his opinion and theory about forgetting curve because, according to the results, piano students still gave the same effects not only to short-frequent practice but also to long-but-once practice.

Tables 9 and 10 show the analysis of the comparison of piano skills between non-music majors and music majors. Music and non-music majors are being compared to see if there is a significant difference in their piano skills after undergoing piano practice for two weeks.

Table 9 shows the comparison mean score of music and non-music majors for each piano skill that was evaluated. There are 10 music majors and 10 non-music majors who participated in the study. Each piano skill shows numerical difference in its mean score between music and non-music majors. Music majors seem to have higher mean score on clarity of phrasing, tempo and rhythm, accuracy of notes, mastery, musicality, and stylistic interpretation, while non-music majors seem to have higher mean score on dynamics and dexterity. However, using the t-value in Table 10, the significant value ranges from 0.202 as the lowest to 0.807 as the highest, and they are all greater than 0.05 value. Since all the p values are greater than 0.05, which is not significant, the null hypothesis is not rejected.

Table 9*Comparison of the Mean Between Non-Music Majors and Music Majors.*

Piano Style	Practice	N	Mean	SD	t	p	Interpretation
Clearness of Phrasing	Non-Music Majors	10	13.30	2.669	-0.303	0.766	Non-Significant
	Music Majors	10	13.60	1.647			
Tempo and Rhythm	Non-Music Majors	10	11.90	2.331	-1.325	0.202	Non-Significant
	Music Majors	10	13.10	1.663			
Dynamics	Non-Music Majors	10	13.50	2.369	-0.248	0.807	Non-Significant
	Music Majors	10	13.20	3.011			
Accuracy of Notes	Non-Music Majors	10	13.50	2.415	-0.437	0.667	Non-Significant
	Music Majors	10	13.90	1.595			

[table continues on the next page]

Dexterity	Non-Music Majors	10	14.60	1.350	0.372	0.714	Non-Significant
	Music Majors	10	14.30	2.163			
Mastery, Musicality, Stylistics Interpretation	Non-Music Majors	10	8.00	1.491	-1.000	0.331	Non-Significant
	Music Majors	10	8.70	1.636			

Table 9 shows the comparison mean score of music and non-music majors for each piano skill that was evaluated. There are 10 music majors and 10 non-music majors who participated in the study. Each piano skill shows numerical difference in its mean score between music and non-music majors. Music majors seem to have higher mean score on clarity of phrasing, tempo and rhythm, accuracy of notes, mastery, musicality, and stylistic interpretation, while non-music majors seem to have higher mean score on dynamics and dexterity. However, using the t-value in Table 10, the significant value ranges from 0.202 as the lowest to 0.807 as the highest, and they are all greater than 0.05 value. Since all the p values are greater than 0.05, which is not significant, the null hypothesis is not rejected.

Table 10*The T-Value with Equal Variances Assumed*

Piano Skills	Condition	t-value	df	Sig (2-tailed)	Mean Difference
Clearness of Phrasing	Equal variances assumed	-0.303	18		-1.500
Tempo and Rhythm	Equal variances assumed	-1.325	18		-0.400
Dynamics	Equal variances assumed		18		-0.100
Accuracy of Notes	Equal variances assumed		18		-1.400
Dexterity	Equal variances assumed		18		0.300
Mastery, Musicality, stylistic Interpretation	Equal variances assumed		18		-0.300

Table 10 shows the t-value with equal variances assumed. This value is used to interpret the data in Table 9. Since the significant value is greater than 0.05, it means there is no significant difference in piano skills between non-music majors and music majors. According to the results, even though music majors are more improved in four of the piano skills that were evaluated, while non-music majors are more improved in only two of piano skills that were evaluated, this does not make music more superior than non-music majors. Statistically, there were no significant differences between music majors and non-music majors in this study. Regardless of the group of participants, whether they are music majors or non-music majors, they are all obliged to practice daily for the improvement of their piano skills.

Frequency of Practice and Its Effects to the Piano Skills of Music and Non-Music Majors

Table 11*Tests Between-Subject Effects with Piano Skills as the Dependent Variable*

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Frequency	1.606	1	1.606	0.569	0.462
Category	0.556	1	0.556	0.197	0.663
Frequency*Category	2.450	1	2.450	0.868	0.365

R Squared = 0.93 (Adjusted R Squared = 0.77)

The result showed that frequency did not interact with the effects of category (music and non-music major) on piano skills. All the significant values are greater than 0.05. This further implied that the frequency of practice did not matter whether an individual is a music major or non-music major in improving piano skills. This means that the two variables, frequency and category, are independent of the improvement of piano skills among participants.

The study shows that both music and non-music majors showed progress when practicing with short-frequent and long practice within the two-week span. Some piano students seemed to have made great progress on the first week and then maintained it until the second week, while others really showed slow progress while progressing continuously until the second week. However, all participants showed progress in their piano performances through video recordings. All data were recorded in a table upon evaluation.

Based on the recorded data after evaluation, numerically, there are mean differences between short-frequent practice and long-but-once practice. However, statistically, there are no significant differences between short-frequent and long-but-once practices. This brings to conclusion that both short-frequent practice and long-but-once practice had the same effect on the piano skills of music and non-music majors. It is not only short-frequent practice that makes progress but long-but-once-to-make the same progress.

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Content Analysis of Online News Coverage and Public Opinion on the Levels of Community Quarantine During COVID-19

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The COVID-19 pandemic has demonstrated how unprepared the public was in terms of health crisis response and pandemic management. This study sought to determine how online news coverage framed various levels of community quarantine as well as the public's opinion at the onset of COVID-19, using Entman's four functions of frames. Qualitative content analysis was used on the data gathered. To determine the online news coverage frames, this study collected five news articles uploaded on Facebook for each of the levels of community quarantine, and for online public opinion, 10 public comments left on each article were gathered. This study revealed that during the peak of community quarantine, regardless of the level, internet news sources primarily used media to echo authorities' accounts, such as announcements and quarantine-level pronouncements, and to disseminate information to the public. On the other hand, online public opinion produced frames such as government incompetence, calls for improved government action, and public discipline concerns. The study highlights the need for continued attention and support in various development communication fields and disciplines, such as educational communication, health and health risk communication, science communication, and public information.

Keywords: *online news coverage, online public opinion, community quarantine, COVID-19, media framing*

Governments all around the globe adopted various approaches and strategies and imposed strict restrictions to fight against the spread of the COVID-19 pandemic. Restricting people's activities, thus decreasing contact risk, was a common solution, although what one could or could not do varied greatly among countries (Hirsch, 2020).

In the Philippines, community quarantine and policy actions were implemented with the goal of preventing the spread of COVID-19. It does, however, have far-reaching economic, educational, and societal consequences (Bayani & Tan, 2021). It has forced the public to stay at home, forced businesses to close, and displaced millions of Filipinos from their jobs. According to a study conducted by Pastor (2020), it was found that Filipinos faced a number of issues as a result of the strict community quarantine.

During a pandemic, the public requires timely and accurate information about the symptoms of the disease and how to prevent it (Bastani & Bahrami, 2020). Nowadays, social media is frequently viewed as a quick and efficient platform for finding, sharing, and disseminating health information to the public (Zhou & Zhang, 2017). Furthermore, social media serves as an important informal data source for identifying health information that has not been reported to medical officers or health departments, as well as for uncovering or sharing perspectives on any life-threatening health-related issues (Charles-Smith et al., 2015). Statista (2022) reported that Facebook remains as the top social media platform used in the Philippines.

In Development Communication, public opinion is one of the most common forms and bases of social or public participation, which is fundamental to democracy. Public participation helps to democratize the governing process by conveying information about public needs and demands from the public to policymakers and implementers, and vice versa. It also encourages responsiveness to public needs and facilitates policy implementation and community development processes (Masango,

2002). In a study conducted by Page and Shapiro (1983), they found indications that public opinion is frequently a direct cause of policy, influencing policy more than policy influences public opinion. This finding of substantial coherence between opinion and policy, combined with evidence that opinion tends to change or move before policy more than vice versa, suggests that changes in opinion are important as they also cause or influence changes in policy.

Concerns about infectious disease outbreaks such as SARS, pandemic influenza, and other pandemics have heightened the need to better understand people's opinions toward quarantine and other social distancing measures (Tracy et al., 2009). However, most studies on news coverage and public opinion have used traditional media; there is now a need to study online or new media. This study aims to learn about public attitudes and sentiments during the peak of the pandemic to gain a better understanding of the situation and provide data for future policymaking.

In this qualitative content analysis research, this study sought to deepen our understanding of how online media covered the community quarantine and what the public's general opinion was regarding it. This study aims to answer the following research questions:

RQ1: How did online media news frame the different levels of community quarantine during the COVID-19 pandemic according to Entman's four functions of frames?

RQ2: What were the public's opinions on the different levels of community quarantine during the COVID-19 pandemic, according to Entman's four functions of frames?

Theoretical Framework

The agenda-setting theory was employed in this study to analyze the importance of news framing and public opinion in public policy decisions. According to McCombs and Reynolds (2002), the media can impact public opinion by determining

which problems receive the greatest attention, and this has been widely explored and applied to many types of media.

McCombs and Shaw (1972) introduced their concept of media agenda-setting by quoting Cohen's (1963) epigram: "The press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about." The phrase "what to think" pertains to the traditional paradigm of persuasion and attitude change research, which includes the unconventional findings of relatively poor correlations between media exposure measures and attitude change. Later, McCombs and Shaw (1972) added a new component focusing on "what to think about"—an evaluation of the public agenda.

In this study, information is presented to viewers using a technique called media framing. The term "framing" was initially used by Goffman to refer to a technique for communicating, and he characterized it as a "schema of interpretation" that helps people to "locate, perceive, identify, and label" events or life experiences (Goffman, 1974). The mass media may well identify the key concerns by reflecting on what politicians are saying and the media may establish the "agenda" of the campaign (McCombs & Shaw, 1972). Framing provides compelling arguments that will influence the audience's mindset. Editors, newsroom workers, and broadcasters all have a significant role in determining the news that is chosen and presented to the public, in this case a global health crisis, which is the COVID-19 pandemic. The amount of information in a news piece and its position teach readers not just about a particular topic but also how much significance to assign to that subject.

Methodology

Research Design

This study employed the qualitative research method while implementing content analysis on the data gathered. Qualitative research aims to address questions concerned with developing an

understanding of the meaning and experience dimensions of humans' lives and social worlds (Fossey, 2002). According to Downe-Wamboldt (1992), content analysis is a research method that provides a systematic and objective means to make valid inferences from verbal, visual, or written data to describe and quantify specific phenomena. In this study, written data will be used.

Qualitative content analysis goes beyond merely counting words or extracting objective content from texts to examine meanings, themes, and patterns that may be manifest or latent in a particular text. It allows researchers to understand social reality in a subjective but scientific manner (Zhang & Wildemuth, 2009). Patton (2002) also defines it as any qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings.

Due to the nature of the study, which focuses on human communication, the qualitative content analysis offers practical applicability, promise, and relevance for research involving online public opinion and news coverage on community quarantine during the COVID-19 pandemic.

Sampling Technique

A purposive sampling technique was used in this study. The samples were chosen using the inclusion criteria set for both the online news article and the public comments. For the online news coverage, the researcher collected news articles uploaded on Facebook for each of the levels of community quarantine (a total of 20 articles were collected), and for the online public opinion, public comments left in each article were gathered (a total of 200 comments were collected).

Data Gathering Procedure

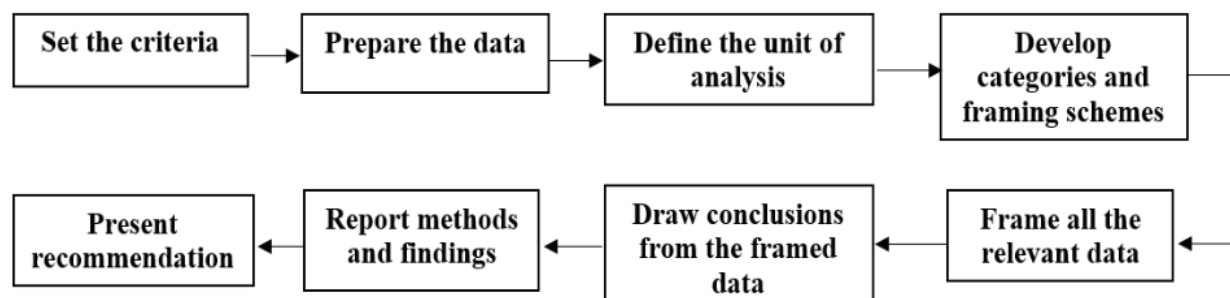
This study gathered online news articles, which served as the online news coverage and satisfied research question 1 (RQ1), and comments posted under those articles, which will be the basis for

the online public opinion and answer research question 2 (RQ2), about the different levels of community quarantine that were posted and published within the year 2020.

The qualitative content analysis comprises a set of systematic and transparent data processing procedures to ensure and support accurate and trustworthy judgments. These are the steps that were followed to satisfy both RQ 1 (online news media coverage) and RQ 2 (online public opinion) of this study. Figure 1 shows the steps employed, from gathering data to making recommendations.

Figure 1

Steps Employed for Data Gathering and Presentation of Recommendations



The study considered four (4) ethical issues: ethical approval, reliability, content validity, confidentiality, and privacy protection. In this study, Entman's (1993) four functions of frames (i.e., [1] problem definition, [2] causal interpretation, [3] moral evaluation, and [4] treatment recommendation) were used as the basis for the frames that were formed and used for both the online news coverage (news articles) and the online public opinion (comments).

Ethical Considerations

This study secured an endorsement from the members of the Ethics Review Board of the Adventist University of the Philippines (AUP) Research Office before the start of information gathering to guarantee that the examination passes ethical considerations and norms. All the data gathered for the purpose of this study has been kept strictly confidential and used for academic purposes only.

Data Analysis: Qualitative Content Analysis

Units of analysis in framing studies are varied; they can include a word, metaphor, exemplar, catchphrase, depiction, or visual image (Gamson & Modigliani, 1989); a paragraph (Akhavan-Majid & Ramaprasad, 2000); or an article (Yang, 2003). This study used each news article and comment as the unit of analysis. Instead of coding the topic, theme, position, and tone of an article as is sometimes done (Yang, 2003), this study took framing devices into consideration and analyzed the gathered articles (RQ1) and comments (RQ2) as a whole.

After thoroughly reviewing the articles and public comments under those articles, the researcher determined which of Entman's four functions of frames was the primary function and which specific frame was used to fulfill that function for both the online news (RQ1) coverage and public opinion (RQ2).

To describe the sample of media coverage, each news report was coded according to its media identity and date of publication. To describe the sample of public opinion, each comment was coded according to its author.

Results and Discussion

Media frames were determined and used as the basis to analyze news coverage and public opinion. How online media news framed the different levels of community quarantine during the COVID-19 pandemic for RQ1 and the public's opinions on the different levels of community quarantine during the COVID-19 pandemic for RQ2. With Entman's four functions of frames as a basis, fifteen (15) recurring frames were identified from the news articles that were gathered. These frames were also used for online public opinion. Each frame was evaluated to determine which function it belonged to. This was used in the analysis of all the data that was gathered.

Online Media News Frames: According to Entman's Functions of Frames

RQ1 has sought to find out how online media news framed the different levels of community quarantine during the COVID-19 pandemic. This study was able to gather 20 online news articles that were published on Facebook. They were the only articles that fit all the inclusion criteria.

As shown in Table 1, online news/media outlets were able to employ limited frames to discuss matters regarding the different levels of community quarantine during the onset of the COVID-19 pandemic.

Table 1

Online Media news frames in the levels of community quarantine during COVID- 19

FRAMES	ECQ	GCQ	MECQ	MGCQ
[1] Problem definition				
1. Authorities' account	✓	✓	✓	✓
[2] Causal interpretation				
[3] Treatment recommendation	✓	✓	✓	✓
2. Modify protocols				
	✓		✓	
3. Extension of quarantine				
[4] Moral evaluation				

Authorities' Account

The top recurring frame was the "authorities account" frame, which indicates that media coverage framed the online news articles published regarding the levels of community quarantine using the authorities' statements, decisions, or proclamations.

This result shows that during the onset of the COVID-19 pandemic, media coverage was mostly utilized to distribute announcements, statements, and public information. Because facts are necessary to describe the nature of the COVID-19 pandemic and the need for community quarantine, the media used the approach of echoing the declarations and statements of the authorities (Zhou & Moy, 2007).

Examples of these are articles reporting about Duterte's order that Luzon would be subject to 'enhanced community quarantine' (EA1), articles reiterating the palace's statement that there will no more be cash aid for poor families in areas where ECQ has already been lifted (EA4), and Duterte's proclamation that Cebu City would stay under ECQ (GA5)

However, a study conducted by Asp (2007) argues that the job of the news media, particularly in democratic nations, is to contribute to free opinion formation by informing citizens and evaluating those who govern. In this regard, they must present different points of view, provide information about issues, and expose misconduct.

Modify Protocols

With respect to the treatment recommendation function, some online news articles called for the modification of health protocols, either to implement stricter protocols or to loosen lockdown restrictions, for varying reasons.

“Areas under modified ECQ, GCQ after May 15” (MGA4)

“Modified’ GCQ also a possible scenario in Metro Manila by June 1 — MMDA”

The implementation of different quarantine measures or levels with a corresponding degree of rigidity is necessary to keep the number of cases at bay while minimizing the negative economic impact of the pandemic (Talabis et al., 2021).

Extension of Quarantine

The extension of the quarantine frame also emerged as part of the treatment recommendation function. There were articles reiterating the statements of officials with the intent to extend the quarantine to mitigate the rising cases of COVID-19. Paranaque Mayor Edwin Olivarez, the Metro Manila council’s chairman, stressed the need for a 15-day extension to prevent a “second wave” of COVID-19 infections in the country.

“Lawmaker calls for a 30-day extension of Luzon-wide quarantine” (EA3), “MECQ extension encouraged as PH may lose gains in COVID-19 fight” (MEA4)

Even though they were written and released by different media sites, news articles that were published had the same frames. Results show that regardless of the level of community quarantine, online news coverage was only able to employ functions 1 and 4, problem definition and treatment recommendation, respectively. On the other hand, functions 2 (causal interpretation) and 3 (moral evaluation) were given relatively no importance in the news coverage.

Online Public Opinion: According to Entman’s Functions of Frames

This section determines the online public opinion regarding the levels of community quarantine during the onset of the COVID-19 pandemic. A total of 200 comments left under the online news articles were gathered as data, as they fit the criteria that were set. As shown in table 2, there are 14 online public opinion frames that were drawn from the data. There were frames drawn from all functions of frames, with the most number coming from the treatment recommendation function.

Table 2

Online public opinion frames on the levels of community quarantine during COVID-19

FRAMES	ECQ	GCQ	MECQ	MGCQ
Problem definition				
1. “Behind-the- scenes”/ people’s stories	✓	✓	✓	✓
2. Public dissatisfaction	✓	✓	✓	✓
Causal interpretation				
3. The government’s abuse of power and corruption	✓	✓	✓	✓
4. Public disobedience	✓	✓	✓	
5. Government incompetence	✓	✓	✓	✓
Treatment recommendation				
6. Modify protocols	✓	✓	✓	✓
7. Extension of quarantine	✓	✓	✓	✓
8. Improve government response	✓	✓	✓	✓

[table continues on the next page]

9. Extension of quarantine	✓	✓	✓
10. Improve communication	✓	✓	✓
11. Public discipline & obedience		✓	
12. Support healthcare workers			✓
13. Vaccination		✓	
Moral evaluation			
14. Social Inequality			✓

“Behind-the-scenes”/ people’s stories

“Behind-the-scenes”/people’s stories are a recurring frame, especially in MGCQ. There were multiple comments gathered by people describing their own experiences and situations during the COVID-19 pandemic and community quarantine.

A commenter shares that it is unfair for them not to receive the 2nd wave of SAP just because they are already under GCQ (MGO36). While another was hoping to still be included in the 2nd wave (of government aid) even though ECQ has been lifted already since no one has been able to work yet (MGO32).

In contrast to the authorities account frame, a different approach to defining the issue is to investigate and question the facts and propose alternative “behind-the-scenes” stories, the accounts from the perspective of the people (Zhou & Moy, 2007).

Public Dissatisfaction

The most relevant public opinion frame in both MECQ and MGCQ is the public dissatisfaction frame. Several comments expressed the public’s dissatisfaction and disappointment during the pandemic.

A commenter stated that they were not given subsidies since they had just transferred to Makati. Their finances have already been drained, and they don’t know how they can pay their bills since they are under “no work, no pay” (MEO9). Another commenter shares that they are also under “no work, no pay” and were just offered cash advances from their companies. They haven’t received

anything from DOLE or SSS since their company is a large taxpayer, and they are now in debt to their employers (MEO11).

According to de Pedraza et al. (2020), job-related changes caused by COVID-19, such as revenue loss and increased or decreased workload, restrictions on mobility and the obligation to wear protective gear in public, the growing number of verified COVID-19 cases, increased discontent, and anxiety.

Under MGCQ, the public showed their unrest, with 39 out of the 50 comments that were collected supporting this. One commenter expressed their disappointment when an official was seen going to the beach while most of the Filipinos were still under quarantine:

“As always, you have the audacity to call out people for misbehavior....please lead by example. This is a leisure activity that is really uncalled for at this trying times...” (MGO1)

“And then you’ll wonder why other Filipinos are afraid of the law in other countries, but do not follow the rules here in the Philippines. Who would follow the law if the officials were like that...” (MGO4)

The Government’s Abuse of Power and Corruption

The government’s abuse of power and corruption frame was also one of the most frequent frames that were depicted during MGCQ. There were numerous comments about how the authorities abused their power.

A commenter says that it is unfair that ordinary people are automatically detained when they violate the quarantine measure imposed in their area, while officials can enjoy going out leisurely and even have mañanita while under quarantine (MGO6). Here are some of the comments gathered that support this opinion frame:

“Immunity to all allies of Duterte. What a great 4 years. Receiving salary from Filipino workers. You should be ashamed to those who were detained due to violation of Quarantine protocols!” (MGO7)

“Our government teaches the whole people by its example. If the government becomes the law breaker, it breeds contempt for law; it invites every man to become a law unto himself; it invites anarchy.” (MGO10)

Beginning in early 2020, the development and spread of Covid-19 have had far-reaching effects on nearly the entire world population. There is a significant need to respond in increasingly complex global settings. However, it was discovered that government personnel abused their positions of influence (Salsabila et al., 2021).

Public Disobedience

One of the frequently seen frames in GCQ is the public disobedience frame, which shows how the public views their fellow Filipinos when they fail to abide by the health protocols that were imposed. According to Hapal (2021), the Philippines has one of the world's longest and strictest lockdowns, and the government relied on draconian measures such as police and military power, appreciating the virus as an “existential threat” and ultimately bringing the discourse that the country is at war against an “unseen enemy.”

This war-like narrative, however, unavoidably produced an enemy, the “pasaway,” which became the target of disciplining and policing. This was reflected in some of the comments that were gathered.

“It doesn't matter how much we try to be cautious if there are still hard-headed people who refuse to obey the protocols” (GO2)

“...to my fellow Filipinos, stay at home and stay safe; let us not be hard-headed...” (GO42)

Government's Incompetence

Out of all the comments left under articles regarding ECQ, 10 public opinion frames were present, and the top recurring frame was the government's incompetence. This health crisis has revealed how weak and insufficient our country's public health system is, and the public's opinion has been reflected in their comments.

A commenter compared how Macau and the Philippines managed their implementation of lockdown. They share how Macau's implementation of lockdown has been successful because the government has supported the people. The people then had no excuse to go out, as “they were already provided food, utilities, and other necessities.” “The Filipinos are insisting on going to work because they will starve otherwise... The government of Macau knows how to take care of their people. In the Philippines, the DOH budget was slashed by 10B when in fact it should be increased every year because of a growing population and inflation,” they further explain (EO8). Here are some of the comments shared by the public supporting this frame:

“You (government) should've already implemented lockdown before instead of declaring multiple extensions like this. There's a lot of people who are now suffering and hungry. (EO17)

“The government has not implemented the distribution of relief goods during this lockdown and people are already hungry. Extending for another month will put chaos on the rise.” (EO21)

“I should agree (with the extension of quarantine) but with no definitive action

from the government, our medical front liners still underequipped, and no mass testing yet, it could be just the first of many extensions. People are starving and their numbers will continue to grow, including those whose money and stocks of food depleted, and another problem will arise unrest. A quarantine is only successful if other factors are truly and fully addressed. if not, we are just being locked down to die” (EO30)

Another commenter asserts that the lawmaker’s proposition for a 30-day extension of Luzon-wide quarantine (EA3) does not favor most Filipinos, as a lot of them are working under minimum wage salaries and are desperately in bad shape since the government’s allocated funds or aid do not apply to everyone. They further explain that they are referring to the “government’s promises about financial assistance; there were only selected individuals who were entitled. as a better recommendation, those who want to stay at home, stay. others who is already empty handed and wants to go back to work should be allowed to resume. Not all the population can be supported by this government, let’s admit that.” (EO25)

The Philippine government’s response to the pandemic exposed deficiencies in the country’s public health infrastructure as well as underlying tensions between the president, executive agencies, and local governments (Espia et al., 2021).

Government Support

Another recurring frame in MECQ is the government support frame under treatment recommendation. During the onset of COVID-19 when people were forced to stay-at-home, and businesses were forced to shut down, a lot of people’s jobs and resources were threatened.

According to one commentator, if the government or authorities believed that extending

the lockdown could help reduce the spread of COVID-19, they should also consider allocating sufficient funds and relief goods to those families who will be severely affected (EO27). This sentiment was also reinforced by the comments that were gathered:

“Lockdown with compensation to workers. Or offer work at home with pay.” (EO22)
“Finally, they heed for healthcare workers. Hopefully they implement soon the additional benefits for HCWs because, after all this trials, they deserve it.” (MEO22)

This was further supported by a Pastor (2020) study, which revealed that Filipinos faced several issues as a result of the strict health protocols. The prevailing sentiment indicates that one of one’s essential needs, particularly their food supply and government support, is being threatened.

Modify Protocols

This recurring frame emphasizes the public’s opinion on the need to modify or extend the health protocols under ECQ. Seeing the pandemic’s impact, some raised their concerns about the necessity of adjusting the protocols, either to alleviate or establish more stringent protocols.

Some comments are saying that implementing enhanced community quarantine won’t be of any help and that they’d rather have the government declare a total lockdown before it’s too late. (EO6, EO7)

“If you’ll just extend ECQ by 15 days more, it would be better to just implement a total lockdown, because everything just feels normal; only the cars are gone, but the people are still going on with their lives like normal. The cases are rising, especially in Metro Manila.” (EO16)

“Economically, we cannot afford another ECQ extension. Survival is the name of the game. Let us keep safe and take good care of ourselves. God is merciful.” (GO32)

The government created various quarantine protocols, each with a corresponding degree of strictness, to restrict the impact of the COVID-19 pandemic through its Inter-Agency Task Force on Emerging Infectious Diseases. LGUs can employ any of these techniques, depending on the severity of the pandemic in their area, to reduce the number of illnesses and fatalities while minimizing the financial effects of the pandemic (Talabis et al., 2021).

Improve Government Response

Another recurring frame is the improved government response frame. The online public opinion demands improvements in the government's response and management measures in the event of a health crisis.

A commenter believes that isolation alone will not suffice and that we need mass testing, rigorous contact tracing, and prompt quarantine of positive carriers. (EO23) Another commenter shares their sentiment that extending ECQ (EA3) doesn't make sense as long as you don't test everyone; even a year of lockdown would not make COVID-19 go away. "We're basically playing the blind mice game. You can't stop something you can't see", they explain further. (EO24) Here are some comments that support this frame:

"Lockdown is not the solution but mass testing, just like what they've done in South Korea." (EO28)

"Mass testing, then quarantine high risk areas; prioritize the frontliners also."

"Quarantine and lockdown are not the only solutions. Make these available to keep the population safe: regular & accurate testing, tracing, facilities for isolation & treatment, and relevant assistance for quarantined folks." (MEO4)

According to a study by Abrigo et al. (2021), to effectively control the outbreak, aggressive measures must be taken in the post-ECQ period

to isolate at least 70% of infectious cases through improved contact tracing, social distance, individual or household isolation, and shorter wait times before seeking medical attention for symptomatic cases.

Extension of Quarantine

With no improvement in the government's response or health protocols in sight, the public believes that quarantine should be extended to reduce the risk of infection. This sentiment was reflected in the comments as well. Some commenters agree with the extension of ECQ due to the rising number of cases and deaths (EO41).

"In my opinion, we still need to extend the days of quarantine because infected cases of covid are still increasing. Going out now and making physical contact to everyone in public places will just make our sacrifices for the past few weeks go into waste..." (EO42)

"No to GCQ. Everybody wants to earn money, Especially those who are corrupt, but please extend MECQ even for just two weeks more until the cases drop!" (GO7)

Improve Communication

During MECQ, a frame that highlights the need for improved communication, especially during a pandemic, emerged. This is also reflected in the public opinion frames that emerged in the study. A commenter suggests that they'd rather have the experts or the one's speaking to the public use Tagalog, as the majority [of the people] are not literate, so that everyone may understand the message (MEO17). Here are some of the comments that share this sentiment:

"Please elaborate and simplify the guidelines of MECQ for everyone to understand and prevent misinterpretation." (MEO18)

"There should be representatives from third parties or associations to oversee how the data/entries are being tabulated at the

Department of Health (DOH) showing the total number of confirmed COVID-19 cases in the Philippines, number of Active Cases, the number of recoveries, and the number of Deaths so that the public will be apprised that all the proceedings and/or processes being conducted by the DOH are all above board. The said representatives from the NGOs will clear the doubts or uncertainties as to the accuracies or precision of the data/entries.” (MEO33)

This frame is also reinforced by a study by Barrantes (2009) that claims that the communication of important information during emergency situations to affected populations is critical.

Public Discipline and Obedience

The most frequently expressed online public opinion frame for GCQ is public discipline and compliance. This frame depicts the people's collective attitude that there is a need for the general population to truly obey and abide by the procedures put in place to combat the spread of COVID-19. This sentiment against those who do not abide by the protocols was also shown in the collective comments:

“We just have to be more careful and vigilant this time. Strictly follow preventive measures. We'll all go through this.” (GO11)

“We don't have a choice, follow the health protocol, and must cooperate. In these trying times, self-discipline is very important.” (GO12)

“Discipline. Courtesy. Policies are nothing if the people won't obey them.” (GO20)

This frame may also be associated with the “pasaway” discourse, in which public attention was focused on people who were not abiding by the declared health protocols, hence increasing the population's risk of infection (Hapal, 2021).

Support Healthcare Workers

The public has also shown their support for healthcare workers and expressed the need to support them during the pandemic with the emergence of the support healthcare workers' frame. A commenter states that mass testing and better equipment for our frontliners are needed and that the government should not only focus on lockdown (MEO39). During the pandemic, the public was able to appreciate the work of HCP's and see their plight, as seen in some of their comments.

“... I agree to give life insurance to medical frontliners, including free transport and accommodation and allowance for vitamins.” (MEO30)

“Yes, to medical quarantine. Support HealthCare Workers. God bless PH! End this pandemic.” (MEO27)

This frame is further supported by a study by Capili et al. (2022) that infers that healthcare professionals (HCP) underwent numerous changes during COVID-19 because of the rapidly changing environment, a lack of comprehensive strategies, and a shortage of both people and material resources.

Vaccination

Almost a year into the COVID-19 pandemic, the Philippines has yet to receive COVID-19 vaccines. The public's sentiments regarding the need for vaccines were made relevant, especially during MGCQ:

“...wait for the vaccine and don't be in a hurry” (MGO21)

“Low risk is not zero risk unless there is a vaccine” (MGO46)

Social Inequality

Lastly, the social inequality frame, the only frame that emerged under the 3rd function, which is moral evaluation from Robert Entman's 4 functions of frames, gained public attention during MGCQ.

“You are full of excuses when government officials violate quarantine protocols, but

when ordinary citizens fail to comply due to humanitarian reasons, you detain or kill them!" (MGO5)

"Expected from most people in government nowadays - no sense of accountability! Isn't it that public office is a public trust? Isn't it that there's such thing as accountability of public officials? No one is above the law. Let's not promote double standards. What applies to Juan shall apply to Harry!" (MGO 8).

This frame is further reinforced by a study conducted by Recio et al., (2021) that, in early April 2020, 21 residents of San Roque, an urban poor neighborhood in Manila, were jailed for expressing dissatisfaction and asking for food aid. While the national government provided cash assistance to the poorest families, urban poor groups complained that this was insufficient to cover the needs of families for more than three months of ECQ.

The qualitative content analysis used framing devices instead of codes and employed Robert Entman's four functions of frames to analyze the results. There were a total of 20 online news articles uploaded on Facebook that were used in the study as the basis for the online news media coverage, and 250 public comments were left under those articles as the basis for online public opinion. This study aimed to determine how online news coverage and public opinion framed the different levels of community quarantine during the onset of COVID-19 and use that as the basis for public policymaking.

Based on the results of the study, online news media primarily used news coverage for authorities' accounts. Online news articles regarding community quarantine found online were mostly used in the dissemination of public information, regardless of the level.

On the other hand, for each level of community quarantine, there were different recurrent online public opinion frames. For ECQ, most of the comments criticize the government's incompetence

and demand that the government's response be improved. While for GCQ, online public opinion focused on concerns of public discipline and the necessity of adherence to health protocols. For MECQ, the most frequently used frames demonstrate public displeasure and the urge for government support.

There were also recommendations for improved communication practices to lessen the confusion and unrest in the public. There were also recommendations for improved communication strategies to reduce public confusion and discontent. Lastly, for MGCQ, the most frequently recurring online public opinion frame is, again, public dissatisfaction.

Conclusion

Despite the study's limitations, the findings were able to emphasize the significance of understanding how media coverage framed the news on community quarantine and how public opinion was during the onset of COVID-19.

The study brings to light the need for continued attention and support in various development communication fields and disciplines, such as educational communication, health and health risk communication, science communication, and public information.

The study concludes that there is an immense need for the implementation of strengthened pandemic response and management strategies to address the public's growing and diverse needs. Additionally, this research demonstrated a lack of attention and disregard for the function of frames 2 (causal interpretation) and 3 (moral evaluation).

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Grit, Cognitive Flexibility and Self-Compassion as Predictors of Academic Anxiety

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Academic anxiety is the most common mental health problem experienced by students worldwide. Many of the studies on interventions for academic anxiety dealt with environmental and school factors, but little is known about psychological factors that may help address academic anxiety. This research focuses on exploring potential protective factors that may mitigate academic anxiety. Four well-established instruments were employed, namely the Cognitive Flexibility Inventory (CFI), Grit Scale (GS), Self-Compassion Scale (SCS), and Academic Anxiety Scale (AAS), to measure cognitive flexibility, grit, self-compassion, and academic anxiety, respectively. Data were gathered through an online form from a total of 306 randomly selected college students from three faith-based colleges in Luzon, Visayas, and Mindanao in the Philippines. The results revealed significant negative correlations between cognitive flexibility, grit, and self-compassion and academic anxiety. Furthermore, linear regression analysis assessed the unique contributions of cognitive flexibility, grit, and self-compassion in predicting academic anxiety. The model was statistically significant ($F = 31.1$, $p < 0.001$) and accounted for a substantial proportion of the variance in academic anxiety ($R^2 = 0.422$), particularly on cognitive flexibility and grit, but not on self-compassion. These findings have practical implications for educational institutions, emphasizing the importance of promoting psychological resources that could enhance student well-being and academic success.

Keywords: *cognitive flexibility, grit, self-compassion, academic anxiety*

Academic anxiety is a major problem experienced by university undergraduate students in developed and developing nations. In India, the National Crime Records Bureau registered that 1.8% of academically anxious students committed suicide due to failing examinations (Reddy et al., 2018). Moreover, in the Philippines, Alibudbud (2021), who conducted a cross-sectional study to determine whether academic experiences are one of the determinants of anxiety among Filipino students in Metro Manila, found that struggling to cope with studies significantly correlated to anxiety issues. As a result, the risk of anxiety is up to five times higher for students who struggle academically and experience difficulties coping with academics. As the academic workload for students increases, it adds complexity to the learning process (Sourav Choudhury & Sharma, 2020). Concerning academic anxiety-increasing factors, bachelor-level students frequently cited a lack of preparation, unsatisfactory grades, fear of failure, family obligations and pressure, the nature of the professor and the exam, a lack of time management skills, and a lack of study abilities as anxiety-inducing causes (Duraku, 2017). Given this, academic anxiety can thus be significant problem students often encounter.

Nevertheless, studies have shown that variables such as grit, cognitive flexibility, and self-compassion reduce students' levels of academic anxiety. Firstly, the relationship between grit and success has been investigated in various contexts and is known to be one of the predictors of success in college compared to SAT or IQ tests (Duckworth & Seligman, 2005). Other findings further reveal grit and academic anxiety to be inversely related (Celik & Saricam, 2016; Muenks et al., 2017; Xiao et al., 2021). Secondly, it was revealed that high school students exhibited a negative correlation between cognitive flexibility and academic anxiety (Kuyumcu & Kirazci, 2020). Thirdly, a study (O'Driscoll & McAleese, 2022) showed that self-compassion is a defense mechanism against academic anxiety in school-aged children. Thus, self-compassion is also

negatively correlated with academic anxiety. While grit, cognitive flexibility, and self-compassion are all negatively correlated to academic anxiety, the extent of the influence of self-compassion on grit and cognitive flexibility as predictors of academic anxiety has not been explored.

Methodology

Research Design

A descriptive-correlational design was used in this study. The methods were intended to prospect the relationships between cognitive flexibility, grit, academic anxiety, and self-compassion variables. The descriptive correlation method systematically describes the characteristics of the variables and the relationships that occur naturally between and among them (Sousa et al., 2007). Notably, regression analysis was used in providing the statistical relationships between variables as it helps with estimating the "linear relationship between continuous variables" (Bazdaric et al., 2021) and the value of one variable to another.

Population and Sampling Techniques

The respondents for this research study are undergraduate students from select faith-based tertiary institutions in the Philippines. The researchers utilized the purposive sampling technique in selecting the institutions for this study. These three institutions were comparable in terms of school population, course offerings, and geographical status. Furthermore, cluster random sampling was utilized in obtaining the respondents. Cluster sampling is commonly used to study large populations, especially those that are widely geographically dispersed. The clusters formed represented the entire population on a smaller scale, and when combined, they should have encompassed the characteristics of the entire population (Simkus, 2022). In this sampling technique, researchers divided a population into clusters, which were smaller groups. They then randomly selected a sample from these clusters (Thomas, 2022).

Instrumentation

To measure cognitive flexibility, grit, self-compassion, and academic anxiety, the following questionnaires were given: the Cognitive Flexibility Inventory (CFI), Grit Scale (GS), Self-Compassion Scale (SCS), and Academic Anxiety Scale (AAS). The following table shows the internal consistency of the scales. All items scored above 0.7 were considered acceptable Cronbach's alpha coefficients (Tavakol & Dennick, 2011).

Table 1

Scale Reliability Statistics of the Instruments

Scale	No. of Items	Cronbach's α	Interpretation
Cognitive Flexibility Inventory	20	0.87	Good
Grit Scale	12	0.78	Acceptable
Academic Anxiety Scale	11	0.85	Good
Self-Compassion Scale	26	0.89	Good

$\alpha \geq 0.9$ – Excellent | $0.9 > \alpha \geq 0.8$ – Good | $0.8 > \alpha \geq 0.7$ – Acceptable | $0.7 > \alpha \geq 0.6$ – Questionable | $0.6 > \alpha \geq 0.5$ – Poor | $0.5 > \alpha$ – Unacceptable

Following the pilot study, data collection took place through online administration after receiving approval from the Ethical Research Board of the Adventist University of the Philippines. A systematic and professional approach was employed, involving the issuance of endorsement letters to institution authorities, questionnaire distribution, and collection of completed questionnaires. Google Forms were utilized, with a shortened URL link provided to randomly selected participants within the clusters for questionnaire completion. Prior to sharing the link, the researchers sought permission from department chairs and obtained informed consent from participants through an embedded Google form. The data collection process spanned approximately one month. Subsequently, the collected data was encoded and forwarded to a statistician for analysis.

Analysis of Data

Descriptive statistics were utilized to measure the respondents' cognitive flexibility, grit, academic anxiety, and self-compassion profiles. Pearson correlation was used to determine the relationship between cognitive flexibility, grit, academic anxiety, and self-compassion. The Jamovi Statistical software was utilized for the analyses of the data.

Ethical Considerations

In this study, informed consent and confidentiality were ensured. Ethics concerning the participants' dignity, rights, and ability to make their own decisions maximized the benefits to the participants while minimizing the risks of various viewpoints (Barrow et al., 2022). The following ethical considerations were evaluated:

1. Consent Form: Before collecting the data, the participants received a consent form outlining the study they would partake in. Additionally, participants could withdraw from the study whenever they wanted.
2. Confidentiality: The researchers ensured their information was safe and the data was protected to maintain confidentiality.
3. Anonymity: The researchers did not include personal information about the participants besides sex, age, and their area of discipline.

Results and Discussion

Level of Cognitive Flexibility

Table 2 shows participants levels of cognitive flexibility. Each variable's mean, standard deviation, scaled response, and verbal interpretation are presented.

Table 2

Participants' Level of Cognitive Flexibility

	Mean	SD	Scaled Response	Verbal Interpretation
Total CF	3.39	0.51	Somewhat Agree	Moderate Cognitive Flexibility

Legend: N = 306; 1-1.80 – Very Low; 1.81-2.60 – Low; 2.61-3.40 – Moderate; 3.41-4.20 – High; 4.21-5.00 – Very High

The results indicate that the overall level of cognitive flexibility ($M = 3.39$; $SD = 0.51$) is moderate. This means that the participants have average cognitive flexibility. They can modify their behavior and thinking, focusing on essential information from a new task while excluding unimportant information from an earlier task. The highest mean is item #3 of the cognitive flexibility inventory, which states, 'I consider multiple options before making a decision.' ($M = 4.01$; $SD = .91$). Moreover, the lowest mean is item #2, which states, 'I have a hard time making decisions when faced with difficult situations.' ($M = 2.64$; $SD = 1.02$). These results imply that these undergraduates have good cognitive flexibility when considering multiple options before making decisions. They are relatively confident in their decision-making abilities, even when faced with difficult situations. In line with this, in the study of Laureiro-Martínez & Brusoni (2018), results showed that cognitive flexibility was positively related to adaptive decision-making, which refers to the ability to adjust decision-making strategies to fit changing environmental conditions. Individuals with higher levels of cognitive flexibility are better able to make decisions in uncertain or complex situations. They showed the importance of cognitive flexibility in decision-making, particularly when there is a need to consider multiple options and weigh several factors.

Level of Grit

Table 3 shows participants' level of grit. The mean, standard deviation, scaled response, and verbal interpretation were used.

Table 3

Participants' Level of Grit

	Mean	SD	Scaled Response	Verbal Interpretation
Total GRIT	3.14	0.47	Somewhat like me	Moderate Grit

Legend: N = 306; 1-1.80 – Very Low; 1.81-2.60 – Low; 2.61-3.40 – Moderate; 3.41-4.20 – High; 4.21-5.00 – Very High

The results indicate that the overall level of grit ($M = 3.14$; $SD = 0.47$) is moderate. It means that participants possess moderate grit for achieving long-term goals. They are likely to sustain effort towards their goals and persist in facing difficulties. When faced with challenges and setbacks, grittier individuals actively seek alternative solutions and are more likely to complete tasks (Duckworth & Gross, 2014).

Participants' Level of Self-compassion

Table 4 shows participant's level of self-compassion. The mean, standard deviation, scaled response, and verbal interpretation were used to aid the interpretation.

Table 4*Participants' Level of Self-compassion*

	Mean	SD	Scaled Response	Verbal Interpretation
Total Self-Compassion	3.12	0.44	Sometimes	Moderate Self-Compassion

Legend: $N = 306$; 1-1.80 – Very Low; 1.81-2.60 – Low; 2.61-3.40 – Moderate; 3.41-4.20 – High; 4.21-5.00 – Very High

The results indicate that the overall level of self-compassion ($M = 3.12$; $SD = 4.44$) is moderate. It means that the participants often try to be kind and understanding to themselves when confronted with difficult or challenging situations and when they feel they fall short of their expectations (Neff, 2003). Self-compassion is the ability to comfort oneself, refrain from negative self-talk, and instead engage in positive self-dialogue (Flett, 2018).

Level of Academic Anxiety

Table 5 shows the participant's level of academic anxiety, with the mean, standard deviation, scaled response, and verbal interpretation presented.

Table 5*Level of Academic Anxiety*

No.	Items	Mean	SD	Scaled Response	Verbal Interpretation
1	I often worry that my best is not as good as expected in school.	3.35	1.14	Quite Typical of Me	Moderate
2	I tend to put off doing school work because it stresses me.	2.93	1.18	Quite Typical of Me	Moderate
3	I often worry that I am not doing assignments properly.	3.25	1.15	Quite Typical of Me	Moderate
4	I am less confident about school than my classmates.	2.89	1.17	Quite Typical of Me	Moderate
5	I have a sense of dread when I am in my classroom.	2.64	1.17	Quite Typical of Me	Moderate
6	I tend to find my instructors intimidating.	2.54	1.23	Somewhat Typical of Me	Low
7	I spend much of my time at school worrying about what is next.	2.90	1.24	Quite Typical of Me	Moderate
8	There is something about school that scares me.	2.70	1.35	Quite Typical of Me	Moderate
9	I'm concerned about what my classmates think about my abilities.	3.08	1.28	Quite Typical of Me	Moderate
10	I often feel sick when I need to work on a major class assignment.	2.52	1.28	Somewhat Typical of Me	Low
11	I have a hard time handling school responsibilities.	3.04	1.17	Quite Typical of Me	Moderate
Total		2.89	0.81	Quite Typical of Me	Moderate Academic Anxiety

Legend: $N = 306$; 1-1.80 – Very Low; 1.81-2.60 – Low; 2.61-3.40 – Moderate; 3.41-4.20 – High; 4.21-5.00 – Very High

The results indicate that the overall level of academic anxiety ($M = 2.89$; $SD = .81$) is moderate. It means that the participants are experiencing a moderate amount of academic anxiety. They may feel worried, anxious, or stressed about their academic tasks, such as studying, taking quizzes or exams, or completing requirements. The highest mean is on item #1 of the academic anxiety scale, which says, 'I often worry that my best is not as good as expected in school' ($M = 3.35$; $SD = 1.14$), and the lowest mean is on item #10, which states, 'I often feel sick when I need to work on a major class assignment' ($M = 2.52$; $SD = 1.28$). It implies that undergraduate students may worry that their academic performance is not meeting expectations, even when they put in their best effort, impacting their academic performance. However, there is a low tendency that they may experience physical symptoms such as sickness due to their anxiety. Nadeem et al. (2012) support the idea that undergraduate students may worry about their academic performance and experience anxiety, which affects their academic success. Moreover, academic anxiety is common among college students, caused by their worry, distress, and fear related to their academic tasks (Zhang et al., 2022).

Relationships Between Cognitive Flexibility, Grit, Self-Compassion, and Academic Anxiety

The following tables (Tables 6, 7, 8, 9, and 10) show the significant relationships between cognitive flexibility and academic anxiety, grit and academic anxiety, cognitive flexibility and self-compassion, grit and self-compassion, and self-compassion and academic anxiety. Pearson's r was used in the correlation procedure. Table 6 presents the relationship between cognitive flexibility and academic anxiety.

Table 6

Relationship Between Cognitive Flexibility and Academic Anxiety

		Cognitive Flexibility	Academic Anxiety
Cognitive Flexibility	Pearson's r	—	
	p-value	—	
Academic Anxiety	Pearson's r	-0.455	—
	p-value	< .001	—

Table 6 demonstrates a significant inverse relationship between academic anxiety and cognitive flexibility. The relationship between cognitive flexibility and academic anxiety is moderately negative, with a Pearson's correlation value of -0.455. The significant relationship is indicated by a p-value of less than .001. Despite the moderate link, the inverse relationship shows that academic anxiety decreases as cognitive flexibility increases.

Several studies have revealed an inverse link between academic anxiety and cognitive flexibility (Kuloglu & Gorkem Orhan, 2021; Kuyumcu & Kirazci, 2020; Korhan et al., 2021). This association has been further examined as being attributable to how cognition influences students' information processing. According to Warriner-Gallyer (2019), poor shifting ability, linked to flexibility in thinking due to analyzing difficulties, increases academic anxiety. Processing attention may be difficult when one is academically anxious, so one may have trouble altering one's cognition. Furthermore, those who ruminate tend to have low cognitive flexibility scores, which affects their flexibility toward academics and may lead to unmanaged academic anxiety (Girard, 2022). As a result of how individuals absorb information, cognitive flexibility can potentially alleviate academic anxiety.

Table 7 presents the relationship between grit and academic anxiety. Accordingly, there is a significant inverse correlation between grit and academic anxiety. Pearson's r of -0.430 indicates a moderate correlation. It is significant because the p -value of the relationship is less than .001. Results suggest that grit reduces academic anxiety.

Table 7*Relationship Between Grit and Academic Anxiety*

		Cognitive Flexibility	Academic Anxiety
Cognitive Flexibility	Pearson's r	—	
	p -value	—	
Academic Anxiety	Pearson's r	-0.430	—
	p -value	<.001	—

Studies have revealed a relationship between academic anxiety and grit that is not positive (Celik & Saricam, 2016; Hoffert, 2017; Musumari et al., 2018). Academic anxiety reduces when grit levels do, and vice versa. Studies including third-grade students (Hoffert, 2017), Turkish children and teenagers (Celik & Saricam, 2016), and university students (Özhan & Boyaci, 2018) all have the same findings. Grit improves proficiency in a foreign language by increasing enjoyment and lowering anxiety (Liu & Wang, 2021). It demonstrates that grit, passion, and perseverance have different impacts on academic anxiety in both males and females (Xiao et al., 2021). Increasing students' grit is thus important as it helps reduce academic anxiety.

Table 8 presents the relationship between cognitive flexibility and self-compassion. It demonstrates a significant positive relationship between self-compassion and cognitive flexibility. Its p -value of less than .001 shows its significance, and its positive moderate Pearson's r of 0.481 shows its direct relationship. These findings suggest that self-compassion tends to increase along with cognitive flexibility.

Table 8*Relationship Between Cognitive Flexibility and Self-compassion*

		Cognitive Flexibility	Academic Anxiety
Cognitive Flexibility	Pearson's r	—	
	p -value	—	
Academic Anxiety	Pearson's r	-0.481	—
	p -value	<.001	—

People with cognitive flexibility may assess the influence on their well-being of unstable emotions, ideas, and attitudes. Güler (2022) revealed that people can select healthier options, such as self-compassion, that fit their needs by seeing difficult life situations from a flexible viewpoint, as cognitive flexibility is positively correlated with self-compassion. Additionally, self-compassion may be a form of resilience in students' verbal communication since it allows them to express their demands, as Long & Neff (2018) stated. It relates to how they can more effectively identify solutions to their difficulties by being adaptable. Overall, practicing self-compassion can help one learn how to adjust intellectually.

Table 9 presents the relationship between grit and self-compassion. Given the results, grit and self-compassion have a significant positive relationship. Its p -value of less than .001 supports its significance,

and its Pearson's r of 0.620 supports its moderately positive correlation. The findings demonstrate that greater grit levels may also be associated with greater self-compassion.

Table 9*Relationship Between Grit and Self-compassion*

		Cognitive Flexibility	Academic Anxiety
Cognitive Flexibility	Pearson's r	—	
	p-value	—	
Academic Anxiety	Pearson's r	-0.620	—
	p-value	<.001	—

A study examined the “Predictive Abilities of Mindfulness, Self-Compassion, and Grit” among 228 participants (Weiss, 2018) and found related results with a significant positive relationship between grit and self-compassion ($r = 0.51$, $p = <0.01$). Another study examined the relationship between “Self-Compassion and Grit Among Young Adults” and found related results with a significant positive relationship, further stating that individuals who accept themselves work perseveringly with passion for achieving their goals (Vijayashree & Arif Zinna, 2021). These variables are considered positive psychological constructs; thus, the relationship between self-compassion and grit is often significant and positive. Table 10 presents the relationship between self-compassion and academic anxiety.

Table 10*Relationship Between Self-Compassion and Academic Anxiety*

		Cognitive Flexibility	Academic Anxiety
Cognitive Flexibility	Pearson's r	—	
	p-value	—	
Academic Anxiety	Pearson's r	-0.374	—
	p-value	<.001	—

Because of its p-value of less than .001 and its weak negative Pearson's r of -0.374, the data in Table 10 shows that self-compassion and academic anxiety have a significant negative relationship. Although the relationship between self-compassion and academic anxiety is not strong, the findings indicate that those with greater self-compassion may also have lower levels of academic anxiety.

According to research (Van Dam et al., 2011), self-compassion is a powerful predictor of symptom severity and quality of life in people suffering from high anxiety in educational settings. Higher levels of self-compassion decrease academic anxiety, especially in females, according to recent research by O'Driscoll and McAleese (2022). The negative correlation between self-compassion and academic anxiety is also supported by other studies (Cheraghian et al., 2016; Hajiaziz & Ho, 2017; Lee & Lee, 2022; Neff, Hsieh, et al., 2007). Additionally, studies have demonstrated the effectiveness of self-compassion-centered therapies, such as breathing techniques and compassionate imagery, in lowering academic anxiety (McEwan et al., 2018; Salehzadeh Einabad et al., 2017). In conclusion, greater levels of self-compassion can minimize academic anxiety.

Predictors of Academic Anxiety

Table 11 demonstrates grit, cognitive flexibility, and self-compassion as predictors of academic anxiety. Regression analysis was used to aid in the interpretation. Table 10 presents the predictors of Academic Anxiety.

Table 11*Predictors of Academic Anxiety*

	Estimate	SE	t	p	Verbal Interpretation
Intercept	6.219	0.3159	19.69	<.001	
Cognitive Flexibility	-0.527	0.0880	-5.98	<.001	Significant
Grit	-0.491	0.0950	-5.16	<.001	Significant

Dependent Variable: Academic Anxiety, $R^2 = .422$, $F = 31.1$, $p < .001$

Table 11 provides insights into a linear regression model's fit, demonstrating the extent to which cognitive flexibility and grit contribute to explaining academic anxiety. The R-squared value of 0.422 indicates that these two variables collectively account for approximately 42.2% of the variance in academic anxiety. It is important to note that this leaves 57.8% of the variance unaccounted for, suggesting that other factors not included in the model may also influence academic anxiety. Among the three characteristics considered, only cognitive flexibility and grit (not self-compassion) emerge as significant predictors of academic anxiety, as confirmed by their respective coefficient estimates and low p-values (both < 0.001). Specifically, cognitive flexibility carries a coefficient estimate of -0.527, while grit has a coefficient estimate of -0.491, indicating both are negatively related to academic anxiety. This implies that higher levels of cognitive flexibility and grit are associated with lower levels of academic anxiety, with cognitive flexibility being a slightly stronger predictor than grit. In conclusion, cognitive flexibility and grit are the primary predictors of academic anxiety, with cognitive flexibility showing a slightly stronger influence. A study indicated that an increased level of cognitive flexibility resulted in a decreased level of academic anxiety. The reason is that cognitively flexible students are better equipped to deal with academic issues using appropriate coping methods (Kuyumcu & Kirazci, 2020). Conversely, grit predicts academic anxiety, with higher levels of perseverance lowering it (Xiao et al., 2021). Cognitive flexibility may be a better predictor since it focuses on coping with academic anxiety rather than sustaining effort.

Conclusion and Recommendations

The study explored grit, cognitive flexibility, and self-compassion as predictors of academic anxiety. Academic anxiety was evident among undergraduate students. Results indicated that having cognitive flexibility demonstrated a greater ability to adapt and shift one's thinking and behavior in response to changing situations or demands, and grit demonstrated that with perseverance and passion, one can cope with academic stresses. Thus, cognitive flexibility, grit, and self-compassion are all factors in reducing academic anxiety among college students. Those who have higher levels of cognitive flexibility, grit, and self-compassion were shown to better cope with the stress and demands of academic life, leading to lower academic anxiety levels. While cognitive flexibility and grit exhibit a significant relationship with academic anxiety, self-compassion does not significantly affect its influence on academic anxiety. It indicates that even when students have self-compassion, it does not guarantee their academic anxiety will decrease; rather, individuals who possess higher levels of cognitive flexibility and grit are less likely to experience academic anxiety and may perform better academically. Regarding the students' levels of academic anxiety, it is recommended that individuals increase or strengthen their cognitive flexibility and grit to reduce it effectively. Approaching innovative ideas with an open mind and considering different perspectives may be effective. Moreover, setting small but deliberate goals while consistently fulfilling them may help increase grit. Teachers and guidance counselors can create a safe and supportive learning environment, offer activities

encouraging multiple perspectives and problem-solving, promote long-term goal setting and perseverance, and provide access to mental health resources, such as counseling services or support groups. The current study also confirmed that self-compassion is not the best predictor of academic anxiety. Future researchers are encouraged to identify other constructs or variables that may predict academic anxiety.

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Using Memes to Express Mental Health Issues Among Filipino Gen Z: A Phenomenological Study

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The Philippines remains a country that struggles with mental health issues due to societal barriers, a lack of resources, financial barriers, and a negative cultural perception towards people with mental problems. Social media has presented itself as an avenue, especially for Filipino Gen Z, to express themselves online through memes. This study was conducted to understand the mental health issues expressed through memes, the benefits of sharing memes, and how Filipino Gen Z feels after sharing the memes. This qualitative phenomenological study used two theories: the Transactional Model of Stress and Coping by Lazarus and Folkman and the Uses and Gratifications Theory by Blumler and Katz. Ten Filipino Gen Zs were screened using DASS-21. However, only six (6) met the criteria. Data were gathered through one-on-one interviews, and data triangulation occurred using photo elicitation. Interpretative Phenomenological Analysis (IPA) was used to analyze the data. Results showed that the participants were expressing anxiety and depression through the memes they were sharing. The benefits of sharing mental health memes include coping with humor, using them as a medium for expression, relating to them, and building connections with friends and their community. These results suggest that exposure to and sharing of mental health memes can help individuals express their mental health issues. Further research could provide information on the continued use of memes, the drawbacks, the use of memes as a tool to destigmatize mental health, and the use of memes among different demographics.

Keywords: *memes, mental health, Generation Z, social media*

Despite improving mental health awareness globally over the past years, mental health issues in the Philippines are still on the rise. An estimated 3.6 million Filipinos struggle with a mental, neurological, or substance abuse disorder (Department of Health, 2018). About 17% of Filipino students aged 13 to 15 have considered attempting suicide at least once before the 2015 Global School-based Student Health Survey (Department of Health, 2018). The rates of anxiety and stress are moderately high among Filipinos (Flores et al., 2017). One in ten Filipino young adults experiences moderate to severe depression, with symptoms including “loneliness” and “unenjoyment with life” (Puyat et al., 2021). The World Health Organization (2021) found that the most prevalent mental health issues in the Philippines in 2017 were anxiety and depression. The onslaught of the COVID-19 pandemic further exasperated the mental health of Filipinos, with thousands calling the National Center for Mental Health, many of those calls coming from millennials and Generation Z (Balancio, 2022).

Despite these statistics, many Filipinos do not seek help for their mental health issues. Factors that prevent them from seeking help include the country’s negative attitude towards mental illness and internalized shame about having a mental illness (Rivera & Antonio, 2017; Tuliao, 2014). Filipinos with mental health problems experience stigma due to perceptions of mental illness being a disease in the family and the tendency for Filipinos to be overly simplistic about how mental illness can severely affect lives. Another difficulty is the unavailability of mental health care and the local community’s inability to resolve it (Tanaka et al., 2018). With mental illnesses being stigmatized in the Philippines, Filipinos often conceal their mental health issues and delay getting professional care to avoid being called “baliw” or crazy (Cabbigat & Kangas, 2018). Furthermore, socio-cultural determinants such as *hiya* and “saving face” may also play a role in Filipinos not seeking professional help for mental health issues (Cordero, 2020). *Hiya* is a Filipino

word and cultural core value that often translates to “shame” or embarrassment (Lasquety-Reyes, 2016). As the Philippines is a collectivist country, maintaining harmony between group members, such as those in the family, is essential. To maintain that harmony, one would need to sacrifice personal needs and wants for the sake of the collective. However, studies show that maintaining harmony with group members correlates with depressive symptoms. To maintain the group’s harmony, one might need to suppress their emotions and suffer in silence (Broomhall & Phillips, 2020). This implies that within Filipino society, group harmony is given priority over individual needs, to the point of mental health neglect. In addition to socio-cultural factors that impede help-seeking for mental health issues, mental health services and resources are underfunded and not easily accessible, with facilities and clinics mostly being built in urban areas (Lally et al., 2019).

Social media have become avenues for people to search for social support and express themselves, including their experiences and feelings about their mental health (Bucci et al., 2019). Social media has been used for seeking information, entertainment, communication, and connection (Ostic et al., 2021). One form of communication on the internet is memes. The term “meme” was originally coined by Dawkins (1976) in his book “*The Selfish Gene*” as a unit of cultural transmission, wherein Dawkins likened memes to genes because ideas and concepts spread through selection, imitation, variation, and replication from one person to another through communication, such as writing, speaking, and behaving.

Over time, the definition of the word “meme” has shifted. Currently, a meme is defined as internet cultural information in the form of videos, audio, images, and other media that can be transferred and spread through imitation and repetition (Rogers, 2022), with some modifications to make it humorous (Mick-Evans, 2019). The term was also defined as “(a) a group of digital items

sharing common characteristics of content, form, and/or stance; (b) were created with awareness of each other; and (c) were circulated, imitated, and/or transformed via the Internet by many users” (Shifman, 2014).

The Transactional Model of Stress and Coping by Lazarus and Folkman (1984) emphasizes cognitive framework appraisal to assess danger, threat, and difficulties that lead to the process of coping with stressful events to alleviate harm and loss. According to this theory, humor, finding support in social groups, and self-expression are examples of emotion-focused coping (Aldwin & Yancura, 2004; Cherry et al., 2018). In connection to this study, sharing mental health-related memes is an emotion-focused coping strategy, as it (1) potentially leads to a connection with others due to the humor and relatability of the meme and (2) possibly helps in expressing emotions more comfortably. Additionally, according to the Uses and Gratifications Theory (Blumler & Katz, 1974), meme-sharing on social media can satisfy the following socio-psychological needs: (1) showing affection; (2) venting negative feelings; (3) gaining recognition; (4) getting entertainment; and (5) fulfilling cognitive needs (Leung, 2013).

Memes cover various topics, from politics and activism to marketing (Denisova, 2016). However, in recent years, expressing mental health issues through memes has become a trend. Specifically, memes covering darker topics, such as depression, suicidality, and suffering in general, have been on the rise, with those sharing these niche types of memes to cope with symptoms of anxiety and depression (Kariko & Anasih, 2019). Although these internet memes seem to make mental health and illness humorous jokes, they also provide awareness to the social media followers and start a conversation on suffering (Beach, 2021). In a survey conducted by Park (2020), memes effectively communicated intended emotions and made conversations fun and lighthearted. In addition, in a study on mental issues through memes, Akram and

Drabble (2022) concluded their study by stating that pages on social media focused on mental health issues appear to ‘facilitate’ the expression of complicated and complex emotions in lighter and more creative ways. The engagement provides the audience with social and emotional bonds that are shared within their groups. This is supported by a study done by Newton et al. (2022), which claimed that memes have unifying symbols. It is a tool for creating emotional bonds about how memes were used to cope with psychological distress during the COVID-19 pandemic (Akram et al., 2021; Ortiz et al., 2021). The participants used memes to help them feel a connection and community with those who shared the same anxieties and similar emotions as them.

In addition to being a tool for clear communication and creating connections, memes can facilitate self-reflection. According to Shifman (2014), memes are frequently made and shared because they can capture shared experiences of feelings that people can identify with. Mental health memes may facilitate cognitive reappraisal for people struggling with emotion management. Memes are typically shared due to their humor (Karlsson, 2019), and humor alleviates stress (Dixon, 2021). A study found an increased interest in the creation and sharing of COVID-19 memes to cope with distress brought upon by the pandemic through humor, irony, satire, and cynicism (Skórka et al., 2022). However, studies show that when those with low self-regulation skills expose themselves to depression memes, it could increase their depressive mood rather than lessen it (Akil et al., 2022).

Memes as a topic for research are becoming popular within the fields of psychology and research. However, there are limited studies on memes in the Philippines, especially those revolving around mental health issues and self-expression. Moreover, there are few studies on what mental health issues are expressed through memes, as well as why Filipinos share these types of memes and how these types of memes are received by

Filipino society on the internet. The research aimed to understand the lived experiences of Filipino Gen Zs, who expressed their mental health issues through memes on social media. The following research questions are raised in this study:

1. What are the mental health issues presented in the memes that the participants shared?
2. What are the benefits of sharing mental health-related memes?

Methodology

Research Design

This qualitative study utilized the phenomenology research design. Phenomenology is a philosophical discipline established by Edmund Husserl that aims to study lived experiences from the first-person perspective (Depraz, 2014; Gallagher, 2012). Husserl sought for his phenomenology to be attentive to experiences, feelings, and events as consciously experienced and free from unexamined preconceptions and presuppositions (Simpson & Ash, 2020). Moreover, phenomenology is a type of qualitative inquiry that places importance on the experiential and lived aspects of a particular construct or how the phenomenon is experienced at the moment it occurs, as opposed to what is thought about it or the meaning that is later assigned to it (Nelson, 2011). Furthermore, to comprehend the meaning participants assign to a phenomenon, phenomenology is used to capture the essence of that phenomenon by looking at it from the participants' perspective (Teherani et al., 2015).

Participants of the Study

Purposive sampling was utilized in this study. This non-random technique required the researchers to choose participants with the knowledge and experiences that fit the criteria set to answer the research questions (Etikan, 2016). The purposive sampling method used maximum variation, in which the researchers selected participants based on their diverse backgrounds (Moser & Korstjens, 2018). Maximum variation

sampling was utilized to obtain various viewpoints of the object or phenomenon the researchers are interested in investigating. By considering the diverse views surrounding the phenomenon, the researchers used this sampling method to understand the mental health meme-sharing among Filipino Gen Z (Thomas, 2022). Because maximum variation sampling was utilized, the data was obtained from participants until the researchers reached data saturation. Data saturation occurs when new information is no longer found during the data analysis process, and there is redundancy in the themes and ideas thematized in the research (Faulkner & Trotter, 2017). The participants of the study met the following criteria: (1) Filipino living in the Philippines; (2) young adult or older Generation Z (18 to 25 years old); (3) sharing mental health memes; and (4) experiencing symptoms of a mental health disorder. The participants comprised one Filipino from Visayas, one from Mindanao, and four from Luzon.

Data Gathering Tool

To screen the participants for symptoms of a mental health disorder, the Depression, Anxiety, and Stress Scales (DASS-21) were utilized. Participants whose scores were at least moderate were considered in the study. The participants underwent a one-on-one online interview using questions that were validated by a research consultant, counselor, and psychometrician to explore the participants' reasons for sharing the memes, how they relate themselves to the memes, and how they feel about sharing the memes.

Data Collection Techniques and Procedures

The following are the step-by-step procedures for data collection:

1. Prepare an interview guide.
2. Purposely select the prospective participants through a screening test—the Depression, Anxiety, and Stress Scales—Short Form (DASS-21)—to rule out those

not experiencing mental health issues.

3. Invite the participants who meet the criteria.
4. Conduct a recorded one-on-one interview via Zoom.
5. Transcribe the interviews.
6. Analyze the data.

Analysis and Interpretation of Data

The researchers used Interpretative Phenomenological Analysis (IPA) to analyze the interview data. IPA comprises several factors to interpret narratives of people's lived experiences (Demuth & Mey, 2015). It creates an account subjective of an individual's perceived experiences as opposed to one dictated by theoretical preconceptions already in place, acknowledging that this is an interpretative endeavor because people are sense-making beings (Smith & Osborn, 2015). The transcribed interviews were analyzed using the Interpretative Phenomenological Analysis (IPA) method with the following steps:

1. Reading and re-reading (data immersion).
2. Initial data coding.
3. Developing emergent themes.
4. Searching for connections across emergent themes.
5. Moving on to the next case,.
6. Looking for patterns across cases and
7. Taking interpretations to deeper levels.

Ensuring Rigor and Trustworthiness

Upon analyzing the data, the researchers utilized data triangulation by collecting data from various sources to fully understand the mental health meme-sharing phenomenon among Filipino Gen Z (Moon, 2019). These data sources included data collected from the interviews and the photo elicitations. Member-checking was conducted after transcribing the interview, creating codes, and generating themes. It is the process of returning data or results to the research participants to verify the accuracy of the researchers' interpretations. It is also known as participant or respondent

validation since the participants can interact with, correct, and contribute to the interview transcripts and interpreted data (Birt et al., 2016). As described by Olmos-Vega et al. (2022), reflexivity is "a set of continuous, collaborative, and multifaceted practices" researchers use to critically assess, analyze, and appraise how their subjectivity and context affect the research processes. In other words, the researchers describe how the participants and the researchers' contextual relationships intersect (Dodgson, 2019).

Ethical Consideration: Confidentiality and Informed Consent

The researchers assured the participants that they could withdraw themselves and their data at any time throughout the research progress should they choose to do so, and it would not negatively impact the relationship between them and the researchers. Some questions could make the participants feel uncomfortable. They were informed that they did not need to answer them, prompting the researchers not to ask for further information on the question's topic. If clarifications about the research were asked, the researchers explained everything that was unclear.

To protect the rights and dignity of the participants, the researchers kept their information confidential and ensured anonymity by providing them with pseudonyms. Only the researchers and their research advisor had access to the raw data, which was strictly limited to only them analyzing and interpreting it. If the researchers needed to make changes to the paper, all participants were informed to prevent feelings of deception. The researchers then deleted all participants' PII's once the study was completed.

Results and Discussion

This section presents the findings and analyses of the data obtained from the semi-structured interview, coded and categorized into themes. Participants' verbatim responses are presented

to show how these themes were developed and to support the themes. The following results are arranged under this study's research questions, which are as follows: (1) "What are the mental health issues the participants present in the memes they share?" and (2) "What are the benefits of sharing mental health-related memes?" Data for analysis were obtained through semi-structured one-on-one interviews with six Filipino young adults from Generation Z hailing from all over the Philippines.

Mental Health Issues Being Expressed through Mental Health-Related Memes

To answer Research Question 1, "What are the mental health issues the participants present in the memes they share?" two themes emerged: (1) anxiety and (2) depression. These themes are presented and discussed as follows:

Anxiety

The first theme that emerged from the data obtained from the interviews is that the participants expressed anxiety, characterized by a pervasive fear of potential future danger (Hooley et al., 2017). According to the findings of the transcribed interview, some participants utilized mental-health-related memes to express that they were anxious when they shared the memes.

Anna, a female 23-year-old from Mindanao, described the memes she presented to the interviewer as follows:

"Kasi... nag-woworry ako anong mangyayari tomorrow. So, instead of being productive... siguro, na-rereflex ang anxiety ko doon [sa meme] – like, 'yung mood ko that night. So, instead na mag-linis, I just put everything diyan, ganoon. 'Tas tinatamad na ako, inuusod ko nalang kasi parang... ayan, sa sobrang nag-woworry ako [about] what will happen tomorrow, especially kung may mga surprises na pangyayari which is ayoko siyang mangyari at the same time nag-

woworry ako what will happen." (I worry about what may happen in the future. So, instead of being productive, I reflect on my anxiety through the memes, like my mood for that particular evening. So, instead of cleaning up, I just put everything aside. I'll then feel lazy that I've done so because I worry too much about what will happen tomorrow, especially if it brings surprises in the form of events that I wouldn't want to happen, while at the same time worrying about what would happen if that were the case.) — Anna, 23 years old, Moderate Anxiety

Anna felt worried about the future, which was to the point where she felt so overwhelmed, and thus has a breakdown. During the interview, she mentioned that her room is usually neat and clean. However, when she started feeling overwhelmed, she felt like she could not move and instead lays down. In addition, when she felt overwhelmed, she isolated herself from socially interacting with others, even those close to her. It is implied that her anxiety affects her social and academic lives. It is supported by a meme she shared on her social media account:

Figure 1

Anna's Shared Meme on Anxiety



Cameron, a 20-year-old male from Luzon, on the other hand, described how he utilized the mental health memes he presented to express his feelings of restlessness as follows:

"Kahit sa pag-tulog, hindi ko mararamdaman and pahinga. Minsan 'pag natutulog tayo, pag-gising natin parang feeling natin pagod pa rin tayo. Siguro dahil na rin 'yun sa marami tayong iniisip."
(Even when I've gotten rest, I don't feel rested. Sometimes when we sleep, we wake up and we feel as though we are still tired. Maybe it's because there's too much on our minds.) — Cameron, 20-year-old, Extremely Severe Depression and Anxiety, Severe Stress

To support the interview data, Cameron presented a meme he shared on social media about his restlessness:

Figure 2

Cameron's Shared Meme on Restlessness



Cameron described his restlessness as not being able to feel rested despite sleeping. He mentioned that this may be due to overthinking, which, according to him, stems from being the breadwinner in the family. He described himself as a "fragile" person; thus, many things became a concern for him. For example, similarly to Anna's experience, when he feels overwhelmed due to overthinking, he freezes up, and instead of doing things he perceives as productive,. It would then cause him to question whether he could accomplish his goals. These thoughts and questions would then occupy his mind, keeping him awake at night and, if he does sleep, making him wake up feeling like he had no rest.

Anna's experiences of feeling overwhelmed and worried about the future and Cameron's experiences of restlessness are common features of anxiety. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR), generalized anxiety disorder is marked by the following: (A) excessive anxiety and worry, which occur more days than not for at least six months, about a number of events or activities such as work or school performance; (B) controlling the worry is perceived to be difficult by the individual; and (C) the anxiety and worry are associated with three or more of the following six symptoms (with at least some symptoms having been present for more days than not for the past six months):

1. Restlessness or feeling keyed up or on edge.
2. Being easily fatigued
3. Difficulty concentrating or mind going blank.
4. Irritability.
5. Muscle tension.
6. Sleep disturbance (difficulty falling, staying asleep, unsatisfying sleep).

And (D) the anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas

of functioning (American Psychiatric Association, 2022). Although research and data regarding the prevalence of mental health disorders in the Philippines are lacking or not up-to-date, in a case report done in 2017 by the World Health Organization, anxiety and depression were the country's two most common mental health conditions.

Depression

The second theme that emerged from the data obtained from the interview is that the participant had expressed depression, which is marked by a loss of interest in activities that were once pleasurable, tiredness, and persisting sadness (WHO, 2019). From the findings of the transcribed interview and the data collected from the screening test, most of the participants were experiencing depression while sharing those memes.

Zampano, a 22-year-old from Luzon, shared that he was trying to express his loss of motivation to do his tasks and his persisting sadness with the mental health memes he presented:

"I haven't had the motivation to do anything lately, and I'm only doing things out of pressure. Pressure to do stuff?" — Zampano, 22 years old, Extremely Severe Depression, Severe Stress and Anxiety

To support the interview data, Zampano showed a meme through an image he showed in his social media account:

Figure 3

Zampano's Shared Meme on Depression



Zampano described his feelings of depression as “fleeting happiness” and “everlasting sadness.”. These feelings would cause him to lose motivation, as he would think that doing anything, regardless of whether he enjoyed it or not, would always lead to sadness. Because of how persistently he felt this sadness and loss of motivation, he consulted a psychologist and psychiatrist, and it was found that he may be suffering from depression and anxiety. It is implied that his symptoms were severe, as he was then prescribed medication for said mental health issues.

Cameron, like Zampano, also shares memes to express his feelings of persistent sadness on his social media account:

“...kunwari, malungkot then malungkot rin yung context nung post, so i-sheshare ko siya.” (Let's say you're sad, then the context of the post is about sadness too, then I'd share it.) — Cameron, 20 years old, Extremely Severe Anxiety and Depression, Severe Stress

In addition to his anxiety, Cameron also expresses that he is feeling depressed. This persistent sadness may stem from his anxiety and from not being able to express himself to his family. Cameron shared that he decided not to share his feelings with his family after being harshly rebuked when he revealed to them that he was gay. One memory that causes Cameron to be distressed is when he was threatened to be battered by his father because he could not accept his son's sexuality. The sadness that he feels every time he is reminded of his family's disapproval of him is one cause of his overthinking, which leads him to become sadder.

Aside from feeling sadness and loss of motivation, Riza, another 22-year-old from Luzon, described her depression as perceiving her life as difficult to live.

“Ayun, like, alam mo 'yun na minsan mag-isa ako na o kaya 'di lang pag mag-isa ako, 'pag sinasabi sa akin yung gastusin sa bahay tapos...”

'tas parang, as the eldest, parang naririnig ko yung mga vent nung parents [ko], tapos sa isip ko 'ang hirap naman mabuhay'." (Sometimes when you're alone or even when you're not alone, you get to hear the talks about bills and payments in the house. And as the eldest, I get to hear my parents vent about it, and in my mind, I tell myself, 'Life is hard'.) — Riza, 22 years old, Extremely Severe Depression

As mentioned, when she is left alone with her thoughts, she then thinks of the current cost of living, which she considers a huge burden. As the eldest in the family, she feels guilty that payments for her college tuition and food to eat are being "wasted on her." This is further presented in the meme that she has shared on social media to represent her perceived difficulty in living:

Figure 4

Riza's Shared Meme on Her Perceived Difficulty in Living



Russel also shared a similar thought with Riza regarding his depression. To Russel, he described his experiences with depression as feeling lonely:

"It's like no matter [what] you do, you still feel lonely. [It] never goes away no matter how many people you have with you, you feel lonely." — Russel, 22 years old, Extremely Severe Anxiety and Depression, Severe Stress

He mentioned that there were times in school or at the mall where he would be alone by choice because there were times when, even when he was around people he was acquainted with or friends with, he would still have feelings of loneliness. Even when he is surrounded by large groups of people, he still feels alone. It is also implied that, because he feels alone even when surrounded by friends and that they would not understand his struggles if he were to tell them directly what they were, he feels that he has no one to talk to, exasperating his feelings of depression.

Zampano's feelings of being unmotivated and loss of interest in doing activities, Cameron's persistent feelings of sadness, Riza's perceived difficulty in living, and Russel's feelings of loneliness can be symptoms of depression. As stated in the DSM-5-TR (American Psychiatric Association, 2022), symptoms of depression may include: (1) loss of interest or pleasure in nearly all activities; (2) fatigue or loss of energy; and (3) feelings of worthlessness or excessive guilt. In addition, loneliness may significantly affect depression (Erzen & Çikrikci, 2018), where it was found that loneliness and the prevalence of depression had a significant direct correlation (Kraav et al., 2021). Furthermore, as some of these participants—such as Zampano—also present symptoms of anxiety, it is consistent with research that suggests that anxiety and depression have a high comorbidity rate and that at some point in an individual's lifetime who experiences one disorder will meet the criteria for the other (Kalin, 2020). Although data is lacking on the prevalence of depression among Filipino Gen Z, 1 in 10 young adults in the Philippines experience moderate to severe depression, with the most experienced symptoms being "loneliness" and "unenjoyment with life" (Puyat et al., 2021).

Benefits of Sharing Mental Health-Related Memes

To answer Research Question 2, "What are the benefits of sharing mental health-related memes?"

four themes emerged: (1) medium for expression, (3) relatability, (4) building connections, and (4) coping with humor.

Medium for Expression

One benefit that participants believe in sharing mental health memes is that memes can and were used as convenient mediums for venting, self-expression, and sharing their feelings. From the data analysis of the transcribed interview, mental health memes were used as a medium for the participants to share their feelings and vent.

"I guess I've been feeling a bit more open with my feelings compared [to] back then. Since I remember back then when I didn't share those kinds of memes, I was a bit more closed off with my feelings and my feelings manifested in negative ways..." — Zampano, 22 years old, Extremely Severe Depression, Severe Stress and Anxiety

Growing up, Zampano would always hear from his parents how his life was easier compared to theirs when there were instances when he wanted to express his struggles to them. Because of the constant comparison of his life to theirs whenever he wanted to express himself, he learned not to be open about his feelings. If he felt negative emotions, we would push them aside, isolate him, or bottle these emotions up. This led to instances where his bottled-up emotions would burst out and thus manifest in negative ways, such as him lashing out at his peers and family when he was a teenager. However, since sharing mental health-related memes, he has become more open about his struggles with his friends, albeit in a more humorous way. This is supported by a meme he shared that demonstrates how he expresses his persistent sadness more humorously:

Figure 5

Zampano's Shared Meme on Sadness in a Humorous Way



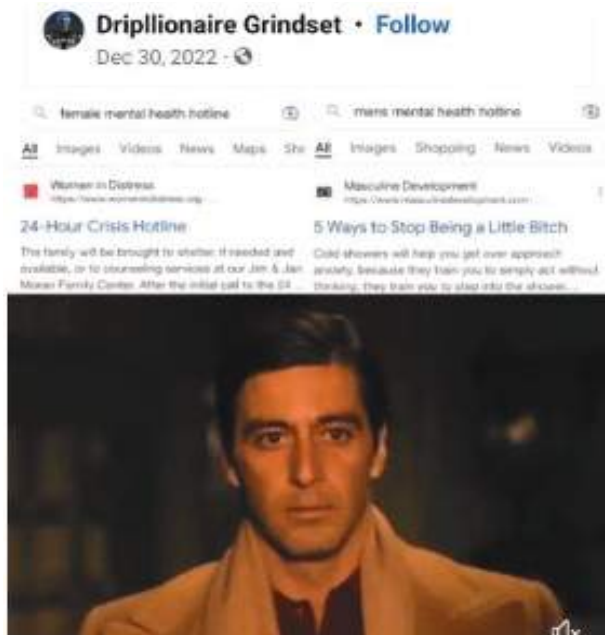
Russel also shared a similar thought with Zampano regarding his depression. To Russel, he described his experiences with depression as feeling lonely:

"I like to express it in a way people can understand. Kasi minsan, kahit sinabi mo in your own words, parang 'di rin nila maintindihan... Kaya gusto ko mas malinaw—kaya shinesshare ko na lang sa FB." (I like to express it in a way people can understand. Because sometimes even though you may have said it in your own words, people do not understand. I want the message to be clear – and that is why I share it on FB.) — Russel, 22-year-old, Extremely Severe Depression and Anxiety, Severe Stress

To support the verbatim data, Russel presented the meme he made that he shared on his social media:

Figure 6

Russel's Shared Meme on Men's Mental Health



According to Russel, he feels like he cannot express his issues with mental health because he observes that men's mental health is treated differently compared to women's mental health because of the societal norm for men not to show weakness. This thinking is further exasperated because he is also the eldest in the family. In this meme, he tries to convey that he struggles to be open about his feelings and his struggles because of the stigma surrounding men's mental health.

Similarly, Riza also shared how memes can be a way for her to express herself and how it can be a safe way to express her frustrations to others indirectly:

"It's also a way to... express myself either [as] expression ko sa sarili ko or parang indirect message to others. Alam mo yung 'di ko ma-diretso masabi so idadaan ko nalang sa meme. I-daan ko nalang sa patama." (It's also a way to express myself, either as expression about who I am or as an indirect message to others. Sometimes you can't say something to others directly, so you'll do it through memes. Or I'll do it through hints.) — Riza, 22 years old, Extremely Severe Depression

Riza also mentioned that not only does she share memes she finds on the internet, but she also creates memes when she cannot find a meme that accurately expresses her exact feelings when she needs to express herself. She mentions that memes are a visual aid for her to express herself better, to convey her thoughts and feelings clearly, and to vent.

"It's like a graphic imagery ng nararamdaman ko nung ginawa ko yung meme na 'yun... Kaya ko siya shinare [at] ginawa kasi nga ventful siya—vent meme in a way." (It's like a graphic imagery of what I feel when I make that meme. The reason why I shared it and made it is because it helps me vent—it's a vent meme in a way.) — Riza, 22 years old, Extremely Severe Depression

To support the verbatim data, Riza presented the meme she made that she shared on her social media:

Figure 7

Riza's Shared Meme on Venting Feelings



These findings demonstrate that memes can be a powerful tool for communication, especially for those individuals who struggle to clearly convey their thoughts and feelings through words. This is supported by a survey done to understand meme usage in social media through semantics (Park, 2020), where it was found that people use memes to make their conversations fun and lighthearted and to effectively convey their intended emotions. This is further supported by a study on depressive memes (Akram et al., 2020), where it is stated that memes can be used as a visual aid to understand the experience and nature of depressive symptoms. Expression of complicated and difficult emotions was also shown to be facilitated by pages on social media, which made it so that the individuals could express themselves in a lighter and more creative way (Akram & Drabble, 2022).

The findings presented here are consistent with the Transactional Model of Stress and Coping and the Users and Gratifications Theory, where the participants have used the memes to vent out their negative feelings and their mental health issues to cope.

Relatability

Based on the analysis of the participants' responses, it was found that the participants would share memes if they found that they could relate to them. Cameron stated that sharing mental health memes somehow relieves his stress because he can relate to the context of the meme, which then facilitates his expression of his feelings at the time of sharing.

"... Kasi yung context nung posts parang nakaka-relate." (... Because the context of the posts is relatable.) — Cameron, 20 years old, Extremely Severe Anxiety and Depression, Severe Stress.

When Cameron feels like he is experiencing depression, anxiety, and stress from his problems, such as being the breadwinner of the family, being

scrutinized by his family due to his sexuality, or overthinking about the numerous problems he faces in his life, he is able to find a meme that has similarities with what he is currently feeling or struggling about.

Anna also states that because she relates to the memes she shares, she feels like she is in a comparable situation being presented with the memes, which then causes her to reflect.

"Dinadamdam ko talaga siya 'pag nag-sheshare ako ng mga ganoong memes na parang feeling ko nasa shoes talaga ako na 'yun kahit na totally hindi naman pero pag-relate ako, 'yon. Dinadamdam ko siya then after that [iisipin ko] 'Ah, may realization ako' after." (I let myself dwell on it whenever I share those kinds of memes. I feel as though I am in their shoes even though it may not be the case. If I feel like I do relate with it, then that's that. I dwell on them then thought that "Oh, I've made a realization" comes after.)
— Anna, 23 years old, Moderate Anxiety

Like Anna, Riza also relates to the memes because they relate to past experiences that she then reflects on after sharing the memes.

"Eh, lahat ng shineshare ko ay nakaka-relate sa past experience so parang napapaisip—napapareflect ako 'yung trip down to my memory lane.'" (All that I share relates to my past experiences so in my mind, I get to reflect—like a trip down memory lane.) — Riza, 22 years old, Extremely Severe Depression

These findings show that the participants shared the memes they shared because of how the memes relate to their situations and feelings. According to Shifman (2014), because memes could capture shared experiences or feelings that people can identify with, they are frequently made and shared. These findings are consistent with the

Uses and Gratification Theory (Blumler & Katz, 1974), wherein people use media to facilitate their personal needs and desires, including informational needs, social and emotional needs, identity needs, and entertainment needs. People are more inclined to relate to media content they find fits their needs. In the case of Anna and Riza, they were able to relate to the memes they have shared because their emotional needs were facilitated

Building Connections

The participants also shared and used memes to relate to and connect with other people. The data gathered shows that the participants relate to their online communities, having a shared common ground when it comes to their mental issues, empathy, sympathy, and a general likeness that they feel. Anna shares memes to feel connected to her friends. In addition to that, she also shares mental health memes to express empathy for those who may be going through the same situation as her:

"I want to let other people know na 'ako din may ganoon.... I know other people's world or can relate also na para like, kapag shinare ko siya, gusto kong pa-feel sa iba na they're not alone or having feelings na 'Ay, 'di lang pala ako yung malungkot na ganito. Siya din nag-share siya so ibig sabihin na feel din pala niya 'to." (I want to let other people know that I experience that too. I know other people's world or can relate to them; that when I share my posts, I want them to feel that they're not alone or so that they could have the feeling where they can say, "Oh, I'm not the only one going through this. She shared this so maybe she's saying that she feels the same way.) — Anna, 23 years old, Moderate Anxiety

Anna explains that, when sharing positive mental health-related memes, she feels as if she is comforting or giving advice to her friends on

social media indirectly. In a sense, she feels as if she is a speaker talking to a crowd of people. In the interview, she mentioned how, in the past, she would feel alone in her struggles and that she had no one to share her feelings with, which would then make her feel isolated because she felt like no one understood her. Because she knows how isolating it is to feel like no one understands the struggles one can face, she shares memes to let others know that she also goes through issues with her mental health despite her outward appearance.

Riza also shares Anna's sentiments when she stumbles upon a meme shared by others, or if she shares a meme, she feels connected to the sharer and her Facebook friends because she feels they may be going through similar struggles.

"Parang, in a way, nakikita ko rinlike, 'Oy! Meron pa rin palang nakaka-feel ng nararamdaman ko." (In a way, I get to see it and I say to myself, "Hey! Someone feels the same way I do.) — Riza, 22 years old, Extremely Severe Depression.

The participants also shared that sharing memes was not only a way for them to empathize and sympathize with others but also to connect with their friends, peers, and acquaintances on social media. Russel shared that he has connected and made friends on social media during the pandemic by using memes:

"I say it would probably help them connect with each other in the pandemic." — Russel, 22 years old, Extremely Severe Anxiety and Depression, Severe Stress

Russel, like the other participants in this study, believes that memes can be used to connect with people in the face of adversity on social media. In a study done on internet memes related to COVID-19 to cope with anxiety (Akram et al., 2021), it was reported that the memes helped them feel a sense of connection and community with those who shared similar emotions.

The results show that building emotional connections with other people relating to similar or like-minded content is prevalent and consistent with previous research regarding connectedness and a sense of inclusion within communities that share similar values. Statements such as “I want to let other people know” show that the participants do not keep to themselves but also express to others that they have common interests and similar experiences with. These results are consistent with the Uses and Gratifications Theory because memes were used to not only gain recognition from others but also to show affection and build connections with individuals on social media, as is the case with Anna, Riza, and Russel. The use of memes to build connections and mental health support on social media has become increasingly popular in recent years. These findings show that memes can help people feel less alone. By sharing memes that reflect common experiences or feelings, people can connect with others who are going through similar challenges. This can help reduce feelings of isolation and increase a sense of community.

Coping Using Humor

One way the participants cope is through humor. Memes can be humorous posts on social media that contain an image and/or caption that is perceived as funny. Russel and Gilbert, for example, share memes because they are funny.

“Because they’re funny and I think people relate.” (Russel, 22 years old, Extremely Severe Anxiety and Depression, Severe Stress)

“... because they’re memes—they’re supposed to be funny and, you know, mga jokes. So, in a way, napapatawa rin po ako noon. It makes me happy if that makes sense.” (... because they’re memes – they’re supposed to be funny, and you know, they’re jokes. So, in a way, that makes me laugh. It makes me happy if that makes sense.) — Gilbert, 19 years old, Extremely Severe Anxiety, Severe Stress

Zampano further explains that funny mental health-related memes would make him laugh and lighten his mood temporarily in the following verbatim:

“I keep laughing at those kinds of memes”
(Zampano, 22 years old, Extremely Severe Depression, Severe Stress, and Anxiety).

As stated by Shifman (2014), memes that are simple and humorous and make people feel like they are participating in a community are likely to go viral or to be shared. The participants use the humor displayed in the mental health memes as emotion-focused coping (Aldwin & Yancura, 2004; Cherry et al., 2018), which is focused on regulating negative emotional responses to a stressor (Carr & Pudrovskaya, 2007). Filipinos cope with hardships using humor (Bankoff, 2007). Coping with humor is shown to alleviate stress, as stated by a study done by Dixon (2021), wherein the participants of the study who watched a humorous video were found to have significantly lower stress levels and physical symptoms and were found to be feeling more positive and in a better mood. This is further supported by a study done on COVID-19 memes, wherein it was found that there was an increase in interest in the creation and sharing of COVID-19 memes to cope with the distress brought upon by the pandemic through humor, irony, satire, and cynicism (Skórka et al., 2022). In a study done about humor scripts throughout the COVID-19 pandemic (Torres et al., 2020), humor was utilized to narrate both the experiences and challenges Filipinos faced.

This utilization of humor as a temporary coping strategy has been extensively studied by previous research, and the findings of this study add to this body of knowledge by highlighting the role of memes in facilitating humor-based coping strategies. Particularly, these findings are consistent with the Transactional Model for Stress and Coping, wherein memes are used as a secondary appraisal of stress by providing individuals with a way to cope with their

emotions through humorous memes. These findings are also consistent with the Uses and Gratifications Theory because they get entertainment from the humor shown in the memes they share, which they then can use to cope. Research on the use of memes with themes of depression has been conducted to study the role of emotion regulation in aspects of perceived valence, humor, and the overall beneficial use of internet memes to express depression. The results of the study show that depressive memes have greatly affected individuals' perceptions of humor, relatability, shareability, and potential to improve mood (Akram et al., 2020). However, as pointed out by Zampano, this coping may help in the short term, but not in the long term. Research done by Akil et al. (2022) states that individuals exposed to depressive memes displayed similar behavior patterns and maladaptive emotion regulation strategies. Moreover, their results show that exposure to memes expressing depression results in elevated depressive moods. The findings demonstrate that memes can provide a unique and engaging way for individuals to cope with mental health issues, such as depression and anxiety, and can serve as a valuable tool for promoting resilience and coping in the face of struggling with mental health issues. However, they should also incorporate problem-focused coping and other long-term coping strategies.

Conclusion and Recommendations

Because of the stigma surrounding mental health issues and the inaccessibility and availability of mental health resources in the Philippines, Filipino Gen Z has found a way to cope with their mental health issues, such as anxiety and depression, on social media. They use memes as mediums of expression, pieces of media they can relate to, opportunities to build connections on social media, and to cope using humor.

These findings support the Transactional Model Stress and Coping by Lazarus and Folkman (1984), where memes were used as an emotion-focused

coping tool by helping the participants regulate their negative emotional responses by providing humor, a means to express themselves and their feelings, and a community that can empathize and sympathize with the mental health issues they face or the struggles they are going through. The findings also support the Uses and Gratifications Theory by Blumler and Katz (1974) by gratifying the participants' needs for affection and connection, venting negative feelings, and getting entertainment.

This study has shown that sharing mental health-related memes is a phenomenon in the Philippines that shows positive effects and benefits. It has added to current studies regarding the use of humor with the content of mental health issues as a way of facilitating positive emotional regulation and the usage of memes as mediums of self-expression. However, it is to be noted that memes provide a temporary source of relief and should not be used as a cure for serious mental health issues. Thus, the researchers provide the following recommendations:

1. Since it has been shown that sharing mental health memes does provide benefits to those struggling with mental health issues, Filipino Gen Zs and Filipinos on social media may want to use memes to temporarily cope with their mental health issues and to express themselves and their struggles with mental health issues. It is further recommended, however, that other healthy coping strategies be employed that can directly target stressors, as sharing memes will not serve as a cure for mental health disorders.
2. In addition, it is recommended that those who may have concerns about mental health issues and share memes not only express themselves indirectly through sharing memes but also verbally express themselves directly to their friends, family, support group, and other relevant persons who can help.

3. Given the implied benefits of using memes to express mental health issues among Filipino Gen Z, there are implications for mental health advocacy efforts to promote mental health. Memes may be a valuable tool for the destigmatization surrounding mental health and raising mental health awareness in the Philippines. As such, mental health advocates and organizations should consider incorporating memes into their outreach strategies and developing guidelines for creating effective mental health-related memes that are uplifting, relatable, and non-stigmatizing. This could help reach a wider audience and engage young people in discussions about mental health.
4. Future studies may want to investigate how memes can be effectively incorporated into existing stress-reduction and humor-based programs and examine the advantages of meme use in various cultural and social contexts.
5. Although the study has found that there are benefits to utilizing mental health-related memes to express mental health issues, future researchers may want to explore the drawbacks. Memes may perpetuate negative stereotypes that uphold the stigma surrounding mental health or trivialize mental health issues.
6. Lastly, future researchers who are interested in memes may want to explore the use of memes among different demographics, such as mental health meme usage among generations, how memes can be used as interventions, or examine the effectiveness of different types of memes in expressing mental health.

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Exploring the Dynamics of Aggression in a Young Adult: A Narrative Case Study

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Aggression in young adults is a complex and multifaceted issue that can have far-reaching consequences and unfavorable outcomes for both individuals and society. This study employed a narrative case study design to explore and comprehensively understand the dynamics underlying a young adult's aggression. The participant in the study was purposefully selected from a DSWD shelter for young children and adults in conflict with the law. Multiple data sources were utilized, including in-depth interviews with the participant, his family members, and a social worker in charge of the facility, as well as relevant documents, case reports, and psychological test results. The data were analyzed using the data analysis framework of Labov. Findings showed exposure to and experience of domestic violence, neglect, and environmental dysfunctions contributed to the participant's development of aggression, which resulted in his isolation, impulsivity, and an inability to control anger. The findings of this study provide support for social learning and Bronfenbrenner's ecological systems theories in the context of childhood aggression. The study highlights the importance of early intervention and has implications for clinical practitioners, educators, and policymakers, emphasizing the need for comprehensive intervention strategies that consider the individual's unique experiences and environmental context.

Keywords: *aggression, domestic violence, children-in-conflict with the law, case study*

Aggression in young adults is a multifaceted and intricate issue, bearing significant consequences for both individuals and society at large. The ramifications of aggression and violence extend to various undesirable social outcomes, including family discord and criminal activities such as murder, rape, and theft (Kallstrom et al., 2020). Additionally, an escalation in gender violence, intra-family violence, child abuse, and delinquency further compounds the societal challenges posed by aggressive behaviors (Trenas, Osuna, Olivares, & Cabrera, 2013).

Concerns intensify as studies, such as those by Lloyd (2018), emphasize the potential impediment of violent behaviors on the psychological development of young adults and adolescents. Notably, there is a discernible surge in the incidents of aggression within these age groups, manifesting as a growing concern in societal observations, particularly in educational settings (Lee et al., 2020). Moreover, the World Health Organization (WHO) warns that aggression and violence rank among the top 20 global causes of disability-adjusted life years, with projections indicating a rise by 2030 (Mercy et al., 2017).

Attributing factors to a person's aggressiveness reveals a complex interplay of environmental, genetic, and socio-economic elements. Environmental factors, as suggested by Younan et al. (2016), contribute to aggression, while genetic influences, as indicated by Allen (2018), play a significant role in shaping aggressive tendencies. Socioeconomic status, according to Van Lange et al. (2018), also emerges as a notable factor affecting the level of aggression. Combining biological and psychological aspects, studies underline the impactful role of families in shaping aggressive behaviors, both directly and indirectly (Raine, as cited in Masud et al., 2019), underscoring the enduring impact of childhood experiences on later psychosocial development.

Exposure to violence and stress during childhood and adolescence is linked to elevated risks of physical and mental health problems

in adulthood. Pioneering studies, such as the 1995–1997 research on adverse childhood experiences (Dube et al., 2001; Fellitti et al., as cited in Galano et al., 2021), underscore how these events have a lasting impact from childhood into adulthood. Ineffective parental disciplinary methods and bonding, coupled with inadequate monitoring, contribute substantially to childhood aggressiveness, becoming pivotal factors in the theoretical and empirical foundations of lifelong antisocial conduct.

The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) reveals a concerning estimate, indicating a lifetime prevalence of violent aggression among U.S. adults at 13.4% (Harford, Yi, & Grant, 2014). Similar or higher rates are reported for young adults engaging in physical altercations (Massoglia, 2006; McEwen et al., 2019). Childhood maltreatment and deficient parental practices continue to exhibit a strong association with early and severe childhood and adolescent aggression, prominently featuring in the theoretical and empirical foundations of lifelong antisocial behavior.

Global data on violence, such as that provided by Butchart & Mikton (2014), accentuates the prevalence of homicide, intimate relationship violence, and sexual assault against women. Interpersonal violence emerges as the third most common cause of mortality for individuals aged 15 to 29 in the European region, according to the World Health Organization (Sethi, 2006). Survey research on physical fights and violence perpetrated by women is nuanced by cultural differences and the significance of injury burdens (Reed, Raj, Miller, & Silverman, 2010).

Comprehensively addressing the multifaceted nature of aggression requires a deep understanding of its origins and societal implications, prompting the need for targeted interventions to mitigate its impact. Therefore, this study endeavors to delve into and thoroughly comprehend the intricacies of young adult aggression. Specifically, it aims to

identify the factors influencing aggression in young adults, examine the impact of their experiences in this regard, and propose effective measures for addressing and alleviating these issues.

This study is grounded in Bandura's Social Learning Theory, which plays a pivotal role in elucidating the link between childhood experiences and the subsequent development of negative behaviors. According to Bandura (2019), this theory posits that children learn aggressive behaviors by observing others' actions and witnessing the reinforcement of these behaviors over time. Bandura's research indicates that young children may emulate aggressive behaviors exhibited by adults in socially constructed situations, hypothesizing that such behaviors evolve through repeated reinforcement or modeling.

Moreover, Social Learning Theory contends that children often mirror actions or behaviors observed within their peer groups or social circles (Fox et al., 2016). This theory finds support in a study investigating the role of childhood experiences and social factors among juvenile serious, violent, and chronic offenders. The study revealed a significantly high percentage of children who admired antisocial peers were themselves serious, violent, and chronic offenders, underscoring the impact of Social Learning Theory (Fox et al., 2016). Another correlated social factor among these juvenile offenders was having at least one family member incarcerated, further emphasizing the influential role of social learning when negative childhood experiences are considered.

The study also aligns with Bronfenbrenner's Ecological Theory, which asserts that environments intricately shape individuals through a complex web of relationships. According to Bronfenbrenner, individuals actively engage with and shape their surroundings rather than being passive recipients of external influences. The ecological framework comprises five interconnected systems: the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. The microsystem

refers to the immediate context in which a person is situated, such as family, classmates, and school, while the mesosystem delineates the connections between these various microsystems.

By incorporating these theoretical frameworks, the study aims to provide a nuanced understanding of the interplay between social learning processes, childhood experiences, and ecological influences on the development of aggressive behaviors in young adults.

Methodology

Research Design

This qualitative study employed a narrative case design, a research method characterized by an in-depth exploration of a particular case or instance through the systematic collection and analysis of narrative data. The choice of a narrative case study design was motivated by the aim of gaining a deeper insight into how the participant perceives the world, particularly in terms of life experiences (Connelly & Clandinin, as cited in Lucas, 2018). This approach facilitates a comprehensive understanding of the participant's identities, both as a narrator and as an individual situated within their contextual circumstances (Sonday et al., 2020). By adopting this methodology, the study seeks to unravel the intricacies of the participant's unique narrative, shedding light on the subjective aspects of their worldview and the interplay between personal experiences and contextual factors.

Participant Selection

This study employed a purposive sampling technique to select a participant residing in a DSWD shelter for children and young adults in conflict with the law. To initiate the participant selection process, the researchers engaged with DSWD personnel, providing them with information about the study's purpose and goals. The researchers ensured compliance with DSWD requirements and obtained ethical approval from the university to proceed with the research.

After gaining the necessary approvals, the researchers convened with all young adults aged 18 to 25 residing in the shelter. After establishing rapport, the researchers administered the Buss-Perry Aggression Questionnaire to assess aggression levels. Subsequently, three individuals with the highest scores were shortlisted. Through consultation with DSWD staff, the participant with the highest aggression score was selected for inclusion in the study. This meticulous approach to participant selection ensures relevance to the study's focus and adheres to ethical and procedural guidelines set by both the institution and the DSWD shelter.

The Participant

Born on September 13, 2004, in MCU Caloocan City, Naruto hails from a family where his father worked in construction while his mother assumed the role of a housewife. As the fourth of five siblings, Naruto shares a particularly close bond with his older brother. Our encounter with him occurred at the CICAL shelter when he was 18 years old.

Naruto's early life unfolded in the midst of turmoil within his household, marked by the distressing spectacle of his mother enduring frequent abuse at the hands of his womanizing father. Despite starting school around the age of 6, Naruto's educational journey was truncated, never progressing beyond the 6th grade. Consequently, he found solace in the streets, engaging in altercations and succumbing to the allure of computer games.

The circumstances surrounding Naruto's life took a decisive turn, leading him to the CICAL shelter due to suspicions of drug trafficking and other acts of defiance. This narrative provides a glimpse into the complex web of challenges that shaped Naruto's upbringing and ultimately led him to the shelter.

Data Sources

The primary data sources for this study involved conducting semi-structured interviews, primarily comprising open-ended questions, with both

the participants and personnel within the facility. Additionally, supplemental data was gathered through psychological tests, anecdotal reports, and genograms.

Data Analysis

This qualitative research employed Labov's comprehensive framework for data analysis, encompassing a meticulous examination of linguistic and narrative structures. The analysis process encompassed the identification of narrative components such as orientation, complicating action, evaluation, resolution, and coda, enabling a nuanced exploration of the participants' storytelling dynamics. Additionally, Labov's framework facilitated a qualitative investigation into the sociolinguistic variations present in the narratives, shedding light on the intricate interplay of language, context, and individual experiences.

Results and Discussion

Based on the transcribed interviews both with the participant and the DSWD personnel, three themes emerged as the factors that led to Naruto's development of aggressive behavior.

Exposure to and Experience of Domestic Violence

Naruto declared that he witnessed and experienced all types of abuse or violence, which consisted of him having fatal wounds, being punished, and being physically abused. The client and his legal guardian affirmed this in several interview sessions.

"My mother was being abused by my father on a daily basis, and one of them had my father hitting my mother with a glass bottle, I was only 12 years old at that time".

The client declared that around 3 to 6 years old, he often saw his biological father and mother fight whenever he arrived home from school.

“Yes, I was just studying, when I was coming home, my mother and father would fight and then harm me over their fight.”

It never stopped him from seeing violence for he himself experienced it because of a single accident that endangered Naruto's life itself. Naruto declared:

“When my grandmother was cooking nuts, I bumped into the door, toppling the cooked nuts. My grandmother picked up a metal ladle and smacked it with it. My head bled and my white shirt was tainted red because of how much blood I lost, I was brought to the hospital afterward. The ladle used was still hot.”

The participant's experience of “hurting from violence around” has been identified as a factor contributing to his development of aggression. Aggressive behaviors have been associated with exposure to violence. According to studies (Drummond et.al., 2021; Graham-Bermann & Perkins, 2010), children who are exposed to violence in their homes, schools, and communities are more likely to behave aggressively. In addition, being exposed to violence might result in adverse consequences like anxiety and sadness (Graham-Bermann & Perkins, 2010). Furthermore, a study by Kemp and colleagues (2020) discovered that teenagers' increased aggression was linked to exposure to community violence. According to another study by Crook and colleagues (2019), young adults who experienced parental violence displayed more aggressive behaviors. Exposure to violence may impact the development of aggression through the process of social learning. Social learning theory proposes that individuals learn behavior through observation and reinforcement of others' behavior (Bandura, 1977). In the context of exposure to violence, individuals may observe and internalize aggressive behavior as a way of coping with and responding to violence.

Experience of Neglect

The second theme of the data revealed a pervasive and distressing theme of neglect in the life of Naruto, stemming from a profound lack of parental supervision and genuine concern for their well-being. The participant consistently reported instances where his parents exhibited an alarming disinterest in their lives, showcasing a striking absence of emotional and practical support.

A recurrent narrative was the indifferent attitude of parents, who seemed unconcerned even when their children were absent for extended periods. Naruto expressed feelings of abandonment and emotional neglect, detailing instances where parental figures displayed an alarming apathy towards their whereabouts, activities, and overall welfare. The lack of a supportive and nurturing environment had a profound impact on the emotional and psychological well-being of these individuals.

The findings align with existing literature on the detrimental effects of parental neglect on adolescent development. Several studies have emphasized the critical role of parental supervision and emotional support in fostering positive outcomes for young adults. Notably, research by Bowlby (1969) highlighted the importance of secure attachments and consistent parental care in shaping healthy emotional development.

Additionally, studies such as those conducted by Dubowitz et al. (2022) and Stith et al. (2009) have extensively documented the adverse consequences of neglect, emphasizing its association with a range of psychosocial issues, including depression, anxiety, and behavioral problems in adolescents.

The work of Strathearn et al. (2020) delves into the long-term impacts of parental neglect, underscoring its potential to disrupt various facets of development, from cognitive functioning to interpersonal relationships. Their research emphasizes that the absence of reliable and supportive caregiving during formative years can have lasting implications for mental health and well-being.

In summary, the research findings on the theme of neglect among young adults resonate with established literature, highlighting the critical importance of parental involvement, supervision, and emotional support in promoting positive developmental outcomes during the transitional phase from adolescence to adulthood.

Dysfunctions in the Immediate Environment

The analysis of the data revealed a poignant theme, highlighting the pervasive dysfunctions within the immediate environments in which Naruto grew up. Key dysfunctions identified include having an incarcerated family member, exposure to drugs, experiencing marital separation, and residing in a community marked by constant neighbor quarrels and strained relationships.

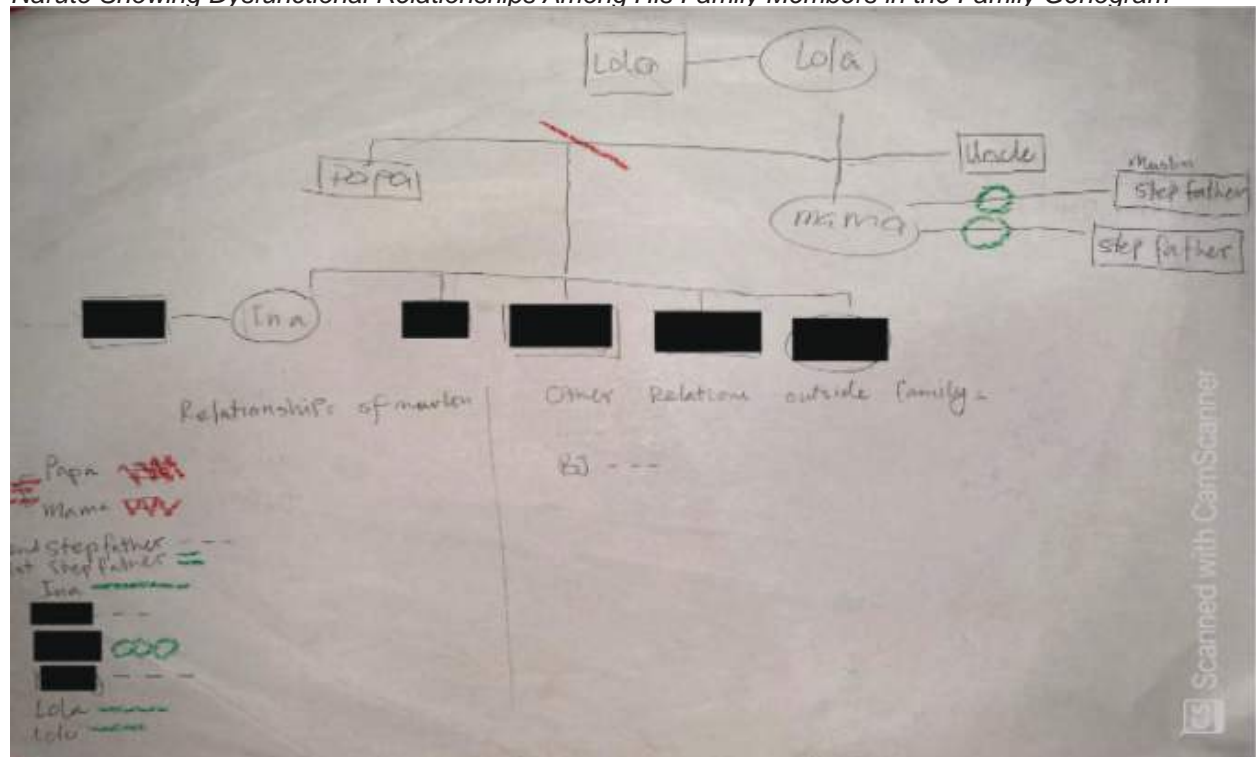
A common thread among participants was the presence of an incarcerated family member. The emotional and psychological toll of having a family member behind bars emerged as a prominent theme.

"My mother was always at the mercy of my father, she was hit with a bottle, I was 12 at the time. My brother and I would always avenge her. So, they broke up because of that. 2015. My mother was imprisoned, but she and dad got back together, but they separated again. Drugs are the reason for prison. Mom was released in 2020. When my mother found out that my father had a mistress, they separated again. I got angrier because I did not know what to do."-Naruto

In his family genogram, Naruto identified cut-off relationships among his family members.

Figure 1

Naruto Showing Dysfunctional Relationships Among His Family Members in the Family Genogram



A noteworthy aspect of the theme involved the strained relationships within the community. The participant described living in environments marked by constant neighbor quarrels and an overall lack of harmony. The hostile community atmosphere added an additional layer of stress, further exacerbating the challenges young adults faced in their formative years.

"It's quite chaotic and squatter... there's too much noise and gossiping around from the morning till afternoon. In the evening, it becomes a little quiet because there are cops roaming."-Naruto

Research by Sampson, Morenoff, and Gannon-Rowley (2005) highlights the profound influence of neighborhood characteristics on individual development. Their work emphasizes that living in communities marked by social disorder, violence, and strained social ties can contribute to a range of negative outcomes for residents, including young adults.

Furthermore, studies by Murray and Farrington (2008) underscore the impact of familial disruptions, such as incarceration and marital separation, on the emotional and behavioral well-being of adolescents and young adults. The findings suggest a strong association between family-related dysfunctions and adverse developmental outcomes.

The themes of domestic violence, neglect, and dysfunctional environments coalesce around the unified idea that adverse childhood experiences contribute significantly to the development of aggressive tendencies in young adults. These adverse experiences disrupt the ecological systems outlined in Bronfenbrenner's theory, impacting individuals across multiple levels.

Naruto's adverse childhood experiences, which resulted in the development of his aggressive behaviors, also manifested three prominent themes: isolation, inability to control anger, and impulsiveness. Each theme reveals specific challenges faced by Naruto as a direct consequence

of adverse circumstances they encountered during their formative years.

Isolation

The theme of isolation underscores the pervasive sense of social and emotional detachment. Negative experiences, such as trauma, abuse, or familial dysfunctions, contributed to an overwhelming sense of alienation. Naruto frequently described feeling estranged from peers, family, and even themselves. This isolation manifested as difficulties in forming and maintaining relationships, exacerbating feelings of loneliness and contributing to mental health struggles.

"I don't have friends. I just want to be alone."

Yang and colleagues (2018) explored the relationship between ACEs and adult social isolation. Their findings suggested that exposure to multiple ACEs was associated with increased odds of experiencing social isolation in adulthood. Further, in a study examining the relationship between ACEs and social isolation, Hughes and colleagues (2017) found that individuals with a history of childhood trauma were more likely to report feelings of loneliness and social disconnection.

Inability to Control Anger

The theme of an inability to control anger emerged as a significant outcome of negative experiences. Naruto detailed challenges in managing and regulating his emotional responses, particularly anger. Negative encounters, whether through abuse, violence, or dysfunctional family dynamics, appeared to contribute to heightened emotional reactivity. This difficulty in controlling anger not only strained interpersonal relationships but also posed internal challenges, potentially leading to further social isolation and emotional turmoil.

"Yes, when I'm very angry, I can't control it. I once used to bully a kid in a computer shop over no certain reason."

In the study by Kim and colleagues (2017) on the impact of childhood abuse on anger regulation in adulthood,. Their findings suggested a significant association between a history of abuse during childhood and heightened anger dysregulation in adulthood.

Impulsiveness

The theme of impulsiveness captured the impetuous and often rash decision-making reported by Naruto. Negative experiences seemed to contribute to a lack of impulse control, leading to behaviors that could have detrimental consequences. Impulsivity, whether in relationships, academics, or personal choices, emerged as a coping mechanism or a response to the perceived lack of control over one's life. This theme suggests that negative experiences can influence decision-making processes, potentially hindering long-term well-being.

"When I was still outside, I was into so much playing of the computer and that's really what I liked. I played Roblox, I didn't play Dota. When I got a cellphone, I started playing Mobile Legends all the time, to the point that I didn't want to leave the house anymore." - Naruto

In essence, the emergent themes of isolation, inability to control anger, and impulsiveness collectively depict the intricate interplay between negative experiences and the psychological, emotional, and behavioral challenges faced by young adults. Understanding these themes is crucial for developing targeted interventions and support systems to mitigate the lasting effects of adverse experiences on their well-being.

Conclusions and Recommendations

In examining the case of Naruto, it becomes evident that a complex interplay of adverse childhood experiences (ACEs) has significantly contributed to the manifestation of aggression, coupled with

associated challenges such as isolation, an inability to control anger, and impulsiveness. The prevalence of domestic violence within the familial environment, coupled with experiences of neglect and environmental dysfunctions, has left an enduring imprint on the individual's psychological and behavioral development.

This study is a huge step forward because it not only looks at the intricacies of aggression in children but, more importantly, shows ways of attacking aggressive behaviors before they even start. To protect our social fabric from the corrosive effects of aggression, it is important to concentrate on building community-based and family-oriented programs.

The community family programs that serve as a strong base for preventive intervention should be reinforced. Ensuring easy access to community resources and support networks becomes a top priority. Outreach programs, community counseling services, and workshops are some significant initiatives that help to develop resilience within society while fostering positive interconnections. If we provide families with the means to handle challenges correctly, they will act as a way out of turning aggression in young adults into something bigger.

In cases of domestic violence, an urgent call to action would mean taking the affected individual out of a harmful environment as soon as possible. Placement in a secure facility as an emergency procedure provides safety, and healing can begin. This intervention not only protects the young adult from further harm but also breaks the cycle of violence, which provides an opportunity for rehabilitation and development.

Furthermore, a holistic approach also encourages the improvement of programs within Children in Conflict with the Law (CICL) shelters. Thus, contributing to the holistic development of individuals is possible by only enhancing their life skills and integrating spiritual dimensions into rehabilitation. By cultivating resilience, teaching

pragmatic life skills, and incorporating spirituality, we enable youths in CICL shelters to go beyond the struggles that stemmed from their past circumstances.

Therefore, this study, in a nutshell, reveals the sources of aggression, but it is also an alarm about advanced progressive action from society-based interventions. Through strengthening our networks of community support systems, moving decisively to stop domestic violence cases, and improving the quality of programs offered in CICL shelters, we set a transformative course that will help prevent the development of and mitigate hostile behaviors for these young adults.

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The Hunted Ghosters: A Phenomenological Study on Ghosting

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Ghosting has emerged as a new break-up strategy, especially among young adults, and studies have focused mostly on its effects as a break-up tactic and the victim's perspective; less is known about the ghosters' perspective on ghosting. The study analyzes and understands a certain phenomenon called ghosting from the perspective of the individual who committed it with the use of technology. Using a qualitative research approach called phenomenology, the study sought to identify the reasons for ghosting and describe and give meaning to the experiences of those who commit it. Five young adults who committed ghosting were interviewed and asked for their experiences, reasons, and understanding of what they did. Three themes emerged related to their reasons: feelings of imprisonment, differences, and fear. On the other hand, their experiences with ghosting were abrupt and gradual. The result of the study emphasized that ghosting is not a desirable strategy, but the study also revealed that not all ghosters have the same experiences with ghosting. They have distinct reasons and experiences when it comes to ghosting. Lastly, for their insights on ghosting, two themes emerged: prudence and the importance of closure. It is recommended that mental health professionals evaluate the well-being of both the ghosted and the ghosters. Lastly, it is recommended that future related studies focus on studying habitual ghosters, as this study only focuses on first-time ghosters.

Keywords: *ghosting, break-up, phenomenology*

Romantic relationships and dating have become a part of a young adult's life, but they have become emotionally painful for many. Before turning 30 years old, an average of three relationship breakups are experienced by most people (Morris et al., 2015). Most people will end a relationship at some point in their lifetime since it takes many failed relationships to discover someone with whom they can create a long-term pair bond (Buss, 2003; Fisher, 1989; Morris & Reiber, 2011). With the aid of technology, discontinuing or dissolving a relationship seems to be done more online than a face-to-face strategy, as the process only involves messaging or social media applications to facilitate a breakup, like texting the other partner to discontinue the relationship (Pancani et al., 2022). However, another strategy has evolved when it comes to dissolving a relationship among young adults, called "ghosting."

Ghosting is ending a relationship abruptly, without explanation, and without responding to the other person's attempts to contact the disengager or ghoster (LeFebvre et al., 2019). Most people think about it in the context of digital departure: a friend not responding to a text, or worse, a lover, but it happens across all social circumstances, and it is tied to the way one views the world. (Popescu, 2019). By some estimates, about 60-70% of emerging adults, people who belong in the age bracket between 18-19 years old (Arnett, 2015) and have been related to technology for almost all of their lives (LeFebvre et al., 2019), have ghosted someone else (LeFebvre et al., 2019; Timmermans et al., 2020). This behavior serves as the most significant indicator of a failing relationship, letting the victim of ghosting (hence referred to as the victim) know that the ghoster intends to end the connection (LeFebvre, 2017). Furthermore, ending a relationship might invoke adverse emotions/emotional reactions in young adults like grief, worry, and rage, as well as physical consequences like the loss of appetite and difficulty sleeping (Morris & Reiber, 2011). The level of

compassion that breakup recipients attribute to various breakup strategies varies. Sprecher (2010) discovered that the breakup strategies regarded as the most callous were coercion, mediated/distant communication, and withdrawal/avoidance. This shows how ghosting is an uncaring breakup tactic based on a withdrawal or avoidance strategy done through technology (Koessler, 2019).

In 2022, a Filipino politician introduced legislation to make "ghosting," or abruptly ceasing connection with someone, a form of emotional abuse. Negros Oriental Rep. Arnolfo Teves Jr. stated in House Bill No. 611, which was disclosed to the media in July 2022, that ghosting forms trauma since it "develops feelings of rejection and neglect." Being the victim of ghosting can result in unwanted feelings being held in one's heart, as evidenced by anecdotal examples from popular culture articles (Carter, 2013; Spira, 2016). A study by Freedman (2022) and several authors revealed that those who are ghosted convey sadness and hurt feelings. They felt threatened by their fundamental needs like control, self-esteem, belongingness, and a meaningful existence.

Studies have been done to understand the effects of ghosting from the perspective of the ghosted. However, there is limited research regarding the effects of ghosting from the perspective of the ghosters. The motivations and consequences of using ghosting as a breakup tactic for ghosters have yet to be empirically investigated. Especially in the Philippine setting, there is limited research on understanding ghosting among Filipino young adults from the perspective of the ghosters and why they do it. This study aimed to gain more knowledge about ghosting and understand the reasons behind it, especially among young Filipino adults.

The purpose of this study is to explore the phenomenon of ghosting and to learn about the experiences of ghosters among Filipino young adults. This study was conducted online or face-to-face. Specifically, this study aimed to answer the following research questions:

1. What are the reasons ghosters ghost?
2. What was the experience of the ghosters when they ghosted?
3. How do the ghosters make sense of their experience of ghosting?

Methodology

Research Design

To seek and understand more about the phenomenon of ghosting, a qualitative approach was selected. The approach investigates the everyday experiences of the participants while suspending the researchers' preconceived assumptions about the phenomenon. In other words, phenomenological research studies lived experiences to gain deeper insights into how people understand those experiences (Delve. Ho, 2022). Phenomenology represents a detailed and systematic attempt to understand the structures of first-person lived experience.

Participants

The study was conducted in person, and all the participants were from Puting Kahoy, Silang, and Cavite. The researchers posted about the current study on Facebook, reaching participants. Informed consent was given to the participants before conducting the interview. The researchers posted about the current study on Facebook, reaching participants. Purposive sampling was applied so that only those who qualified for the criteria were shortlisted. The criteria for selecting the participants are: Filipino youth, within the age range of 18-29 years old, living in Puting Kahoy, Silang, Cavite, either male or female; recently initiated ghosting to dissolve a romantic relationship (the latest ghosting experience must not go beyond six months after the dissolved relationship); and have not entered a new relationship. Table 1 presents the profile of the participants.

Table 1

Participants' Demographic Profile

Participant	Age	Gender	Length of relationship before ghosting	Recency of ghosting	Type of relationship (online/Face-to-face/Mixed)
GG	23	Male	7 months	April- October 2022	Online
Ms. C	22	Female	5 years	December 2022	Mixed
FB	22	Male	1 year and 2 months	2022	Mixed
MJ	22	Male	1 year	2022	Mixed
Caesar	22	Male	2 years	2022	Mixed

Instrumentation

Interviews are the main data sources in this study. Interviews are intended to find out the experiences, understandings, opinions, or motivations of participants. These are the most common qualitative data gathering techniques used with grounded theory, focus groups, and case studies (Creswell, 2018). An example of an interview is a non-directive interview where unguided questions are asked, including open-ended ones, as a form of spontaneous engagement and to elicit more answers from the interviewee (Cohen et al., 2007). On the other hand, a focus-group interview is with a group of participants in which they are asked about their opinions or perceptions concerning a particular topic (Barbour, 2005). For this study, both

non-directive and focus-group interviews were used to obtain the participants' answers. Demographic profile questions and the interview questions that will help attain answers to the research questions were used. The demographic questions consist of age, sex, educational attainment, address, duration of relationship before the ghosting experience, and the time (e.g., months) after the initiation of ghosting. There are two versions of the questions, one in English and one in Tagalog for those who cannot speak English. The interview questions that will answer the research questions were open-ended, so that the participants could express their thoughts freely. The interview questions were also in two versions, one in English and one in Tagalog for those who cannot speak English. All additional queries were raised to answer the research questions.

Analysis of Data

Data analysis involves categorizing and interpreting verbal or visual content to draw conclusions about explicit and implicit dimensions, structures, and levels of meaning present in the content and what it depicts (Merriam, 2016). The following steps were used to examine the transcripts of the interviews using Colaizzi's descriptive phenomenological method: familiarization, identifying important statements, formation of meanings, assembling themes, creating a thorough explanation, the process of creating the basic framework, and seeking verification of the basic structure.

Ethical Considerations

In this study, informed consent was given to protect the participant's rights, dignity, and privacy. To guarantee confidentiality and adhere to ethical considerations, the researchers asked the permission of the participants in the study. The informed consent was given and explained to the participants before conducting the interview. Upon reading the informed consent, the researchers will explain the informed consent for clarification.

The researchers will inform the participants that the interview will be recorded on their cellphone. The recorded responses will be transcribed, and the voice record will be deleted after transcription. Pseudonyms will be used instead of real names to safeguard the participant's anonymity and confidentiality.

Results and Discussion

This section presents the results and discussion as analyzed from the semi-structured interview data coded into themes. Each theme is supported by the verbatim responses of the participants and is presented to provide evidence on how themes were drawn.

Reasons for Ghosting

To answer Research Question 1, "What are the reasons ghosters are ghosting?" four themes emerged: feelings of imprisonment, incompatibility, fear, and unmet expectations.

Feelings of Imprisonment

The first theme that emerged from the interview data is that the participants have experienced feelings of imprisonment from their own partner. From the transcript of the interviews, most of the participants expressed that they had experience handling demanding partners. They affirm that throughout their relationship, there are times that their partner always seeks attention, despite their recent interaction, making the participants feel like they have lost their personal space. Participant Caesar, 22 years old, described that he was annoyed and overwhelmed by the presence of their partner. Caesar said:

"Yung pananaw ko sa isang relationship is dapat at least may time ka para sa sarili mo, hindi yung lahat ng oras ay para sa isa't-isa lang, siguro sumobra na siya at one point... [dahil dun] parang nawawalan na ako ng time para mag-isip para sa sarili ko." (Caesar, 22 years old)

Like Caesar, Mj, a Filipino 22 years old, also shared that he also experienced a demanding partner. He added that he was unable to study and do his own hobbies due to his partner being too demanding for attention. Mj said:

"Siguro i-categorize natin siya as aggressive. Hindi yung aggressive na nananakit, pero yung aggressive pagdating sa intimacy." (MJ, 22 years old)

Like Caesar and MJ, Ms. C, 22 years old, also shared that she also experienced a demanding partner. She added that she was not able to focus on herself and do her own responsibilities. Ms. C said:

"I am fed up na rin sa nakikita ko na talagang nakakaapekto na sa faith ko bilang isang Adventist." (Ms. C, 22 years old)

Incompatibility

The second theme that emerged from the data is incompatibility. GG, a 23-year-old, claimed that at first, their relationship was going well until his lover divulged her private life. He was shocked to learn about her socioeconomic condition, which stoked his fears and insecurities. This caused him to believe that their relationship would not become compatible. GG said:

"I think when we had atalk, regarding the status in life, I was talking to her about, t like, how my status couldn't compare to hers, na masasabi mo na, our social classes were way different from one another, and that, even if I wanted to have a relationship, or even if I wanted to make something special between us, it would be nearly impossible for her family to be able to accept me to the point where they will allow themselves to be open to me." (GG, 23 years old)

In contrast to GG, Ms. C was so worried about her lover's different religion, beliefs, and personalities that she struggled for a long time to

maintain their relationship. Subsequently, after five years of dating, she resorted to ghosting her lover. She said:

"Siya po ay isang pro-Catholic, and yung papa at mama niya ay talagang tanyag na mga katoliko, so there are many struggles na nangyayari po sa amin. Although, in our first years, na kami ay magkasama po ay masaya, masaya po talaga. Hindi ko po talaga nakakalimutan yun." (Ms. C, 22 years old)

Fear

The third theme that emerged is fear. The fear of serious commitment, of hurting the partner, and of not being accepted by the family is the common fear of the participants. FB, 22 years old, said that he ghosted his relationship because he was afraid to be ghosted first. Their constant arguments and fights, which undermine their feelings, are brought on by long distance relationships. He said:

"Bali yung nangyari na po, kasi ganon naman po sa lahat ng relationship, yung sa una po like, andun yun spark, exciting po, tsaka nung pagkatagal tagal po parang naging routine na lang siya, to point na.. dumating sa time na parang na fefeel ko na nafefeel din niya yung nafeel ko na parang humihina na yung spark and humihina na din yung attraction, siguro din sa distance." (FB, 22 years old)

In addition to feeling the fear of being left out first, FB also felt that there were no sparks anymore. According to an article in Psychology Today, people's reasons for ghosting are sometimes based on boredom, loss of interest, and a decrease in romantic attraction. Getting out early, without much effort, can seem like an appealing approach to ending the relationship (DiDonato, 2021).

Experiences of Ghosting

All participants did their ghosting by cutting off all forms of communication with their partners. However, some did it abruptly, while others did it gradually. To answer Research Question 2, “What was the experience of the ghosters when they ghosted?” two themes were identified: abrupt ghosting and gradual ghosting.

Abrupt Ghosting

Abrupt ghosting is caused by sudden cutoffs in communication. One participant, MJ, claims he considered breaking up with his partner and decided to stop communicating with her abruptly to end their relationship immediately. He said:

“Pinakanaaala ko na karansan is yung gabi parang ok pa yung usap naming [nong gabi]. Tapos paggising ko sa umaga, parang nagkaroon ako ng resolve na di na ako makikipagusap sa kanya. Kahit nagchachat siya, di ko na sineseen.” (MJ, 22 years old)

Like MJ, Ms. C also has the same experience, but she physically leaves her partner when she runs away and goes home unnoticed. Although she had thought of breaking off the relationship for some time because of many incompatibilities; nevertheless, her leaving and cutting off communication was abrupt. She shared:

“Nakikita ko sa sarili ko na hindi ko na nagagawa yung para sa sarili ko. Parang hindi ko na kilala yung sarili ko.” (Ms. C, 22 years old)

Gradual Ghosting

This happens when the ghoster decreases their communication with the other partner until it comes to a point where they are no longer replying to them. One of the participants, Caesar, gradually ghosted his girlfriend for some months before cutting all forms of communication. He shared his experience:

“Kasi tanda ko yung time kung kailan ako nagsimula mangghost, noong pagod ako nun kasi galing kaming airport, may susunduin kaming relative, pero tawag siya nang tawag kahit nag chat na ako na wait lang galing ako biyahe, nakakapagod at nahihilo na ako, tapos mga sampung oras na ang sakit-sakit ng ulo ko, [sabi nya] gusto ko makipagusap [sabi ko]mamaya na pagkatapos kong umuwi, pero hindi siya tumigil, so simula noon, palala nang palala yung panggoghost ko”. (Caesar, 22 years old)

Another participant, GG, gradually ghosted his girlfriend out of fear that their differences in socioeconomic status and his partner’s mother might never accept him. He decided to distance himself from her to end their relationship gradually until it became like they were strangers again.

I distanced myself from her. And even though she tried to reach out to me, after a while, it was like things weren’t the same anymore. (GG, Filipino, 23 years old)

According to the participants, it was not easy to ghost, as they thought about it every night and planned it for months or years before resorting to ghosting. Gradual ghosting is committed by the participants as a way for them to contemplate the relationship and to take a break from their stressful relationship. In ghosting, communication ceased without warning, either suddenly or via gradual reductions initiated through or with assistance from mediated contexts (LeFebvre et al., 2019). Through the participants’ experiences, gradual ghosting gradually diminishes communication over time and increases uncertainty during the disintegration process of terminating a relationship.

Insights from Ghosting Experiences

To answer Research Question 3, “How do the ghosters make sense with their experience of ghosting?” three themes emerged: prudence, importance of closure, and undesirable strategy.

Prudence

One theme that emerged from the interview data on the insights of young adults on ghosting their partner is prudence when forming relationships. Most participants realized that one should make good judgment and be cautious when it comes to entering relationships. One example is checking their preparedness for a relationship. MJ, 22 years old, who was in a 1-year relationship before the ghosting last year (2022), stated that in forming relationships, one needs maturity before entering a relationship and to check if one is ready for commitment before entering a relationship, and that one should know more about oneself and about the other person first. He said,

“Siguro need ng maturity before entering in those kinds of things. (MJ, 22 years old, male, in a relationship for 1- year before ghosting his partner in 2022)

He also stressed that one should not rush things when entering a relationship. Do not let emotions take over when making decisions. He shared:

“The best lesson para sa akin ay huwag pairalin ang damdamin. Huwag i- rush ang mga bagay-bagay.” (MJ, 22 years old, male, in a relationship for 1-year before ghosting his partner in 2022)

Likewise, Ms. C, 22 years old, who ghosted her partner last year, also exclaimed that one should not enter a relationship if one does not know the potential partner fully. One should also choose a partner who has the same faith as him or her. She stated:

“So yung lesson na pinaka-natatandaan ko ay huwag kang mag jump into relationship na hindi mo kilala fully yung isang tao, and you must choose a person that has the same faith as you are.” (Ms. C, 22 years old, female, in a relationship for 5 years before ghosting her partner in 2022)

Importance of Closure

Another theme that emerged from coding the interviews is the importance of closure. Ghosting is a strategy where one ends the relationship by no longer communicating with their partner, so the act of closure is off the table when ghosting is done. Most participants emphasized the importance of closure to end a relationship. Caesar, 22 years old, who ghosted his partner of 2 years in 2022, pointed out that it is better to have confronted his partner before leaving her, as to give her an idea of why he wanted to leave the relationship. He said:

Mas mabuti siguro kung kinunfront ko yun bago ako umiwas, para may idea siya kung bakit ako mawala... yun nga communicate talaga better than ghosting siguro.” (Caesar, 22 years old, male, ghosted his partner of 2 years in 2022.)

FB, 22 years old, who ghosted his partner for 1 year and 2 months just last year, said that he regretted a lot for not having any closure with each other and that both should have talked about it, not just decide to own one for both people. He stated:

“I regret talaga, mas maganda na meron closure or nag usap kayo, hindi yung basta-basta ka lang umalis para sa sarili mo like napaka-sarili naman ng reason na ganon.” (FB, 22 years old, male, in a relationship for 1 year and 2 months, did ghosting in 2022.)

Undesirable strategy

The third theme that emerged is that ghosting is an undesirable strategy. Most participants stated that ghosting as a break-up tactic is undesirable because it is wrong, hurts other people, or has a negative effect on the other partner. FB, 22 years old, who ghosted his partner of 1 year and 2 months just last year, said:

"Bali sa na yung napulotan yung aral, like sa palagay ko hindi talaga sya magandang gawin. Kasi una, umalis ka dahil para sayo hindi mabigat. (FB, 22 years old, male, in a relationship for 1 year and 2 months, did ghosting in 2022)

Additionally, Ms. C, 22 years old, who ghosted her partner last year, shared her realization of ghosting with her partner. Her decision to ghost hurt her partner, which makes it an undesirable strategy. She said,

"Basta nalang akong umalis sa relationship na iyon then iniwan ko nalang siya na luhaan and sadly, everytime that I talk to his friends nakikita ko na siya ay nadedepress sa ngayon dahil hindi siya makapaniwala sa nangyayari... Dahil sa desisyon ko, ay nakakasakit pa ako ng tao." (Ms. C, 22 years old, female, in a relationship for 5 years before ghosting her partner in 2022)

Caesar, 22 years old, who ghosted his partner of 2 years in 2022, exclaimed that ghosting is an undesirable strategy because there are better ways to fix problems and that ghosting is like avoiding the problem that needs fixing. And looking back now, he thought that it was embarrassing to do it. He said:

"Kahit may mali yung partner mo, may mas mabuti namang paraan para maayos yung ganung klaseng problema, hindi yung panggoghost lang, kasi para umiiwas ka lang sa problema kung yun ang gagawin mo... kung iisipin ko ngayon, medyo nakakahiya yung mga pinaggagawa ko." (Caesar, 22 years old, male, ghosted his partner of 2 years in 2022.)

He also added that ghosting is not desirable because there will not be any closure if one does ghost, and there will not be any conclusion to the problems. He said,

"Hindi desirable yun. Kasi parang hindi magkakaroon ng conclusion yung problema niyo or hindi kayo magkakaroon ng closure ng ghinost mo if kung never kang makikipagcommunicate so hindi talaga magandang gawin natin yun." (Caesar, 22 years old, male, ghosted his partner of 2 years in 2022)

GG, 23 years old, who ghosted his partner of 7 months in 2022, said that things can be solved by talking together and settling difference, and that ghosting does not give the other person a chance to express themselves, so it is not a desirable strategy and that it is something he will not do again in the future. He said:

"Is it a desirable experience? Very much not. It is not something that I would recommend, it is not something, a solution, it is not something that should be done. And, in any circumstances or whatsoever, because things can be solved by talking together and by settling differences instead of ghosting the other person." (Gg, 23 years old, male, ghosted his partner of 7 months in 2022)

Most participants said that ghosting is an undesirable strategy to end a relationship. Most of them realized that ghosting is not a good thing, especially when they learned the state or condition of the ghosted partner after the ghosting experiences through their mutual acquaintances. The respondents learned that those they ghosted were hurt and sad after the ghosting, and this nods to the evidence from an article by Freedman (2022).

Table 2
Summary Matrix of Themes

Codes and Categories	Themes	Participants' Verbatism Quote
Reasons of ghosters		
Toxic	Feelings of imprisonment	<p><i>"Yung pananaw ko sa isang relationship is dapat at least may time ka para sa sarili mo, hindi yung lahat ng oras ay para sa isa't-isa lang, siguro sumobra na siya at one point... [dahil dun] parang nawawalan na ako ng time para mag-isip para sa sarili ko." (Caesar, 22 years old)</i></p> <p><i>"Siguro i-categorize natin siya as aggressive. Hindi yung aggressive na nananakit, pero yung aggressive pagdating sa intimacy. Siya yung nagiinitiate ng mga bagay-bagay like, pag-uusap or like physical touch. Sa ginawa niya, siguro yung pinakanaiinisan ko ay yung wala na akong time para sa sarili ko. Lahat ng ginagawa ko ay dapat involve siya. Medyo nahihirapan ako dun kasi may growth na hindi mo magagawa kapag kasama mo siya lagi." (MJ, 22 years old)</i></p> <p><i>"I am fed up na rin sa nakikita ko na talagang nakakaapekto na sa faith ko bilang isang Adventist. Dahil po sa kanya, namimiss-out ko yung mga responsibilities ko sa church, hindi ko na nagagampanan ng maayos and mga responsibilities ko kasi masyado siyang needy, at attention-seeker. Lagi nalang sa lahat ng ginagawa ko, lagi siyang nagdedemand ng time, that supposedly lagi akong nandoon, lagi akong sumusuporta sa kanya, and nauubos na rin ako. Nakikita ko sa sarili ko na hindi ko na nagagawa yung para sa sarili ko. Parang hindi ko na kilala yung sarili ko. I've been loving, but still hindi ko nakikita na minahal niya ako. Kaya yung time na yun, yung pinakanaaalala ko talaga ay yung iniwan ko siya sa bahay nila and umuwi ako sa Silang, Cavite." (Ms. C, 22 years old)</i></p> <p><i>"Karansan ko, talagang bugso ng damdamin yung time na sinunod... bugso ng damdamin na hindi ko naisip bakit ko ginawa sa una na kausapin yung isang tao, tapos narealize ko na bakit parang wala naman akong gusto talaga na i-commit yung sarili ko sa ganun" (MJ, 22 years old)</i></p>
Fed up		
Repress		
Difference in beliefs and personality	Incompatibility	<p><i>"I think when we had a talk, regarding the status in life, I was talking to her about like, how my status couldn't compare to hers, na masasabi mo na, our social classes were way different from one another, and that, even if I wanted to have a relationship, or even if I wanted to make something special between us, it would be nearly impossible for her family to be able to accept me to the point where they will allow themselves to be open to me. And hence, I think, with that openness that we had towards each other, if it drew a line as to what we could only be, instead of what we would want to be. And in that way, we distanced ourselves." (GG, 23 years old)</i></p>
Difference in socioeconomic status		

[table continues on the next page]

“Siya po ay isang pro-Catholic, and yung papa at mama niya ay talagang tanyag na mga katoliko, so there are many struggles na nangyayari po sa amin. Although, in our first years na kami ay magkasama po ay masaya, masaya po talaga. Hindi ko po talaga nakakalimutan yun. Pero nung mga nagdadaang mga taon, mga 4-5 years ay nakikita ko po yung parents niya na against po sila sa relationship namin, and nakikita ko yung mga bad habits niya lalo na po nung nag punta po ako sa bahay nila. kasi nung December na po yun ay nagpunta po kami dun sa bahay ng ex ko and nagbakasyon po ako dun for atleast one month and meron po akong mga nakikitang mga bad habits, like magastos pala siya, laging siyang nagagastos ng pera. Hindi siya marunong mag save. Tapos nakikita ko po ay lagi siyang palamura, and nakikita ko rin po ay hindi rin po siya paladasal, na everytime kapag siya niyayaya kong mag dasal at mag worship, tumatanggi siya. Mas inuuna pa niya yung mga ibang bagay kaysa dun. Kaya napagtanto ko po this recently, pinagisipan ko naman po ito ng maayos simula nung January, pero nakita ko po rin talaga na mas higit talaga ang kanyang mga bad habits at mga bad character kaysa po dun sa pagsasama po namin.” (Ms. C, 22 years old)

Insecurities	Fear	<i>“Bali yung nangyari na po, kasi ganon naman po sa lahat ng relationship, yung sa una po like, andun yun spark, exciting po, tsaka nung pagkatagal tagal po parang naging routine na lang sya, to point na.. dumating sa time na parang na fefeel ko na nafefeel din nya yung nafeel ko na parang humihina na yung spark and humihina na din yung attraction, siguro din sa distance. Dumating talaga yung time na yung parang hindi na tulad sa dati. Bali nung na feel ko na parang nararamdaman din nya yung nararamdaman ko, bali sa takot na maunahan nya ako, inunahan ko na lang kaya ayun.” (FB, 22 years old)</i>
Fear of hurting		
Uncommit		

“I think one major thing, there was that she was from a prominent family, part of like the millionaires in India. It was more of like ghosting out of fear that something may happen, and if her mom would find out about the relationship we had, even though it was like an online setting, it would have a bad image towards their family, because of course, they’re from a very prestigious and rich family. Also, it was me trying not to ruin her life. Because I knew at that time too, since I’ve just came out of a relationship that I would be very toxic. I would be very toxic in the way that I deal with relationships. So, I was trying to save her from that as well” (GG, Filipino, 23 years old)

“Oo, kasi parang, biglaan eh, tapos, di ko ine-expect na magiging malalim yung impact dun sa taong yun. Kailangan kong mangghost para di ako maipit or matali sa committment, Unang-una, wala man talaga akong plano,

[table continues on the next page]

hindi ko siya nakikita sa future ko. Pangalawa, nadala lang din ako, kaya naging kami. Kaya sa nakikita ko na hindi talaga kami” (MJ, 22 years old)

Experiences of ghoster		
Cut off Communication	Abrupt Ghosting	<i>“Pinakanaaala ko na karansan is yung gabi parang ok pa yung usap naming [nong gabi]. Tapos paggising ko sa umaga, parang nagkaroon ako ng resolve na di na ako makikipagusap sa kanya. Kahit nagchachat siya, di ko na sineseen.” (MJ, 22 years old)</i>
Escape		<i>“Nakikita ko sa sarili ko na hindi ko na nagagawa yung para sa sarili ko. Parang hindi ko na kilala yung sarili ko. I’ve been loving, but still hindi ko nakikita na minahal niya ako. Kaya yung time na yun, yung pinakanaaalala ko talaga ay yung iniwan ko siya sa bahay nila and umuwi ako sa Silang, Cavite. And I don’t know what happened to him, kasi hindi na rin ako nagpaparamdam sa kanya hanggang ngayon.... Pinagisipan ko naman po ito ng maayos simula nung January, pero nakita ko po rin talaga na mas higit talaga ang kanyang mga bad habits at mga bad character kaysa po dun sa pagsasama po namin.” (Ms. C, 22 years old)</i>
		<i>“Para hindi nya ako ma-ghost. Ako na lang yung parang umuna.” (FB, 22 years old)</i>
Lesser Communication	Gradual Ghosting	<i>“Kasi tanda ko yung time kung kailan ako nagsimula mangghost, noong pagod ako nun kasi galing kaming airport, may susunduin kaming relative, pero tawag siya nang tawag kahit nag chat na ako na wait lang galing ako biyahe, nakakapagod at nahihilo na ako, tapos mga sampung oras na ang sakit-sakit ng ulo ko, [sabi nya] gusto ko makipagusap [sabi ko]mamaya na pagkatapos kong umuwi, pero hindi siya tumigil, so simula noon, palala nang palala yung panggoghost ko”. (Caesar, 22 years old)</i>
Distancing		<i>“I distanced myself from her. And even though she tried to reach out to me, after a while, it was like, things weren’t the same anymore.” (GG, Filipino, 23 years old)</i>
Insights of ghosters		
Cautiousness	Prudence	<i>“Siguro need ng maturity before entering in those kinds of things. Maturity, sa pagpili, kilalanin muna yung personality ko. Tapos, yung person na kilalanin ko din. And then, tingnan kung kaya ko ba pasukin yung ganon relation or commitment before entering.” (Mj, 22 years old, male, in a relationship for 1-year before ghosting his partner in 2022)</i>
Maturity		
Preparedness		<i>“The best lesson para sa akin ay huwag pairalin ang damdamin. Huwag i-rush ang mga bagay-bagay.” (Mj, 22 years old, male, in a relationship for 1-year before ghosting his partner in 2022)</i>

[table continues on the next page]

“So yung lesson na pinaka-natatandaan ko ay huwag kang mag jump into relationship na hindi mo kilala fully yung isang tao, and also you must choose a person that has the same faith as you are. Dahil magkaiba yung paniniwala namin, may constant religious conflict kami, and yun ang pinaka-struggle ko sa relationship namin.” (Ms. C, 22 years old, female, in a relationship for 5 years before ghosting her partner in 2022)

“It’s more of like understanding kung what are your wants, what are your limitations as well, what are the things that you can achieve and that you can’t have and the things you shouldn’t.” (GG, 23 years old, male, ghosted his partner of 7 months in 2022)

Confrontation	Importance of closure	<i>Mas mabuti siguro kung kinunfront ko yun bago ako umiwas, para may idea siya kung bakit ako mawala... yun nga communicate talaga better than ghosting siguro.” (Caesar, 22 years old, male, ghosted his partner of 2 years in 2022)</i>
Communication		
Consider others’ feelings		<i>“I regret talaga, mas maganda na meron closure or nag usapan niyo, hindi yung basta-basta ka lang umalis para sa sarili mo like napaka sarili naman ng reason na ganon. Like, yung reason ko lang napaka makasarili iba talaga if may meron ah mutual ah understanding ganito tigil natin to. So hindi yung basta-basta mo ighost.” (FB, 22 years old, male, in a relationship for 1 year and 2 months, did ghosting in 2022)</i>
		<i>“Sana kinausap ko nalang nang maayos, diba. Subalit yung ginawa ko, ginhost ko, parang walang ng paliwanag. Walang closure dun sa babae, so kawawa din siya.” (MJ, 22 years old, male, in a relationship for 1-year before ghosting his partner in 2022)</i>
		<i>“I am very guilty, because supposedly I should talk to him before doing an action na alam kong makakasakit sa kanya. And I am very sad about it, kasi siya yung first love ko. Dapat nirerespeto ko yung lalaki na yun kahit ganun pa siya. Dapat nagkaroon ng proper closure para matanong niya kung bakit, ano yung nagawa niya sayo. Dapat kinausap ko siya ng maayos. Then I will say all the things na hindi ko nagugustuhan sa kanya para maintindihan niya kung bakit gusto kong makipagbreak sa kanya.” (Ms. C, 22 years old, female, in a relationship for 5 years before ghosting her partner in 2022)</i>
		<i>“As I said, it goes back to the way that you should communicate. Even though you have reasons as to why you do it, you should be able to thoroughly communicate. Kaya nga nagkakaroon tayo ng what do we call this, yung closure.”</i>

[table continues on the next page]

So that you know the reasons. You know the what's, what ifs, the how's, the whys, regarding your situation, it's never just about yourself, but it's also about other people and no matter what you're also dealing with another person's life just as much as you're dealing with your own." (GG, 23 years old, male, ghosted his partner of 7 months in 2022)

"You should be considerate of the emotions of the other person feels. Na kahit na ginawa mo na yung bagay na yun, as much as it is something that you think it would be good for them, you have to be openly communicative about it, kasi hindi mo alam kung ano mararamdaman nya. Iba ang pakiramdam nung naiiwan dun sa nangiiwan. As much as you are clear with the fact that "oh you are doing this para sa kanila naman." It may not come as, as the way you explained it. Sila yung masasaktan, sila yung maiiwan. So, in general na ganon, you should be considerate and very... ano to.. very open to the feelings of other person. Especially the person na iiwan mo in this situation." (GG, 23 years old, male, ghosted his partner of 7 months in 2022)

Not desirable

Undesirable strategy

Bali sa na yung napulotan yung aral, like sa palagay ko hindi talaga sya ma-magandang gawin. Like siguro para sayo like, kasi una kang uma-umalis para sayo hindi mabigat. Pero yung epekto nun sa taong ginawan mo ng iyon ay napaka negative, so hindi ko' hindi sya advisable, like, tulad nung ngayon naganap na ghosting na iyon, like sunod-sunod yung mga message niya gamit yung ibang account saka kahit ano pa yan, napatawag pa sakín yung mga ibang group, na ito daw ang nafefeel ng taong iyon, like malungkot daw sya umiiyak ganon ganon, so na feel ko talaga malaki yung negative impact, so hindi ko sya irerecommend na gawin iyon." (FB, 22 years old, male, in a relationship for 1 year and 2 months, did ghosting in 2022)

"Para sakín hindi sya ka-ayaaya, makasarili yung dating ng ghosting eh, like your parang ginawa mo yun para sa sarili "mo natakot ako baka maunahan ako." So pinull-out mo yun sarili mo para hindi ka masyado masaktan, pero hindi mo iniisip yung consequence kung ano maging epekto nun sa taong ginawan mo nun. Diba? So hind siya kaayaaya kaugalian." (FB, 22 years old, male, in a relationship for 1 year and 2 months, did ghosting in 2022)

"Basta nalang akong umalis sa relationship na iyon then iniwan ko nalang siya na luhaan and sadly, everytime that I talk to his friends nakikita ko na siya ay nadedepress sa ngayon dahil hindi siya makapaniwala sa nangyayari... Dahil sa desisyon ko, ay nakakasakit pa ako ng tao." (Ms. C, 22 years old, female, in a relationship for 5 years before ghosting her partner in 2022)

"Hindi kasi, kahit may mali yung partner mo, may mas mabuti namang paraan para maayos yung ganung klaseng problema, hindi yung pangghost lang, kasi para umiiwas ka lang sa problema kung yun ang gagawin mo... kung iisipin ko ngayon, medyo nakakahiya yung mga pinaggagawa ko." (Caesar, 22 years old, male, ghosted his partner of 2 years in 2022)

"Hindi desirable yun. Kasi sa sabi ko nga kanina diba, parang hindi magkakaroon ng conclusion or conclusion yung problema niyo or hindi kayo magkakaroon ng closure ng ghinost mo if kung never kang makikipagcommunicate so hindi talaga magandang gawin natin yun." (Caesar, 22 years old, male, ghosted his partner of 2 years in 2022)

Para sakin hindi sya ka-ayaaya, maka-sarili yung dating ng ghosting eh, like your parang ginawa mo yun para sa sarili "mo natakot ako baka maunahan ako." So pinull-out mo yun sarili mo para hindi ka masyado masaktan, pero hindi mo iniisip yung consequence kung ano maging epekto nun sa taong ginawan mo nun. Diba? So hind sya kaayaaya kaugalian." (FB, 22 years old, male, in a relationship for 1 year and 2 months, did ghosting in 2022)

"Is it a desirable experience? Very much not. It is not something that I would recommend, it is not something, a solution, it is not something that should be done. And, in any circumstances or whatsoever, because things can be solved by talking together and by settling differences instead of ghosting the other person. By ghosting the other person, basically giving up on them na ganon na sila, without giving them a chance to fight back, without giving them a chance to be expressive about how they feel. So, it is not a desirable character. And it is not something that I want to do again nor it not something that I would do in the future." (GG, 23 years old, male, ghosted his partner of 7 months in 2022)

Conclusions and Recommendations

Based on the study's findings, ghosting is a behavior used as an easy escape from relationships. Even while some characteristics of ghosting are comparable to established breakup methods discussed in the literature on breakup strategies, ghosting is often considered as a new breakup strategy since researchers link its incidence to media technology. In relation to the ghosters' insights, it is revealed that ghosters do realize that

ghosting is an uncaring break up strategy. No matter their reasons for ghosting, they acknowledge that it was an undesirable end for any relationship. The ghosters' perspective regarding ghosting is that it is not a desirable strategy to end a relationship. They realized that ghosting hurts others and has negative effects on the partners they ghosted with. They realized that ghosting is bad upon learning the effects of ghosting on their partners, like when they learned that their partner was hurt when they

were ghosted. They felt guilty for hurting their partner and also realized that ghosting is selfish. It is recommended that future related studies focus on studying habitual ghosters as this study only focuses on first-time ghosters. They could also explore the cultural differences regarding ghosting and use other methodological designs like mixed methods as ghosting has become a worldwide phenomenon.

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External Factors, Musical Self-Esteem, and Music Performance Anxiety Among College Students

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This study was conducted to determine the correlations between external factors, which consist of family support and peer competition, and musical self-esteem towards music performance anxiety (MPA). The study used four self-constructed questionnaires that measured the respondents' external factors, musical self-esteem, and music performance anxiety. The respondents were selected using the purposive sampling technique and the snowball sampling technique. There were 108 respondents from selected Universities and Colleges in the National Capital Region (NCR) and CALABARZON, Philippines. The result shows that the respondents receive high family support ($M = 4.02$; $SD = 0.67$) and moderate support from peers ($M = 3.15$; $SD = 0.59$). Also, musical self-esteem ($M = 3.36$; $SD = 0.56$) and music performance anxiety ($M = 3.47$; $SD = 0.66$) are both moderate. The result shows no significant relationship ($p > .001$) between external factors, musical self-esteem, and MPA. The findings of the study suggest that the respondents' do not see their family support and peer competition as having significantly influenced their anxiety about music performance. In addition, their anxiety about music performance is not related to their confidence in their own abilities. Moreover, music performance anxiety is the same regardless of sex, duration of music lessons, or type of musical instrument. The study implies that external factors and musical performance do not influence music performance anxiety. Further studies may explore other variables such as emotional quotient, cognitive functioning, and musical education.

Keywords: *music performance anxiety, peer competition, family support, musical self-esteem*

As former trained music students, both researchers have experienced music performance anxiety to varying degrees, such as cold clammy hands, dry mouth, and heightened consciousness before or during a performance. Just like any other performer, musicians may often experience music performance anxiety (Brodsky, 1996). Debilitating or not, performance anxiety certainly leaves an impact. Although not every musician is exposed directly to performance anxiety, every musician faces influences from external factors and their own self-esteem. There is convincing evidence that most young musical performers' trust and abilities are supported by loving parents dedicated to assisting their children through the challenging yet enriching experience of learning an instrument (Davidson et al., 1996). This support is considered supreme in a student's early musical development since it gives a sense of security and trust in their abilities. Music performance anxiety (MPA) is a distressing experience for musicians of all ages, but it has undergone little scientific research to date. (Osborne and Kenny, 2005).

The research study was designed to address a few specific issues. The first of these is family support in music education. Although some music teachers welcome and encourage parents to be present during their children's lessons, others prefer that parents not attend at all (Jorgensen, 1986). The researchers were interested in observing the development of high-achieving musicians who received a higher level of parental involvement in their music education. The second issue to be addressed was peer competition and whether peer interactions that foster competitive attitudes have a positive or negative impact on the subjects' music careers. The third issue of interest is self-esteem, particularly in music ability. Do musicians with higher musical self-esteem attain further success than those with less assurance? The final research inquiry pondered whether the (IV)

"External factors" which included family support towards music education, peer competition, and "musical self-esteem" affected (DV) musicians' music performance anxiety.

Research Questions

1. What is the level of external factors in music education of student musicians in Philippine universities in terms of the following:
 - Family support?
 - Peer competition?
2. What is the level of musical self-esteem of the respondents?
3. What is the level of music performance anxiety of the respondents?
4. Is there a significant relationship between external factors and music performance anxiety?
5. Is there a significant relationship between musical self-esteem and music performance anxiety?
6. Is there a significant difference in music performance anxiety considering the following demographic variables:
 - a. Duration of formal music lesson
 - b. Sex
 - c. Type of musical instrument

Methodology

This study used quantitative methods, specifically a descriptive-correlation design. The descriptive method is utilized in determining external factors, which consist of family support and peer competition, as well as their level of musical self-esteem. Moreover, the correlation design was used to determine how external factors and musical self-esteem relate to performance anxiety.

The population of the study targeted students enrolled in several colleges and universities in the Luzon region of the Philippines. The respondents had to fulfill all three of the specific criteria: be

between the ages of 18-30, be enrolled in a college in Luzon, and have at least one year of formal music education and training in various specialties. Among these were voice, piano, percussion, string, wind, brass instruments, and music theory. The population for the full study came from several colleges and universities in the National Capital Region (NCR) and CALABARZON, Philippines.

To obtain the data that is necessary for the study, the investigators used four instruments. The Parental Involvement and Home Environment in Music (PI-HEM) scale was adapted to measure family support. The second instrument was the Competitive Attitude Scale (CAS) designed by Ryckman et al. (1996), which measured the respondents' attitudes towards peer competition within a positive framework of development. The third instrument was the Self-Esteem of Music Ability (SEMA) scale, originally designed by Schmitt (1979) to measure students' musical self-esteem levels, and the final instrument was the Kenny Music Performance Anxiety Inventory (K-MPAI), developed by Kenny (2004) to measure students' performance anxiety levels.

Due to the ongoing coronavirus outbreak in the Philippines and the unpredictable quarantine regulations, the researchers gathered data and responses from the respondents online. The researchers approached several colleges from NCR and CALABARZON through email, which was found through their school websites, and sent a request letter to the head dean of the college asking permission to conduct the study. Upon approval, the questionnaire was sent only to the consenting participants through a Google Document form, which can be distributed via email or Facebook Messenger, depending on the participant's convenience. The questionnaires inquired about email address, age, type of instrument (including

voice), and duration of musical education, along with the different inventories. The participants' responses were recorded automatically once the forms were filled out and submitted. Finally, after the researchers collected all the data, they encoded it in MS Excel and submitted it to the statistician to obtain the statistical analysis data.

The researchers assured participants that ethical considerations were appropriately discussed in the study. The study's respondents were kept anonymous. Briefing was done with informed consent prior to the administration of the questionnaire by giving information about the study to the respondents. Respondents were rest assured of their ethical rights, such as anonymity, the right not to be coerced, the right to withdraw, and confidentiality, as they participated in the study.

The statistician used descriptive statistics to determine the variables overall levels, and Pearson-R Correlation to find the relationship between the variables. Other tests utilized were the independent t test, Kruskal-Wallis, and ANOVA. The SPSS program was run to interpret the gathered data.

Results and Discussion

The data was analyzed using descriptive statistics, Pearson-R correlations, independent t tests, Kruskal-Wallis, and ANOVA. The discussion follows the sequence of the research questions posted.

Level of External Factors in Music Education *Family Support*

Table 1 shows the level of family support received by the respondents. The results indicate that the overall level of family support ($M = 4.02$; $SD = 0.67$) is interpreted as high support.

Table 1*Level of Family Support*

No.	Items	Mean	SD	Scaled	VI
1	My parents pay for my music lessons.	4.31	1.28	Agree	High
2	My parents ensure that I do sufficient practice at home	3.88	0.99	Agree	High
3	My parents provide transportation to my music activities.	4.20	1.20	Agree	High
4	My parents attend my school concerts/recitals.	4.22	0.98	Agree	High
5	My parents would say that being in music is a worthwhile experience.	4.43	0.79	Agree	High
6	My parents brag about my musical involvement.	3.55	1.09	Agree	High
7	My parents value my musical achievement.	4.24	0.89	Agree	High
8	My parents provide music instruction materials (e.g. music sheets, music supplies, etc.)	3.91	1.12	Agree	High
9	My parents emphasize to me that music education should be in all schools.	3.47	1.06	Neither Agree nor Disagree	Moderate
Grand Mean		4.02	0.67	Agree	High
Mean of Sum Scores		36.7	6.02		Moderate

Peer Competition

The result in Table 2 shows the grand mean of peer competition ($M = 3.15$; $SD = 0.59$) which is interpreted as moderate. This means that generally the respondents were neither highly competitive nor uncompetitive.

Table 2*Level of Peer Competition*

No.	Items	Mean	SD	Scaled	VI
1	Winning in competition makes me feel more accomplished as a person.	3.54	1.05	Neither Agree nor Disagree	Moderate
2	Competition inspires me to excel.	3.55	1.07	Agree	High
3	I often find myself turning a friendly game or activity into a serious contest or conflict.	2.82	1.19	Neither Agree nor Disagree	Moderate
4	Gaining praise from others is not a serious reason in joining competition.	2.32	0.99	Disagree	Low
5	I tend to view my friends as rivals.	2.39	1.11	Disagree	Low
6	I enjoy competition because it brings me to a higher level of motivation to bring out the best of myself.	3.55	1.11	Agree	High
7	Competition does not help me develop my abilities more.	3.67	0.86	Agree	High
8	It is okay to quit during competition.	3.63	1.05	Agree	High
9	I feel envy toward my peers who receive rewards for their accomplishments.	2.89	1.07	Neither Agree nor Disagree	Moderate
10	Failure/loss in competition makes me feel inferior to others.	3.17	1.16	Neither Agree nor Disagree	Moderate
Grand Mean		3.15	0.59	Neither Agree nor Disagree	Moderate
Mean of Sum Scores		31.5	5.87		Moderate

Musical Self-Esteem

Table 3 presents the level of musical self-esteem of the respondents. The result presents the grand mean of musical self-esteem ($M = 3.36$; $SD = 0.56$) which is verbally interpreted as *moderate*.

Table 3

Level of Musical Self-Esteem

No.	Items	Mean	SD	Scaled	VI
1	I can read music well.	3.39	0.95	Neither Agree nor Disagree	Moderate
2	I can play music for others.	3.83	0.93	Agree	High
3	I'd be glad if teachers asked me to play or sing for programs.	3.37	1.08	Neither Agree nor Disagree	Moderate
4	I would like to have a professional career in music.	3.15	1.08	Neither Agree nor Disagree	Moderate
5	Music is harder for me than for other people.	3.32	0.99	Neither Agree nor Disagree	Moderate
6	I feel worthless every time I make mistakes during music performance.	2.97	1.20	Neither Agree nor Disagree	Moderate
7	People my age admires my musical ability.	3.38	0.91	Neither Agree nor Disagree	Moderate
8	Compared to other people, I think I am talented in music.	3.00	0.97	Neither Agree nor Disagree	Moderate
9	My friends really like my musical performances.	3.56	0.74	Agree	High
10	I know music well enough to help others learn it.	3.58	0.94	Agree	High
Grand Mean		3.36	0.56	Neither Agree nor Disagree	Moderate
Mean of Sum Scores		33.6	5.56		Moderate

Music Performance Anxiety

The result in Table 4 presents the grand mean of music performance anxiety ($M = 3.47$; $SD = 0.66$) which is verbally interpreted as *moderate anxiety*. This indicates that the respondents generally do not experience high or low levels of music performance anxiety.

Table 4

Level of Music Performance Anxiety

No.	Items	Mean	SD	Scaled	VI
1	Prior to a performance, I experience increased heart rate like pounding in my chest.	4.25	0.78	Agree	High
2	I experience increased heart rate like pounding in my chest during performance.	3.92	1.08	Agree	High
3	my worry and nervousness about my performance interferes with my focus and concentration	3.68	1.05	Agree	High
4	I worry so much before a performance, I cannot sleep.	2.95	1.20	Neither Agree nor Disagree	Moderate

[table continues on the next page]

5	Prior to a performance, I experience shaking or trembling, or tremors.	3.25	1.21	Neither Agree nor Disagree	Moderate
6	During a performance, I experience shaking or trembling, or tremors.	3.18	1.13	Neither Agree nor Disagree	Moderate
7	I remain committed to performing even though it causes significant anxiety.	3.99	0.88	Agree	High
8	I am concerned about a negative reaction from the audience.	3.71	1.09	Agree	High
9	I am uncertain before a concert whether I will perform well.	3.63	0.94	Neither Agree nor Disagree	Moderate
10	Even in the most stressful performance situations, I am confident that I will perform well.	2.87	0.90	Neither Agree nor Disagree	Moderate
11	During a performance, I find myself thinking about whether I'll even get through it.	3.36	1.01	Neither Agree nor Disagree	Moderate
12	I worry that one bad performance may ruin my career.	2.86	1.19	Neither Agree nor Disagree	Moderate
Grand Mean		3.47	0.66	Neither Agree nor Disagree	Moderate
Mean of Sum Scores		41.6	7.88		High

Relationship Between External Factors and Music Performance Anxiety

Table 5 presents the correlation analysis of external factors & music performance anxiety. The result shows no significant relationship between external factors and performance anxiety. This means that neither family support ($p = 0.09$; $r = 0.33$) nor peer competition ($p = 0.06$; $r = 0.54$) have a correlation with performance anxiety.

Table 5

Correlation Analysis Between External Factors and Music Performance Anxiety

Variable	Performance Anxiety	
	r	p
Family Support	0.33	0.09
Peer Competition	0.54	0.06

The result implies that the external factors such as support from family and peer competition do not influence the music performance anxiety level of the respondents.

Relationship Between Musical Self-Esteem and Music Performance Anxiety

The result of the correlation analysis between musical self-esteem and music and music performance anxiety is presented in Table 6. The result shows that there is no significant relationship between musical self-esteem and music performance anxiety, meaning that musical self-esteem ($p = 0.37$; $r = -0.09$) and music performance anxiety do not have a correlation.

Table 6*Correlation Analysis between Musical Self-esteem and Music Performance Anxiety*

Variable	Performance Anxiety	
	r	p
Musical Self-esteem	-0.09	0.37

Differences in the Level of Music Performance Anxiety

Table 7 presents the results of the Kruskal-Wallis test to determine the difference on the level of performance anxiety, according to different durations of formal music lessons. The result shows no significant difference in the level of music performance anxiety considering duration of formal music lessons ($p = 0.97$; $H = 0.67$; $df = 2$). The result implies that regardless of the duration of music lessons (1-5 years, 6-10 years, and 10+ years), the level of music performance anxiety is the same.

Duration of Formal Music Lessons**Table 7***Difference in the Level of Music Performance Anxiety by Duration of Formal Music Lessons*

Measure	Mean Rank	H	df	p	Verbal Interpretation
1-5 years	55.1	0.67	2	0.97	Not Significant
6-10 years	53.5				
More than 10 years	53.8				

Sex**Table 8***Difference in the Level of Music Performance Anxiety Considering Sex*

Variable	Sex Group		t	df	p	Verbal Interpretation
	Male	Female				
Sex	M = 3.51 SD = 0.51	M = 3.45 SD = 0.72	0.46	106	0.09	Not Significant

The result shows no significant difference in the level of music performance anxiety considering sex ($t = 0.46$; $p = 0.09$). The result suggests that regardless of sex, the level of music performance anxiety is the same.

Type of Musical Instrument

The result in Table 9 shows that there is no significant difference in the level of music performance anxiety considering the types of music instruments ($F [4, 103] = 1.86$; $p = 0.12$). This implies that the level of music performance anxiety is the same regardless of the kind of instruments musicians play.

Table 9*One-Way Analysis of Variance in Music Performance Anxiety by Musical Instrument*

Source	df	SS	MS	F	p	Verbal Interpretation
Between Groups	4	3.11	0.78	1.86	0.12	Not Significant
Within Groups	103	43.0	0.42			
Total	107	46.1				

Despite setbacks and limitations, the current study has generated novel results regarding college student musicians in the Philippines and sparked additional ideas of further exploration. With each subsequent research study and its findings, researchers anticipate a plethora of discoveries that may advance understanding of the struggle's musicians face, along with methods to combat them, and the overall enhancement of musicians' welfare.

There are some possible explanations for the findings that can be concluded. (1) Cultural perceptions of peer competition; (2) developmental stage with regards to need for autonomy; (3) faking bad/good in musical self-esteem, (4) pandemic effect; and finally, (5) other variables not measured in the study.

Cultural perceptions of peer competition in the Philippines may affect the respondents' performance anxiety through collectivism and the fatalistic mentality of "bahala na." Collectivism values working with others and discourages actions that may be at others' expense, while "bahala na" promotes accepting whatever happens. This can negate a desire for improvement or change. The cultural context of these values may provide an underlying reason for the respondents' moderate level of peercompetition, and therefore, its nonsignificant relationship with music performance anxiety.

Another possible factor may be the developmental stage that the respondents are in. Most of the respondents are in their late teens to 30 years old, the young adult stage, according to Erikson (1950). They are all college students. Although they have all taken music lessons for at least a year, many respondents may no longer be as actively involved in music as they once were due to business in academics or work scheduling. It may even be worth noting that some respondents may pull away from their family's expectations of music, as a means of transitioning into their own autonomy and lifestyle. Young adults who might have spent a great deal of time focused on music previously may now have the financial means and independence

to explore other individual interests. Erikson states that the search for intimacy is common in the young adult stage. As a result, music, and whatever attitudes the respondents hold towards it may be faded and put on the back burner.

Regarding the third explanation, respondents may be manipulating their responses when answering the questionnaire, especially concerning musical self-esteem. This may be because respondents do not want to seem exaggeratedly overconfident (anxiety over backlash) or musically inferior (sense of pride) and would rather settle for a neutral option. Depending on how they truly see themselves, respondents may be faking good or bad, resulting in a moderate level of musical self-esteem. Another issue is that the study only measures musical self-esteem and not the general self-esteem of the respondents.

Regarding the third explanation, it is important to understand the Filipino value of *hiya*, commonly known as "shyness" or "shame." It is a value deeply connected to pride and self-image. An article by Sabio (2017) quotes Robert Diaz, a Filipino professor at the University of Toronto, saying "Hiya is not only shyness or shame; it's a particular type of saving face." A study by Saito et al., (2010) also states that *hiya* is a term used by people to avoid being attacked by others. By using the word *hiya* as an excuse, they resist attacks from others while defending and magnifying their self-esteem. Filipino respondents may be utilizing the value of *hiya* when answering the questionnaire, especially concerning musical self-esteem. This may be because respondents do not want to seem exaggeratedly overconfident (anxiety over backlash) or musically inferior (sense of pride) and would rather settle for a neutral option. Depending on how they truly see themselves, respondents may be faking good or bad, resulting in a moderate level of musical self-esteem.

Another unanticipated factor that may have affected respondents' attitudes and answers may be the current global pandemic. Due to social restrictions, large gatherings are discouraged,

making it difficult for music to be performed live. Any musical projects are now usually pre-recorded at home or other venues without a live audience. This may impact the respondents' attitudes toward music performance anxiety, as some of the items about live performances may not be applicable at this time.

The final possible explanation related to the results of the study is that family support, peer competition, and musical self-esteem simply not the variables related to music performance anxiety at all. This is one of the new findings yet surprising result. The other variables not measured in the study could have been correlated with music performance anxiety.

Conclusions and Recommendations

The student musicians report high levels of family support and moderate levels of peer competition, musical self-esteem, and music performance anxiety. External factors, such as family support and peer competition, are not correlated with music performance anxiety. Musical self-esteem does not have a significant correlation with music performance anxiety. According to the results, none of those variables had a significant correlation with music performance anxiety, thus confirming the null hypothesis. Music performance anxiety is the same regardless of the demographic variables: duration of music lessons, sex, and type of musical instrument. Furthermore, the null hypothesis states there is no significant difference, which is accepted.

The study suggests that universities in Luzon could hold training programs or seminars to help student musicians develop their musical self-esteem to a more optimal level and discuss awareness of and techniques to reduce music performance anxiety. These programs could also strive to fine tune and transform existing moderate levels of peer competition into peak motivations to excel, combined with musical sportsmanship. It is anticipated that we will have a greater understanding of performance anxiety soon, allowing for the dissemination of

information on the issue, intervention strategies, and preventive measures, thus contributing to the well-being of musicians.

Another study should be conducted involving external factors such as peer competition, musical self-esteem, and music performance anxiety, but with a younger developmental stage. Adolescents and children may face additional or different pressures related to music education, and it would be fascinating to note any changes. Further examination of the Filipino values *hiya*, *bahala na*, and collectivism should be conducted to determine if they have a cultural impact on musicians' musical self-esteem, sense of peer competition, and even music performance anxiety. Future research can be done to address the present study's research questions at a time when live music performances, such as concerts and recitals, are once again commonplace. Data gathered at such a time may have a different reflection of the variables.

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Influence of Marital Satisfaction and Coping Strategy on Stress Among Military Dependent Wives: Basis for A Mental Health Program

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The mental health of military wives has a vital effect on the service retention of their military husbands. This descriptive-correlational study identified the influence of marital satisfaction and coping strategies on stress levels among military dependent wives. The respondents' marital satisfaction is *moderate*, their coping strategy is *moderately high*, and their stress level is *moderately low*. Marital satisfaction is *moderately negatively* related to stress levels. Problem-focused coping strategies are also *moderately negatively* related to stress, but emotional-focused coping strategies are *strongly negatively correlated* with stress. Coping strategy dimensions and intimacy predict the overall stress level. There is no significant difference in the stress level of the military dependent wives when age, deployment, and length of being military wives are compared. This study concluded that marital satisfaction and coping strategies are associated with the level of stress among military dependent wives. Thus, this study recommends that military wives must have good marital satisfaction and coping strategies for them to cope with stressful challenges in their lives as they continue to serve their families. Future studies could use a mixed method design to gain a deep understanding of the lives of military wives through an interview.

Keywords: *marital satisfaction, coping strategy, stress, military wives, deployment*

The importance of military wives to the health and happiness of the military family is now well acknowledged. Military lives depend on the spouse's ability to lead the family. Unhappy spouses are more likely to risk the military homes and wellness of the family. Studies and military efforts are starting to put more emphasis on military spouses. There is evidence that doing so could directly impact the wellbeing and retention of military service members (Mailey et al., 2018).

The life of military wives is a stressful and gigantic hurdle to a satisfying marriage. Families and marriages may suffer because of the stresses of military life. Uncertainty and disruptions brought on by military life can cause family members to endure significant levels of anxiety, sadness, and long-term harm to their mental health and wellbeing. From deployment to moving all the time to the consequences of war, location of duty, being far from the immediate family, became a regular marriage problem. Moreover, Verdelli (2015) stated that in the Philippines, having multiple and extended deployments is linked to increased stress, anxiety, and depressive symptoms among wives of military personnel. Based on research that has been conducted, the problem still exists for military-dependent wives. The military lifestyle has been shown to have detrimental consequences on spouses' mental health and marriages, particularly during and after deployment, according to a review of the literature on the subject.

Furthermore, lower levels of rage, depression, and anxiety are significantly linked to greater marital satisfaction. Marital satisfaction has the strongest evidence for promoting resilience among pre-deployment preparations. The factors that are assessed include unit social support, marital satisfaction, and family support. Stronger marital relationships promote improved mental health (Vest et al., 2017).

Marital satisfaction is a state of pleasure and contentment that the individuals within the marriage mutually appreciate when all facets of their living

together are taken into consideration. It needs an effective function between husbands and wives to have a successful marriage, such as receiving assistance from a spouse, taking part in decision-making, sexual satisfaction, social assistance and mental health, a connection to the partner's family, and satisfaction with life (Bilal, 2020).

According to Sayehmiri et al., (2020), many couples view marriage as a holy bond that creates families. The quality of the couple's relationship affects how stable the family unit is. In essence, the mental health of a couple's stability is at risk when they are in dysfunctional marriages, and the survival of the family is also in peril.

Varkish (2016) stated that marital satisfaction can promote positive benefits, particularly through reassurance of worth, guidance or encouragement to seek assistance, and nurturing. Over time, these helpful gestures may make it easier for people to get mental health services, especially for veterans and service members who are experiencing mental health symptoms but may not be emotionally ready for treatment right away after returning from deployment.

Zainah et al. (2012) said marital satisfaction is the most widely used measure in assessing marital functioning and happiness. Specific variables, such as level of intimacy, amount of disclosure, and household chores, highly influence marital satisfaction. They also found out that those people who had been married for a long time had a higher level of marital satisfaction.

Fatimah (2018) evaluated the quality of marital satisfaction in three dimensions which are marital relationship, marital adjustment, and marital intimacy. Based on the results of her study, marital relationships have the lowest level of satisfaction and should be the top priority, followed by marital intimacy and, lastly, marital adjustment, which needs to be improved. Moreover, intimacy is a major factor in marital satisfaction, but in military culture, it is challenging to maintain intimacy with their spouses, who serve in a completely different system.

According to Miriam-Webster Dictionary, readjustment is the act or process of adjusting or adapting oneself again. This term was used specifically to describe a military married couple after having separated because of deployments. Having the spouse deployed can bring up a wide range of emotions, starting when they first learn about the deployment and continuing until the spouse has returned home.

The integration of a couple with distinct personality traits into a union in order to complement one another and achieve happiness and common goals is referred to as marital adjustment (Li et al., 2021). In the event they fail to establish marital adjustment, there might be some issues within the family's cohesiveness that can lead to conflict, emotional devastation, and disintegration in the family (Aktaş et al., 2018).

Maladaptive coping strategies like behavioral disengagement, denial, self-blame, self-distraction, substance use, and emotional venting showed negative links with positive emotions and resilience and positive links with depression. Coping mechanisms can be a chance for these strategies (Dolphin et al., 2018).

Mental health, as defined by the World Health Organization (WHO) (2020), is a state of well-being in which an individual is able to cope with the stresses of everyday life. Well-being is all about how positive people feel about themselves and how that affects their health, vitality, energy, and vitality (Dooley & Fitzgerald, 2012).

As she adjusts to new personal and professional roles and moves around a lot, a military wife may have trouble maintaining a consistent identity. Military wives' sense of self-worth is negatively impacted by career interruptions. The frequent absences of the service members may result in confusion, conflict, or overwork in roles (Biddle, 2016).

Role challenges like these make people feel stressed and frustrated. Stress and negative emotions are likely to result from all these experiences; therefore, these women require

effective coping mechanisms (Eubanks, 2013). In fact, military wives whose coping strategies are healthy have been found to have better mental health than those whose coping strategies are less adaptive.

Stress results from experiencing something odd or unexpected (Martin, 2018). Stress can, however, result in positive reinforcement. For instance, a person may receive attention or sympathy from friends or family while they are feeling uncomfortable.

According to Hobfoll's theory, social relationships or interactions that offer genuine aid or a sense of attachment to a person or group that is viewed as caring or loving are classified as social support. This also includes informational support such as the advice and guidance of partners, members of the family, co-workers, or friends.

The division of numerous coping methods into two broad groups is the subject of the second main theory of coping. Most of the work on this subject is based on these two types of coping, problem-focused coping and emotion-focused coping. An individual's efforts to alter the real problematic circumstance are referred to as problem-focused coping. Emotion-focused coping is the term for the actions taken by a person to control the strong emotions brought on by a stressful circumstance (Folkman & Lazarus, 1980; Thoits, 1995).

The family stress theory indicates the use of this as a theoretical basis for understanding the effects of stress and the ability of military wives to have a basis and assess resources during deployment. The exploration of risks and resiliency factors implies that using this theoretical model was helpful in analyzing the experiences of military wives. In addition, this quantitative study design, guided by key factors of this theory, has proven to be beneficial when studying military families and their experiences.

According to Hill (1958), he originally proposed the family stress theory as a means of understanding why families react differently when

faced with stressors, as some families struggle while others thrive. Hill also coined the family stress theory, which has two variables: the support that families receive and the meaning they assign to the stressful event, to explain the differences in how families react to stressors. With these thoughts in mind, Hill proposed the ABC-X model.

This model concludes that a crisis or stressful event (A), along with the family's resources to handle the crisis (B), and the meaning families assign to that crisis (C) is the way military families cognitively process events during a deployment. The most useful is the contextual model of family stress theory in studying military families. In addition, military spouses are better able to adapt to stressors when they receive and utilize social support (Bowen et al., 2003; Wolf et al., 2010).

Thus, the goal of this study is to address concerns about the lack of research on the overall functioning of military dependent wives, describing their marital satisfaction, coping strategies, and mental health. Creating a good program that could support and improve their mental health is at the very least necessary.

Statement of the Problem

The purpose of this study was to ascertain how stress among military dependent women was affected by marital satisfaction and coping strategy. It specifically responded to the following questions:

1. What is the level of marital satisfaction of the respondents in terms of:
 - a. intimacy, and
 - b. re-adjustment?
2. What is the extent of coping strategy of the respondents in terms of:
 - a. problem-focused, and
 - b. emotion-focused?
3. What is the level of stress among respondents in terms of the following:
 - a. behavioral
 - b. emotional, and
 - c. physical?
4. Is there a significant relationship between marital satisfaction and stress level of the respondents?
5. Is there a significant relationship between coping strategy and stress level among the respondents?
6. Which of the dimensions of marital satisfaction and coping strategy predict stress and its dimensions?
7. Is there a significant difference in the respondents' level of stress considering the following variables:
 - a. age of the military wife
 - b. deployment and
 - c. length of being a military wife?
8. What mental health program may be conducted based on the results of the study?

Methodology

Research Design

The researcher applied a quantitative, descriptive-correlational research design to determine the influence of marital satisfaction and coping strategies on stress among military dependent wives. This method was considered the most appropriate design for this study since it was intended to describe the extents of marital satisfaction and coping strategy as independent variables and stress level as dependent variables. On the other hand, the correlational design was used to determine the influence of marital satisfaction and coping strategies on stress among military dependent wives.

Population and Sampling Technique

The chosen population of this study were military dependent wives from different military bases in the Visayas and Mindanao Regions of the Philippines. A total of 203 participants in the study are drawn from these different military bases.

The purposeful sampling technique was used to gather the participants in the study. The criteria

for the selection of the participants of the study are based upon the following; (a) must be the legal wife of the military personnel; (b) must be of legal age of 20 years and older; (c) must be living together with the military personnel; and (d) must be literate enough to understand and answer the given survey questions.

Instrumentation

The instruments used in this study are adapted questionnaires that are based on concepts taken from the review of related literature and studies, but there are some questions that were revised by the researcher to suit the current inquiry and characteristics of the population of the study.

Demographic Section [DS]. This part of the instrument contains the questions that identify the demographic profile of the respondents, including age, deployment of the military husbands, length of being a military wife, and educational attainment.

Marital Satisfaction Questionnaire [MSQ]. This instrument was adapted from Cui et al., (2008), Funk and Rogge (2007), and Schumm et al. (1983). Exploratory factor analysis determined that there are three factors whose solution was the best setting, explaining 45.77% of the variance, which is reproduced by reliability in the samples. These two dimensions of marital satisfaction questionnaire are composed of 28-item questions measuring marital satisfaction in terms of intimacy and re-adjustment of military couples as perceived by wives.

Coping Strategy Questionnaire [CSQ]. This instrument was constructed and validated by Rosentiel and Keefe (1983). The original version consists of 50 items assessing patients self-rated use of cognitive and behavioral strategies to cope with pain. The proponents of this questionnaire reported internal consistency for the subscales, with Cronbach's alphas ranging from 0.71 to 0.81. The said questionnaire was modified based on the settings of the study, and another three items were added to the items to be more reliable in measuring the coping strategy of military wives in terms of

emotion-focused and problem-focused.

Perceived Stress Questionnaire [PSQ]. This 38-item instrument was adapted from Cohen et al. (1983). It is one of the most widely used stress instruments. The coefficient alpha reliability for the PSQ was .84, .85, and .86 in each of the three subscales. The 45 items scale was designed to tap into the degree to which respondents found their lives unpredictable, uncontrollable, and overloading.

After the approval of the proposed study, validation of the instrument, pilot study, and test of reliability, the researcher secured a letter of endorsement from the Director of the Center for Graduate Studies to conduct the final study at the different military bases in the Philippines within the Visayas and Mindanao regions.

Data Gathering

This study was approved by the institutional Ethics Review Board [ERB] of AUP. The online survey has a cover letter that was attached explaining the purpose of the study, voluntary participation, and the discretion to withdraw from the study at any time they wish to. Anonymity and confidentiality were observed throughout the entire study. This informed consent is answerable by yes or no. If the participants answer no, the survey will end, and they will not proceed to the next section. If the participant answers yes, they will be able to proceed to the next section. In the informed consent, respondents are encouraged to be honest, and confidentiality was ensured. Additionally, all data obtained from the study was kept by the researcher and statistician assigned to it.

Data Analysis

With the help of a university statistician, SPSS was used to obtain the necessary statistical treatment for interpretation. The method of descriptive statistics (frequency, percentage, mean, and standard deviation) was applied to classify the profile of the respondents and find the level of

marital satisfaction, extent of coping strategy, and level of stress. The Pearson Product Moment Correlational Coefficient was utilized to find out the relationship among marital satisfaction, coping strategies, and stress level. To determine the variables that best predicted the stress level, multiple regression was applied. T-test and analysis of variance (ANOVA) were employed in this study to measure the degree of difference between the respondent's profile and the stress level among military wives in the naval base.

Results and Discussion

Respondents' Level of Marital Satisfaction

Table 1 presents the respondents overall level of satisfaction and its subdimensions in terms of intimacy and re-adjustment. The respondents rated the level of marital satisfaction as *moderately satisfied* (mean of 3.25, $SD = .18$). Both intimacy and readjustment were sometimes rated with a *grand mean* of 3.48 ($SD = .19$) and a mean of 3.02 ($SD = .22$), respectively. This result implies that military-dependent wives are moderately satisfied with their marital satisfaction in terms of intimacy and readjustment.

Table 1

Military Dependent Wives' Marital Satisfaction

	M	SD	SR	VI
Intimacy	3.48	.19	Sometimes	Moderately Satisfied
Re-adjustment	3.02	.22	Sometimes	Moderately Satisfied
Marital Satisfaction (Overall)	3.25	.18	Sometimes	Moderately Satisfied

Marital satisfaction is a state of pleasure and contentment in which the individuals within the marriage are mutually appreciated when all facets of their living together are taken into consideration (Bilal, 2020). Additionally, it is an indication of the quality of marriage. Marriage satisfaction genuinely reflects how interested and sympathetic couples are with one another as well as how happy they are to be married. The end outcome of increased marital satisfaction is that the family is protected from any forms of harm (Taghani et al., 2019).

Zainah et al. (2012) claimed that the most frequently utilized indicator of marital functioning and happiness is marital satisfaction. The degree of closeness, the quantity of disclosure, and household responsibilities are specific factors that affect marital satisfaction.

Coping Strategies of Military Dependent Wives

The overall mean of coping strategy is 3.04 ($SD = .16$), with its dimensions being emotion-focused with a mean of 3.05 ($SD = .15$) and problem-focused with a mean of 3.02 ($SD = .19$). The overall coping strategy and its dimensions are *moderate*, as presented in Table 2 below.

Table 2

Level of Coping Strategy of Military Dependent Wives

	M	SD	SR	VI
Emotion - Focused	3.05	.15	Sometimes	Moderately Satisfied
Problem - Focused	3.02	.19	Sometimes	Moderately Satisfied
Coping Strategy (Overall)	3.04	.16	Sometimes	Moderately Satisfied

Legend: 1-1.49 = Never; 1.50-2.49 = Rarely; 2.50-3.49 = Sometimes; 3.50-4.49 = Often; 4.50-5 = Always

This finding suggests that military dependent wives can moderately cope up with the everyday lives' challenges, emotions, and problems by taking steps to address its root causes. Additionally, the respondents can moderately control their emotions towards stressful occurrence by looking for solutions to lessen their impact on them.

Coping strategies can be a chance for maladaptive coping techniques, such as behavioral disengagement, denial, self-blame, self-distraction, substance abuse, and emotional venting, which have been linked negatively to resilient and positive emotions and positively to depression (Dolphin et al., 2018).

Mental health is a state of well-being in which the individual recognizes his or her own abilities and can cope with normal daily stresses in life. The level of positive attitude that individuals have about themselves and its relationship with health, vitality, energy, or verve is what well-being is all about (Dooley & Fitzgerald, 2012).

Level of Stress of Military Dependent Wives

The result of the study revealed that the military dependent wives have a moderate stress level ($M = 2.94$; $SD = 2.22$). All the dimensions in terms of emotional ($M = 2.93$; $SD = .21$), behavioral ($M = 2.92$; $SD = .24$), and physical ($M = 2.99$; $SD = .26$) are also rated moderately by the respondents (Table 3).

Table 3

Level of Stress Among Military Dependent Wives

	M	SD	SR	VI
Behavioral	2.92	.24	Sometimes	Moderately Satisfied
Emotional	2.93	.21	Sometimes	Moderately Satisfied
Physical	2.99	.26	Sometimes	Moderately Satisfied
Stress (Overall)	2.94	.22	Sometimes	Moderately Satisfied

Legend: 1-1.49 = Never; 1.50-2.49 = Rarely; 2.50-3.49 = Sometimes; 3.50-4.49 = Often; 4.50-5 = Always

When the body experiences pressure, its response turns out to be stress. Several occasions or events can trigger stress. When a person experiences something unordinary or something that threatens the person's sense of self, having no control over a situation, stress becomes triggered (Dooley & Fitzgerald, 2012). Military wives experience a unique set of stressors, including the impact of being apart from their husbands, the impact of relocations, the impact of being stationed overseas, and the impact of worrying about their husbands' safety.

The results of the study imply that the respondents are moderately affected and responding to their perceived harmful situations and threats in their lives. Although the stress level of the respondents is moderate, stress means different things to different people. What causes stress to one person can be a little concerning to another. Furthermore, military wives moderately feel unordinary things that threaten their sense of self, including the impact of being apart from their husbands, the impact of relocations, the impact of being stationed overseas, and the impact of worrying about their husbands' safety.

Relationship of Marital Satisfaction and Stress Level Among the Respondents

The results of the study presented in Table 4 show that there is a significant relationship between marital satisfaction in terms of intimacy and behavioral, emotional, physical, and overall stress, with correlation coefficients of $-.657$ ($p = .000$), $-.644$ ($p = .000$), $-.681$ ($p = .000$), and $-.731$ ($p = .000$), respectively, and significant at the 0.01 level.

Table 4*Relationship of Marital Satisfaction and Stress Level of the Respondents*

	Behavioral	Emotional	Physical	Stress
Intimacy				
Pearson Correlation	-.657**	-.644**	-.681**	-.731**
Sig.(2-tailed)	.000	.000	.000	.000
Verbal Interpretation	Significant	Significant	Significant	Significant
Re-adjustment				
Pearson Correlation	-.457**	-.381**	-.313**	-.425**
Sig.(2-tailed)	.000	.000	.000	.000
Verbal Interpretation	Significant	Significant	Significant	Significant
Overall Marital Satisfaction				
Pearson Correlation	-.633**	-.579**	-.519**	-.641**
Sig.(2-tailed)	.000	.000	.000	.000
Verbal Interpretation	Significant	Significant	Significant	Significant

**Correlation is significant at the 0.01 level (2-tailed)

The results of the study show that there is a significant relationship between marital satisfaction in terms of intimacy and behavioral, emotional, physical, and overall stress, with correlation coefficients of -.657 ($p = .000$), -.644 ($p = .000$), -.681 ($p = .000$), and -.731 ($p = .000$), respectively, and significant at the 0.01 level. The relationship of intimacy to behavioral, emotional, and physical stress is moderately negative and strongly negative to overall stress. This result implied that if intimacy is high, the stress level is lower since the relationship is negative or inversely proportional.

Szinovacz (2021) found out that the spouses' perceived ability to implement desired decision-making patterns or their decision-making satisfaction is a better predictor of the husbands' marital adjustment than the implementation of specific decision-making styles, which supposedly represent institutionalized social norms and role-expectations of both spouses.

Additionally, military spouses who have a deployed service member occasionally need to adjust to a prolonged period of separation. For

married military couples, a conflict between work and family during deployment may lead to more stress. Researchers have started to acknowledge how time spent apart as a result of military families' lengthy deployments affects marital dynamics (Andres, 2014; Bergmann et al., 2014; Renshaw et al., 2008).

Relationship of Coping Strategy and Stress Level Among the Respondents

The result of the study in Table 5 shows that there is a significant negative relationship between coping strategies in terms of problem-focused and manifestations of stress such as behavioral, emotional, physical, and overall stress, with correlation coefficients of -.638, -.611, -.598, and -.686 respectively. The results are significant at 0.01 levels. The relationship is moderately negative. This indicates that the higher or more the respondents use problem focused-coping strategies, the less they experience stress in terms of behavioral, emotional, physical, and overall stress.

Table 5*Relationship of Coping Strategies and Stress Levels of the Respondents*

	Behavioral	Emotional	Physical	Stress
Problem-Focused				
Pearson Correlation	-.638**	-.611**	-.598**	-.686**
Sig.(2-tailed)	.000	.000	.000	.000
Verbal Interpretation	Significant	Significant	Significant	Significant
Emotional-Focused				
Pearson Correlation	-.721**	-.709**	-.735**	-.802**
Sig.(2-tailed)	.000	.000	.000	.000
Verbal Interpretation	Significant	Significant	Significant	Significant
Overall Coping				
Pearson Correlation	-.734**	-.712**	-.714**	-.802**
Sig.(2-tailed)	.000	.000	.000	.000
Verbal Interpretation	Significant	Significant	Significant	Significant

This result of the study implied that if the respondents have good coping strategies with their problems, any changes, and challenges in different situations in their lives, then there is a possibility that they will not experience behavioral, emotional, and physical stress in their lives.

Effective coping strategies are crucial for these military wives because all of these experiences are likely to result in stress and poor health (Eubanks, 2013). Indeed, military wives who employ good coping methods report better levels of mental wellness than those who utilize less effective coping strategies.

Predictors of Stress Among Military Dependent Wives**Table 6***Multiple Regression Analysis with Stress*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R	R ²	R ² Change
	B	Std. Error	Beta					
(Constant)	6.669	.265		37.936				
Emotional-focused	-.755	.325	.112	-9.039	.000	.802	.644	.644
Intimacy	-.251	.257	.124	-3.601	.000	.828	.685	.041
Problem-focused	-.181	.035	.135	-2.598	.000	.834	.696	.011

The results show that 69.6% of the total variance is explained by the three predictors of stress among military dependent wives, $F(3,199, 200) = 151.592$, $p < .000$. Of this total variance accounted for, 64.4% is attributed by emotional-focused coping strategy, 4.1% for intimacy and 1.1% problem-focused strategy. Specifically, emotional-focused ($B = -.755$, $t = -9.039$, $p < .001$), intimacy ($B = -.251$, $t = -3.601$, $p < .001$), and problem-focused ($B = -.181$, $t = -2.598$, $p = .01$) are inversely associated with the overall stress of the military wives as reflected in the negative *Beta coefficients* results.

This result suggests that if the military wives have a lower level of emotional-focused coping strategy, a lower level of intimacy, and a lower level of problem-focused coping strategy are more likely to result with higher levels of stress among military wives, or vice versa, higher level of emotional-focused coping strategy, higher level of intimacy, and higher level of problem-focused coping strategy are more likely will result a lower stress level.

Comparison of the Military Wives' Stress Level Considering the Profile

The ages of the military dependent wives were regrouped to 40 years below and above 40 years old. Mann-Whitney test. The result indicates that the overall stress level and its dimensions, such as emotional, behavioral, and physical, are the same for the two classifications of age groups.

However, there is a *significant difference* in behavioral stress ($U = 3547$, $p = .008$) and the overall stress level ($U = 3653.50$, $p = .022$) of the military dependent wives when the deployment is considered.

It is shown that there is *no significant change* in the amount of stress level in terms of behavioral, emotional, and physical, and the overall stress level when the length of being a military wife is compared. Unfortunately, many military couples experience stress during and after this time due to the demanding and dangerous nature of deployment. Each stage of a spouse's separation from their spouse due to work has a different impact on the relationship. The piece has a few drawbacks, though.

Mental Health Program That Can Be Conducted Based From the Results of The Study

The program that was designed is based on the results of this study with the theme "Improving Marital Satisfaction: An Enrichment Program for Military Dependent Wives," which is a series of seminars designed for military dependent wives to alleviate their stress in life by providing programs to

enhance and develop their coping strategies and how to deal with their spouses to have a happy and satisfactory married life. The main goal of the program is to help military dependent wives balance their workloads and challenges in life through different approaches, like coping strategies. More focus will be given to women, particularly to military dependent wives.

Based on the study entitled "Influence of Marital Satisfaction and Coping Strategy on Stress Among Military Dependent Wives," it was found that marital satisfaction is contributing factor to the stress level of military-dependent wives. Coping strategies are also related to the level of stress in terms of behavioral, emotional, and physical stress among military-dependent wives. The result suggests that they are in direct need of psychological intervention to improve their marital satisfaction, specifically in terms of intimacy and re-adjustment. Likewise, the use of coping strategies must be enhanced to minimize the level of stress for military dependent wives.

Conclusion and Recommendations

The respondents are moderately satisfied with their intimacy, readjustment, and overall marital satisfaction. The overall mean of coping strategy, with its dimensions such as emotion-focused and problem-focused is also *moderate*. Additionally, the study revealed that the military dependent wives have a moderate stress level in all dimensions in terms of emotional, behavioral, and physical. This result implied that the respondents are *moderately* affected and responding to their perceived harmful situations and threats in their lives.

Positive perceptions of marital satisfaction in terms of intimacy and re-adjustment will result in a lower stress level in terms of behavioral, emotional, and physical aspects. Moreover, positive perceptions of coping strategies in terms of problem-focused and emotional-focused will also lead to a lower perception of stress levels in terms of behavioral, emotional, and physical aspects.

There are three identified predictors of stress out of the total four variables of marital satisfaction and coping strategies that are intimately associated with stress. These three identified variables are emotional-focused, intimacy, and re-adjustment..

In conclusion, the findings of the study are related to the theories presented and applied in the study in the sense that social relationships or interactions that offer genuine aid or a sense of attachment to a person, which also includes informational support such as providing advice and guidance to partners, aiding, and a deep feeling of attachment, will result in intimacy, marriage adjustment, and high marriage satisfaction. Any event, positive or negative, alters relationships, habits, presumptions, and roles in which a person interacts with a change, whether it is their own or someone else's, as well as the circumstances around the transition at work, in their personal lives, and in other areas, which can cause stress.

However, coping as a process or coping efforts refers to the idea that people choose which coping strategies they will employ as they encounter each new stressor and to the actual thoughts and behaviors that a person engages in while continuing to negotiate an ongoing stressful situation.

Counseling psychologists may recognize the needs of military dependent wives and their mental health to prevent stigma in military couples' relationships. Military wives experience a lot of stressors and issues caused by deployment, which can lead them to feel bitterness and dissatisfaction regarding their military spouse and the conflict.

It is necessary to understand the coping strategy that will be beneficial for the military dependent wives and that can assist them in being more productive. Counselors can develop more meaningful programs that will help military dependent wives as well as their families manage stress effectively by using a problem-focused strategy.

To increase the marital satisfaction of the dependent military wives in terms of intimacy and

to shorten the length of duty during the deployment for them to enhance their readjustment. For military officers, consider the length of deployment as a precipitating factor in the stress level of their dependent wives.

Since marital satisfaction is related to stress level, it is suggested that the military dependent wives attend a psychological program for them to increase the level of intimacy and readjustment, thus decreasing the level of stress.

Researchers can identify and validate the significant variables that maintain and maintain the perceived stress level among military dependent wives. A comparative study between countries is needed, using a mixed-method approach or quantitative-qualitative approach to identify other factors that may have a probable influence on the perceived stress level among military dependent wives.

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Challenges and Coping Mechanisms of Music Major Voice Students During the Covid-19 Pandemic: A Phenomenological Study

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Due to the restrictions caused by the start of the pandemic, voice students find it difficult to cope with the online learning setup. This study answered two research questions: What are the challenges that affected the performance of music major voice students during the pandemic? How did the participants cope with the challenges they experienced? This study, anchored on Nancy Scholssberg's theory of transition, utilized a phenomenology approach with purposefully selected eight participants. Data was gathered and accomplished after the pandemic through in-person and online one-on-one, semi-structured interviews guided by interview guide questions. Interview data were transcribed and translated, then thematically analyzed. Results show that the participants have experienced challenges in the online lessons such as sound quality distortion, limited and dysfunctional devices, distractions, and accompaniment problems. It also revealed that the participants coped by being adaptive, being disciplined, and diverting attention to leisure activities to keep the motivation to learn on hold. Furthermore, it was concluded that every student should be able to have a smooth educational experience, especially when it comes to online learning. Challenges are inevitable, but how they are approached will determine the result. Thus, there is a need for positivity in dealing with life's challenges. For further study, this can be used as a reference in comparing the efficiency of face-to-face vocal lessons and online vocal lessons.

Keywords: *voice students, online voice lessons, challenges, coping mechanisms*

The pandemic has affected aspects of teaching quality and learning outcomes in the music education sector. Prior to the outbreak of the COVID-19 virus, performers were free to rehearse with their pianists, conductors, instructors, and in concert halls without any restrictions. They can perform in concert halls in front of large crowds, sing in churches, and play with an orchestra, among other things. When the COVID-19 pandemic occurred in the month of March in the year 2020, music rehearsals and music lessons were all halted. It is particularly difficult for music majors to cope with the pandemic because they are used to having face-to-face lessons and rehearsals with their instructors.

The performers, in contrast to the pre-pandemic era, can give instructions to their collaborative pianist on how to interpret the piece, and it will be the pianist who will make the necessary adjustments. Music students exert much time and effort into practicing (Jørgensen & Hallam, 2016). It is motivated by the belief that practicing provides the foundation for achieving the technical and musical proficiency required to pursue a professional music career (Evans & Bonneville-Roussy, 2016). Because of the reduced activities at universities and educational facilities due to the pandemic, students in higher education have been obliged to employ other learning routines. Music students had to adjust their musical learning and practices to the circumstances. It is believed that the COVID-19 pandemic has greatly affected musicians (Nusseck & Spahn, 2021).

However, challenges and coping mechanisms among musicians have not yet been explored. There was limited to no literature regarding this study. Thus, this study was conducted to find out the challenges of the music major voice students and how they were able to cope with the shift to the new normal in their performances.

Methodology

Research Design

This study utilized a phenomenological research design. Phenomenology is focused on experience, with the goal of obtaining the purest data that has never been obtained before (van Manen, 2017). The researchers sought to inquire into the perceptions, perspectives, understandings, and feelings of the participants who experienced or lived in the situation of interest. Jotting down personal notes about what was learned from the participants, removing biases, and constructing unbiased narratives increases the data's trustworthiness.

Sampling Technique

Purposive sampling has a long history, and there are as many perspectives on its simplicity as there are on its complexity (Campbell et al., 2020). Eight participants were selected based on the following criteria: voice students from a faith-based university in Silang, Cavite, who have experienced the shift from face-to-face to online learning. The participants' profiles is shown in Table 1.

Table 1
Research Participants' Profile

Participants	Year Level	Gender	Residence Category
Nellie	2 nd year	F	Off-campus
Amon	2 nd year	M	In-campus
Shun	3 rd year	M	Off-campus
Jon	4 th year	M	In-campus
Marvin	4 th year	M	Off-campus
Nina	3 rd year	F	Off-campus
Glenda	3 rd year	F	Off-campus
Dennis	2 nd year	M	Off-campus

Data Gathering Tool and Procedure

Data were obtained through semi-structured interviews via video conferencing with the participants. The interview is an organized conversation guided by new information obtained as the interactive discussion unfolds (Ahlin, 2019).

The researchers formulated the interview questions, which were validated by research experts. After the validation of the interview question guide, the researchers informed and scheduled a date for the interview with the participants. An informed consent was sent, in which the purpose of the study was clearly stated and it was explained that the statements to be collected would be kept confidential for research purposes only. In addition, the researchers informed the participants that they are very welcome to state their emotions, opinions, doubts, and wide range of ideas in responding to the questions.

The interview was recorded verbatim and transcribed for the purposes of data gathering and the accuracy of the analysis. Furthermore, the student-participants were assured that they had access to their responses, which were all considered confidential. Lastly, the responses of the participants were analyzed.

Data Analysis

The study utilized a thematic analysis, as it is a useful and accessible tool for qualitative researchers, and an inductive approach to analysis allows the data to determine the themes. Familiarization, coding, generating, reviewing, and reporting the themes were followed.

Ethical Considerations and Confidentiality

Ensuring the data integrity of the study is one of the most vital rules in conducting a reliable and trustworthy study. Indeed, providing an accurate and appropriate analysis of research findings will result in precise and trustworthy research. Arifin (2018) stated that to protect human subjects is to follow proper ethical norms.

Prior to the conduct of the interview, an application was submitted to the Ethics Review Board, and approval was obtained. An informed consent was given for voluntary participation, free from coercion. The consent included discussing the purpose of the study, how the findings will be used, how their participation matters and its impact on the project, and who will have access to the findings. The researchers informed the participants that the interview would be recorded. Pseudonyms were used instead of real names to safeguard the participants' anonymity and confidentiality. Unfair judgment and biased representation of the result, as well as the use of offensive and discriminatory language, were greatly avoided.

Results and Discussions

Challenges Experienced by the Music Major Voice Students During Pandemic

Four themes emerged, answering the challenges experienced by music major voice students during the pandemic.

Sound Quality Distortion

The first theme that emerged from the interview data is that the participants experienced sound quality distortion. The participants reported that they had encountered internet connection problems. They mentioned that the online lesson was not that understandable because of the poor signal, either on their end or the teacher's. Nellie said:

"Okay, so, for my voice lessons, ma'am Emma's connection wasn't too good and, if I sing higher, it depends on the system that we're using. My voice wouldn't be heard; it would be silenced or muted like in zoom or something... So that's part of the challenges I faced."

As a result of a bad internet connection, participants mentioned that the video conferencing settings were affected, specifically the audio quality. Shun said:

"The sound quality of some software was not particularly good and could not give clear sound quality. Then I could not be synchronized with the teacher during vocalization. Sometimes I couldn't hear what the teacher said in lesson because of the connection problem."

Dennis also has the same statement:

"Okay, so one of the difficulties I've faced was the internet connection because sometimes the connection is so poor and for example, if we're vocalizing and the teacher gave me a pitch, then several seconds will pass before you receive it."

Jon also described that:

"It feels like your teacher is an AI robot teaching you somethings, but it's just a video call, but that's how it feels like it's like you instructed by some robot and stuff. And the sound quality comes out from the teacher through the phone. It doesn't sound authentic because it sounds so technology. It sounds so techy."

Additionally, Nina mentioned that:

"However, after becoming an online class, I can't see the notes played by the teacher, so I can only listen. Sometimes I can't even hear all the notes played by the teacher."

One of the foundations of effective learning and essential to a music student's achievement is listening. Listening to the teacher in a music lesson is a must because it is through listening that you get the vocal techniques and the tone quality needed for a performance or demanded by the piece. Thus, when the sound is distorted in an online lesson, it defeats the purpose of the lesson. In relation to the internet connection problem, the sound/audio quality of the video conferencing are affected. Hendry (2022) stated that distracting background

noise, less than intelligible audio, and challenging acoustics within a classroom can make learning difficult, induce fatigue, and negatively impact students' understanding and comprehension of the content. The audio challenges mentioned above have been the same experience in an online voice lesson. Some of the participants experienced audio problems during video conferencing. This clearly confirms that when the connection is slow, the sound quality and the learning are affected.

Limited and Dysfunctional Devices for Online Learning

The second theme that emerged from the interview data is that the participants have limited and dysfunctional devices used for online learning. Few of the participants mentioned that due to the limited and dysfunctional devices that they have, they cannot meet the demands of the lesson and performance tasks. Amon said:

"And then, it is also a challenge when it comes to gadgets because my phone at that time is really not okay, so it's very hard to catch up with the things ma'am was discussing because sometimes it's lagging, sometimes it's hanging, so it's hard to catch up."

Nina also mentioned that:

"If the mobile phone is too old, it will get stuck. Sometimes it's not because of network problems, but because the equipment is too old."

Additionally, Jon stated that:

"The only challenge is for me to get proper equipment, to have better audio into face, like speakers, microphones so I have to buy which of course be accounted to money and finance, so I have to really bundle up all of the things I have to for me to expand my setup."

One of the needs for online learning is the proper functioning device to be used. Without it, it would be such an inconvenience. The utilization of gadgets supports the process of learning by being comfortable, effective, and efficient in improving student's learning outcomes. Even in the era of technology, there are still students who cannot afford to have good quality devices for online learning. And so, they are just making use of what is available, regardless of the state of the device. This implies that having limited devices does not meet the demands of the lesson, like singing with accompaniment and doing video recording assignments.

Distractions

The third theme that emerged in the interview data is that the participants experienced many distractions while learning online because of their surroundings. They mentioned that their surroundings were not conducive for learning. Dennis stated:

"There were struggles also, because our surroundings were noisy and sometimes my neighbors were having karaoke, and then I couldn't practice properly, or I couldn't have a lesson properly because sometimes the noise overpowered my voice, so sir couldn't hear my voice sometimes."

Jon also mentioned that:

"In terms of memorizing pieces, it's a challenge in terms of being committed to it. Because you are in your room and then not so environmentally exposed to a musical environment. But here in my room is not a music department. So, it's mentally straining me to memorize pieces to really commit to the lessons that I have."

Lastly, Glenda said:

"...then another challenge is the discipline with yourself, because when we're at our house, we immediately think about rest.

Then you still have chores to do, so it really has a different kind of mood when you're in your house rather than you're in a school or in a music room. Unlike when you're at home, when you're at your room, you'll feel lazy."

In the performance preparation, even during the learning sessions, the setting affects the learning process and the memorization of pieces. Distractions come in any form. According to Hendry (2022), distractions can come from anywhere: from within the home or dorm itself from poorly performing or inadequate equipment, or particularly from poor streaming quality from the classroom to the students' personal devices. Most of them stated that staying at home or in the dorm keeps them from focusing on online learning. But knowing that they are in their comfort zones makes them less motivated to practice and memorize. This situation they have experienced has resulted in mental strain, laziness, and no proper practice.

Accompaniment Problems

The last theme that emerged in the interview data is that participants have experienced problems with regards to the accompaniment. Some of them stated that looking and singing with a recorded accompaniment are difficult for them. Glenda said:

"With regards to accompaniment, that's the hardest part. Because during the face to face system, the accompanist follows the soloist, performer, or singer. But when we shifted to online, what happened was that the singer or performer was the one who was following the accompanist; the singer is the one adjusting."

Moreover, Nina mentioned:

"It takes a long time, and then there is no way to communicate well in terms of emotional expression or speed of songs. Even if some accompaniments can be

found online, but this, I follow the accompaniment, not the accompaniment following me, which can't express my treatment of this song."

Shun elaborated:

"For example, when I make some small mistakes in the rhythm in the process of singing, or when I want to sing more passionately in some part, or when I want to make some changes in the tempo, the accompaniment I got from YouTube or the accompaniment recorded by my classmates, there's no way to follow my ideas. I can only follow the accompaniment."

Finding and practicing together with an accompaniment is one part of the performance preparation. Accompaniment for singers has a big role because it perfectly interprets the artistic beauty of vocal music singing (Chen, 2019). Relating to the accompaniment both on an academic level and a practical level can elevate the performance by leaps and bounds. Before the pandemic, voice students experienced a long time of practice together with their accompanist in person. But when the pandemic came, they shifted to recorded accompaniments that are available on Youtube and some other music websites that offer free use of accompaniment, or minus one. If not available online, especially when the songs are unfamiliar, they needed to encode the whole piece on musoftware,ware which takes a lot of time to do. Some of them stated that they had a hard time looking for an accompaniment, especially when it was unfamiliar. Another challenge that have had encountered is that they are not able to give their own interpretation of the songs because the accompaniment is just recorded. This implies that without the physical presence of accompanist, and just relying on a recorded accompaniment, there might be low performance satisfaction from the performer.

Table 2

Challenges Experienced by the Music Major Voice Students During Pandemic

RQ	Keywords/ Codes	Themes	Sample Quotes
1. What are the challenges experienced by the music major voice students during pandemic?		Sound Quality Distortion	
	<ul style="list-style-type: none"> - Wouldn't hear vocalization on the piano - Silenced, muted - Not really equipped for musical yet - Doesn't sound authentic - Can't see & hear all the notes played by the teacher - Not particularly good, not clear, not sync with the teacher - Can't hear clearly 		<p>"...connection wasn't too good. So I wouldn't hear her vocalization on the piano..." -Nellie (Line 109)</p> <p>"My voice wouldn't be heard; it would be silenced or muted like in zoom or something." -Nellie (Line 110-111)</p> <p>"Okay, so... one of the difficulties I've faced was the internet connection ... for example, we're vocalizing then the teacher gave me a pitch then several seconds will pass before you receive it..." -Dennis (Line 657-659)</p>

[table continues on the next page]

	<p>“...The sound quality of some software was not particularly good and could not give clear sound quality. Then I could not synchronize with the teacher in the process of vocalization. ...” -Shun (Line 465-466)</p> <p>“However, after becoming an online class, I can’t see the notes played by the teacher, so I can only listen. Sometimes I can’t even hear all the notes played by the teacher.” -Nina (Line 414-415)</p> <p>“It feels like your teacher is in AI robot teaching you some things but it’s just a video call but that’s how it feels.... And the sound quality comes out from the teacher through the phone. It doesn’t sound authentic because it sounds so technology....” -Jon (Line 335-338)</p>
<hr/> <p style="text-align: center;">Limited and Dysfunctional Devices For Online Learning</p> <hr/>	
<ul style="list-style-type: none"> - Not that okay very hard to catch up - Proper equipment, better audio - Too old 	<p>“And then, it is also a challenge when it comes to gadgets, because my phone that time is really not okay, so it’s very hard to catch up with the things ma’am was discussing because sometimes it’s lagging, sometimes it’s hanging so it’s hard to catch up.” -Amon (Line 177-179)</p> <p>“If the mobile phone is too old, it will get stuck...” -Nina (Line 379-380)</p> <p>“The only challenge is for me to get proper equipment, to have better audio into face, like speakers, microphones so I have to buy which of course be accounted to money and finance...” -Jon (Line 286-288)</p>

[table continues on the next page]

Distraction		
	<ul style="list-style-type: none"> - Room is not a music room, not so exposed to a musical environment - House, comfort zone, neighbor problem - Different kind of mood in the house, feel lazy, feel sleepy 	<p>"In terms of memorizing piece, it's a challenge in terms of being committed to it. Because you are in your room, and then not so environmentally exposed to a musical environment. ... But in here in my room is not a music department... So, it's mentally straining me for to memorize pieces to really commit to the lessons that I have.</p> <p>-Jon (306-311)</p> <p>"...there were struggles also, because our surroundings were noisy and sometimes my neighbors were having a karaoke and then I can't practice properly, or I can't have a lesson properly..."</p> <p>-Dennis (Line 683-686)</p> <p>"...then another challenge is the discipline with yourself, because when we think about, we're at our house we immediately think about rest. Then you still have chores to do so it really has a different kind of mood when you're in your house rather than you're in a school or in a music room. Unlike when you're at home, when you're at your room you'll feel lazy."</p> <p>-Glenda (Line 555-559)</p>
Accompaniment Problem		
	<ul style="list-style-type: none"> -Sometimes Accompaniment is hard to find - Difficult to find suitable accompaniment, no way to communicate well when it comes to expression and tempo - No way to follow my ideas (accompaniment) - Hardest, the performer was following the accompaniment 	<p>"With regards to accompaniment, that's the hardest part. Because during the face to face the system is, the accompanist follows the soloist or performer or singer. But then when we shifted to online what happened is, the singer or performer was the one who was following the accompanist, the singer is the one adjusting."</p> <p>-Glenda (Line 569-572)</p>

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“...can't find suitable accompaniment for some pieces on the Internet.”

-Nina (Line 392-393)

“It takes a long time, and then there is no way to communicate well in terms of emotional expression or speed of songs. Even if some accompaniments can be found online, but this, I follow the accompaniment, not the accompaniment following me, which can't express my treatment of this song.”

-Nina (Line 397-400)

“For example, when I make some small mistakes in the rhythm in the process of singing..., the accompaniment I got from YouTube or the accompaniment recorded by my classmates, there's no way to follow my ideas. I can only follow the accompaniment.”

-Shun (Line 478-482)

How the Participants Coped with the Challenges they Experienced

Three themes emerged, answering the ways in which the participants coped with the challenges they experienced.

Learned to be Adaptive

The first theme that emerged in the interview data is that the participants learned to be adaptive to the situation. Most of the participants stated that they were not ready when the shift happened. It was hard, stressful, and draining because there were no preparations, and it is hard to manage time. Most of them got confused and had difficulty at first, but were able to adjust later. Though the participants have had a hard time since the start of the pandemic, eventually they have adapted and adjusted to the situation. Marvin said that he:

“Gets confused at first, but we, as human beings, can adapt. So personally, I've just learned to get used to it because that's what we always do now.”

Nellie also mentioned that:

“I coped with the situation by trying my best to be adaptive to the new environment...”

Moreover, Shun stated that:

“for other classes, I think there is no great difference between online class and face-to-face class, but for voice lessons, although I have adapted to the mode of online class, I think face-to-face class will be more helpful.”

The transition period itself is a great challenge for everyone, especially students in general. The beginning of the pandemic was so sudden and unexpected that people were not prepared for what to do. The pandemic had affected life seriously and caused a collapse in the range and number of many activities in the lives of mature professionals and young musicians. Their performance, career, and motivation were jeopardized. (Tokay, 2020) So, there

is a need to adapt and think of ways to continue the learning and work routine of everyone. In the case of students, shifting to online classes is the only way to continue their education. Besser, Flett, and Zeigler-Hill (2020) reported that adaptability to the pandemic resulted in more positive reactions. It has been highlighted that students learning adaptability leads to greater feelings of belonging and matter. This implies that having a positive outlook in life helps in the adaptation process when experiencing a sudden shift or transition in a life event.

Learned to be Disciplined

The second theme that emerged in the interview data is that the participants learned to be disciplined and, at the same time, independent in their learning. Some of the participants mentioned that as they were able to learn how to adapt to the situation, they also kept themselves disciplined by being organized and prompt with submissions and/or by early compliance with academic demands. Nellie said:

"I practiced more often so that my musical skills can improve, adjusted to the time zone, and disciplined myself with getting work done way ahead of deadlines."

Amon also mentioned that

"When it comes to my acads I'm setting time to at least finish 2 to 3 requirement a day because it is so much overwhelming when we look into a bunch of requirements so that I do it step by step."

Glenda did some ways too. She said:

"I'm the type of person that wants to take notes to write to discipline myself, ... but when I was in my 2nd year 2nd sem when I've adjusted ... But then what I did is I had a calendar where I put check on the date if I have vocalized and at least I've practiced 1-2 pieces, when I saw that the whole week has a check it's so good, it's very rewarding on yourself and also one of the result is you

won't get scolded by your teacher because you've vocalized and then you've practiced at least."

One benefit that online learning gives to students is to push them to be disciplined. Students became more independent, meaning, not relying only to the class or to music lessons alone, but also doing their part in practicing, analyzing, and interpreting a particular musical piece. More than thinking about academics, being disciplined in life helps in coping with different situations. Sahoo and Jena (2021) mentioned that one of the best techniques to control and overcome stress and depression is self-discipline. In the beginning of the pandemic, it has been natural to see students who became stressed or mentally strained due to isolation. But, as students adapted with the situation, having strong will to pursue education no matter what, being disciplined is one way to overcome stresses. Self-disciplined individuals make better choices related to engagement and achievement. Self-discipline focuses on one's own ability to engage behaviors, rather than the reliance on others or external sources for motivation. In relation to the study, participants chose to be disciplined instead of deeply thinking of the situation which affects their mental and emotional stability.

Learned to Divert Attention to Leisure Activities

This is the last theme that emerged in the interview data, which states that to cope with the challenges given by the pandemic, the participants learned to divert their attention, other than academics, to leisure activities such as doing workouts and listening to music. Doing other things than academics helped them manage their stress and kept them motivated, both physically and mentally. Amon said:

"Online learning is stressing so that I need to take care of my mental health. To be able to keep my mental health healthy, I do work outs, and also spend time for relaxation just to ease my mind from stress in online learning stuffs."

Exercise promotes a sense of control over the body that may translate to an improved sense of control over other aspects of life, which is a key defense against stress (Sahoo & Jena, 2021). Regular exercise demonstrates higher levels of immunity, both at a physical and mental level.

Dennis said:

"...sometimes it's like you don't have motivation because of the piled-up requirements ... so what I'm doing was, I'm going back to the main reason why I started this. I'm listening to music that I like so I feel encouraged that I should achieve something."

Leisure activity allows the person to recharge before tackling the sources of their stress. Otto (2021), citing Zawadski, Smyth, and Costigan (2015), reported that people are 10% happier doing leisure activities and are found to be 30% less stressed. In relation to the study, participants have mentioned that they wanted to keep their mental health healthy by relaxing and doing other stuff, specifically exercise. They would also listen to music to be reminded of their purpose and passion for pursuing their course. This implies that students are aware of taking care of their mental health and must have a strong will to cope with the situation.

Table 3

How Voice Students Cope with the Challenges they Experienced

RQ	Keywords/ Codes	Themes	Sample Quotes
2. How do the participants cope with the challenges they experienced?		I learned to be adaptive	
	<ul style="list-style-type: none"> - Learned to get used to it - Trying to be adaptive - Have adapted and made some changes in the equipment 		<p>"Gets confused at first. But we, as human beings, can adapt. So personally, I've just learned to get used to it because that's what we always do now ..."</p> <p>-Marvin (Line 91-92)</p> <p>"I coped with the situation by trying my best to be adaptive to the new environment..."</p> <p>-Nellie (Line 144)</p> <p>"For other class, I think there is no great difference between online class and face-to-face class, but for voice lesson, although I have adapted with OL lesson, I think face-to-face lesson is still more efficient. First of all, I made some changes in the equipment. At first, I used mobile phones ...but later I found it inconvenient, so I changed to laptop ... In this way, the overall effect has been improved a lot, which is more helpful for online classes."</p> <p>-Shun (Line 513-518)</p>

I learned to be disciplined	
<ul style="list-style-type: none"> - Practice more often, disciplined - Setting time to do requirements - Has a calendar, took notes 	<p>"I practiced more often so that my musical skills can improve, adjusted to the time zone, and disciplined myself with getting work done way ahead of deadlines."</p> <p>-Nellie (Line 145-146)</p> <p>"When it comes to my academics, I'm setting aside time to at least finish 2 to 3 requirement a day because it is so overwhelming when we look into a bunch of requirements so that I do it step by step."</p> <p>-Amon (Line 258-260)</p> <p>"I'm the type of person that wants to take notes to write to discipline myself, ... but when I was in my 2nd year 2nd sem when I've adjusted... But then what I did is I had a calendar where I put check on the date if I have vocalized and at least I've practiced 1-2 pieces, ... it's very rewarding and also one of the result is you won't get scolded by your teacher because you've vocalized and then you've practiced at least."</p> <p>-Glenda (Line 623-629)</p>
I learned to divert attention to leisure activities	
<ul style="list-style-type: none"> - Workouts, spend time for relaxation - Going back to my purpose/reason by listening to music to remind of passion. 	<p>"Online learning is stressful, so that I need to take care of my mental health. To be able to keep my mental health healthy, I do workouts and also spend time for relaxation just to ease my mind from stress in online learning stuffs."</p> <p>-Amon (Line 260-262)</p>

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“...sometimes it's like you don't have motivation because of the piled up requirements ... so what I'm doing was, I'm going back to the main reason why I started this. I'm listening to music that I like so I feel encouraged that I should achieve something.”
-Dennis (Line 708-711)

Conclusion and Recommendation

The results of the study revealed that sound quality distortion, limited devices for online learning, distractions, and accompaniment problems were the challenges experienced by voice students during the pandemic. Research shows that most of the voice students were affected by the sudden shift of learning from face-to-face to online. It also revealed that to cope with the challenges that were experienced from the pandemic, one should learn to be adaptive, to be disciplined, and to divert attention to leisure activities to keep on holding the motivation to learn.

Indeed, there have been challenges faced by voice major students. Since the learning and practice cannot be done efficiently in online lessons, it is more of an individual effort. Finding coping mechanisms has proven to mitigate the challenges faced. Furthermore, it was concluded that education is important and that every student should be able to have a smooth educational experience, especially with online learning. A sense of independence has been seen in learning and correcting one's vocal techniques. Challenges are inevitable, but how it is approached will determine the result. It is also subjective because it depends on how the person sees it. This implies a need for positivity in life challenges.

This study recommends that to further help musicians, specifically voice students, the teachers give some guidance and counseling on an occasional basis to protect the student's mental health. For further study, this can be used as a reference in comparing the efficiency of face-to-face vocal lessons and online vocal lessons.

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Illusions Peculiar to Diasporic Characters in Three Filipino English Novels

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This research work attempted to analyze how three Filipino contemporary novelists depicted, recreated, interrogated, or problematized the diaspora experience in their works using cultural studies and post-colonial frameworks. The novels analyzed in this study are Merlinda Bobis' *Fish-Hair Woman* (2012), Ninotchka Rosca's *State of War* (1998), and Arlene Chai's *Eating Fire, Drinking Water* (1997). Using the frameworks of content and literary analyses, the study also aimed to determine illusions born out of the diasporan experience in the selected novels and examine the representation of the diasporan and/or exilic experience in the selected novels as seen through the elements of narrative technique; b. characterization; and c. signification. After careful evaluation and analysis of the novels, the study found that the following illusions of exilic characters emanated from the novels: home vs. exile, citizen (national) vs. transient (transnational), pure culture (monoculture) vs. hybrid culture (multiculture), and dominant characters vs. subaltern characters. The novels' narrative techniques, characterizations, and significations, therefore, represent the illusions peculiar to diasporic and/or exilic characters. It is, therefore, recommended that future studies dwell on the same topic using the same or different literary theories as a basis. It is also recommended that a similar study be done involving other representative literatures of the Philippines and literatures of other colonized or diasporan communities or countries.

Keywords: *criticism, exilic characters, diaspora, identity, hegemony, postcolonial*

Many tribes of the world have traveled far and wide, voluntarily or forcedly leaving the “paradise” in search of a new home. Usually, these tribes equate the good and ideal life with imported goods, the lost paradise with foreign shores—all in the hope of establishing a home, yet a home that turns into an exile. These and all the succeeding events that come with them are called diasporas.

Diaspora (from Greek διασπορά, “scattering, dispersion”), according to Braziel (2018), is a group of people scattered in a smaller geographic area with a common origin. Notably, some communities that have been subjected to diaspora are still connected politically with their homeland. Given this notion, it is not surprising to say that there are some qualities typical of diasporas. Among them are thoughts of return, relationships with other communities in the diaspora, and a lack of full assimilation into the host country.

In English, when capitalized and without modifiers (that is, simply, *the Diaspora*), the term refers specifically to the Jewish diaspora; when uncapitalized, the word diaspora may be used to refer to refugee or immigrant populations of other origins or ethnicities living not from their established or ancestral homeland but in any other place outside of it (Kantor, 2012).

The *Oxford English Dictionary* Online recorded the usage of the word *diaspora* in 1876, referring to “extensive diaspora work (as it is termed) of evangelizing among the National Protestant Churches on the continent.”. The term became more widely assimilated into English by the mid-1950s, with long-term expatriates in significant numbers from other particular countries or regions also being referred to as a diaspora. An academic field, diaspora studies, has become established relating to this sense of the word (Brubaker, 2015).

In all cases, the term *diaspora* carries a sense of displacement among or expulsion from the described population since it finds itself for whatever reason detached from its national territory, and usually its people have a hope, or at least a desire,

to return to their homeland at some point, if the “homeland” still exists in any meaningful sense. Some writers have noted that diaspora may result in a loss of nostalgia for a single home as people “re-root” in a series of meaningful displacements. As a result, individuals may have multiple homes throughout their diaspora, with different reasons for maintaining some form of attachment to each. This is because diasporic cultural development often assumes a different course from that of the population in the original place of settlement. As time passes, however, remotely separated communities tend to have differences in culture, traditions, language, and other factors.

In the Philippines, diaspora came as a result of an unstable economy, unequal job opportunities, and political upheavals. Thousands of Filipinos, in their hope to find greener pastures (seeking better lives for themselves and their families), “*flocked to strange lands and cultures, taking on whatever opportunities were available for them*” (Laguatan, 2010). As such, taking comfort from the courageous journey their forefathers had, who managed to survive and eventually make a life for themselves in countries with even the strangest of cultures and even the coldest or hottest climates, a constant increase in the number of Filipinos continues to depart from the Philippines to work and even settle permanently in foreign lands.

Although “Filipino diaspora” was greatly felt during the 1970s, a scattering of Filipinos had already migrated to the US before this time—mostly in Hawaii and California—as *sacadas* in Hawaii (sugarcane field workers recruited from the Ilocos regions in the early 1900s) or US military personnel, predominantly navy personnel, who had become naturalized US citizens. Likewise, Filipina nurses and doctors also left the Philippines in the late 1960s on exchange visitor visas, but not as immigrants. Most of them, however, stayed and eventually became permanent residents or US citizens. Consequently, in some parts of the Middle East and in some Asian countries (Hongkong on

top of them), Filipinos were already extending out their services, working mostly as domestic workers or musicians even before the martial law years. Unsurprisingly, then, one can meet and find communities of thousands of Filipinos in Rome, Paris, Tokyo, Singapore, Bahrain, Dubai, Hong Kong, and other cities in the U.S., Canada, Europe, the Middle East, and Asia. It is definitely an understatement to claim that Filipinos are now practically in every corner of the world, managing not only to survive but even becoming successful in various professions and businesses — especially for those who went to the U.S.

By and large, Filipinos, who have undergone diaspora themselves, feel a sense of “divided loyalty”, and become mestizos, hybrids, products of cross-breeding, so designed for preservation under a variety of conditions—multiculturalism. As Anzaldúa (2015) puts it: *“Like an ear of corn, the vagabond is tenacious, tightly wrapped in the husks of her culture. Like kernels, she clings to the cob; with thick stalks and a strong brace root, she holds tight to the earth—she will survive the crossroads”* (p. 2215).

Carlos Bulosan (2022) , in his autobiography, *America is in the Heart* (2022), has chronicled the tribulations of Filipinos who had gone with him to test the waters of the foreign land—a fitting example of the fate that awaits “vagabonds.” His autobiographical account is a moving story of the Filipinos’ struggles, not so much against the natural forces of the strange land as against the human forces that dealt them less-than-human treatment. *“I know deep down in my heart,”* Bulosan wrote, *“that I am an exile in America. I feel like a criminal running away from a crime I did not commit.”*

And while a great number of Filipinos in America and other countries of opportunity are immigrants, naturalized citizens, and even citizens by birth, they are not altogether alien to the exilic experience. In fact, they may be exiles twice-over, for the identity crisis that plagues the Filipino in the homeland is compounded for the Filipino in America or in other

countries where he now resides. As one writer has said about Filipino-Americans: *“Filipino Americans are ‘divided children’ who unwisely have chosen to split themselves between two motherlands while belonging to neither.”*

For many years since Filipinos flocked to other countries, Filipino authors have written and continue to write about their diasporic experiences. M. Evelina Galang’s (1999) essay on how an adolescent copes with the conflicts around her in *“Her Wild American Self”* captures the dilemma of teenagers in their desire to create for themselves their own space, a world only theirs—private and mysterious, away from the prying eyes of the society where they live, including their families.

Filipino-American poet Fred de Cordova (1988) relates the sentiments of the Filipino expatriate in America in his poem entitled *“Ang Kundiman ng mga Niyog sa Amerika: The Lament of Seven Hundred Seventy-Four Thousand Six Hundred and Forty Coconuts.”* The poem goes in part:

*We say we are Filipino; we say we are
American, so who are we;
More so what we are; brown or white; or
are we still the “other”?*

.....

*Proudly, we are Americans, who are brown
unlike George Washington, Abraham
Lincoln, Florence Nightingale...
Pridefully, we are also Filipinos, who are
Tagalog, Ilocano, Pangasinan, Bicol,
Visayan and Muslim...*

.....

*We are not just American and Filipino...
Filipino and American.
Pinoy.*

*Yes, we are Pinoy.
Now what in God’s name is that...and
would someone Pinoy explain!?!?
(p. 23-24, 26)*

The dilemma of the Filipino-American is likewise summed up by Bienvenido Santos (2021), who has been singled out for his stories about Filipino exiles in America:

You leave home and country, seek sanctuary in an alien land, refuge in another idiom, but you remain on the outside, you are neither called nor chosen; and you keep running, stumbling along the road over a snag of rocks, a net of thread at the feet, a clouding over the mind, but it is only the surging forward that is momentarily checked, the motion continues, circular into nowhere; backward to what has been the native land; its warmth, its horrid climate, the force of its form of government, the kindness of the poor, their hunger, their sentimentality; and forward again into a glut of strangeness that never becomes familiar; and embarrassment of colors, a negative in black and white blown out of proportion (p.252).

Nemenzo (1992) describes these Fil Ams, as he calls them, as “twice-blessed” and twice-cursed”. He says, describing the tug-of-war in the heart of the Filipino:

Fil-Ams...are twice blessed. They have a future that can be bright or dim, depending on how they face it. And they have a wide range of options on how to live their lives. (In contrast, their counterparts in the Philippines may be limited by their economic situation or political environment.) Yet, Fil Ams are also twice cursed. Not quite Filipinos, they struggle with their parents’ insistence on observing “Filipino values” on the one hand, while on the other, they are being pushed into the mainstream of US society (pp. 34-35).

While the Filipino expatriate most of the time may feel inclined to identify with the dominant culture he now lives in, at one time or another, he may be driven by an overwhelming compulsion to stop deceiving himself and do an Alex Hailey.

Overpowered by the urge to confront his true identity, he will go in search of his roots and return to the land of his forebears, though not necessarily making the physical journey. The need for self-identification is great, for unless one knows where he comes from, he will have no idea where he is going or where he wants to go. He needs to have a point of reference: home. Unless he knows where home is, man is lost—a floating mass of flesh and bones in the vast sea of (in)humanity.

E. San Juan (2001) highlighted that diaspora does not consist in the fact of leaving Homhomet in having that factuality available to representation. As such, we come to “know” diaspora only as it is psychically identified in a narrative form that discloses the various ideological investments. . . . It is that narrative form that locates the representation of the diaspora in its particular chronotype. This spatiotemporal construct approximates a psychic experience particularly linked to material history. It is only after the diaspora comes into contact with the material history of its new location that a particular discourse is enabled that seeks to mark distance and relationship—both within and outside that constellation of contingency. (p.355)

He further adds that, like the words “hybridity,” border crossing, ambivalence, subaltern, transculturation, and so on, the term “diaspora” has now become fashionable in academic conversations. In fact, Okamura (1998), in his book *Imagine the Filipino American Diaspora: Transnational Relations, Identities, and Communities* argues that Filipinos should be conceived not as an ethnic minority in the United States but as a diaspora. Not because they are dispersed, as the Jews were from their original homeland by the Roman imperial legions, but because overseas Filipino communities have “significant transnational relations” or linkages to their homeland. Okamura states that “a diaspora is a transnational

social construction; that is, it is transnational in scope and is socially constructed through the individual and collective actions of immigrants.”

In connection to this, E San Juan (2001) further lays his five theses on diaspora: Filipinos are dispersed from family or kinship webs in villages, towns or provincial regions first, and loosely from a neocolonized (some say “refeudalized”) nation-state; there are the myths and memories of the homeland; alienation in the host country is what unites Filipinos; a shared history of colonial and racial subordination, marginalization, and struggles for cultural survival through hybrid forms of resistance and political rebellion; some Filipinos in their old age may desire eventual return only when they are economically secure; and ongoing support for nationalist struggles at home is sporadic and intermittent; and In this time of emergency, the Filipino collective identity is in crisis and in a stage of formation and elaboration.

Studies done on Filipino diasporic literature mainly focused on the concept of home and exile, among them Barayuga (1998) and Yu (2008) using diasporic and postcolonial frameworks. On the other hand, Tondo (2012), in her study titled *Transnational Migration, Diaspora, and Religion: Inscribing Identity through the Sacred (the Filipino Diaspora in New Zealand and Singapore)*, looked into how the Filipino culture is carried over by Filipinos residing in New Zealand and Singapore, taking an interpretive approach and drawing from a variety of disciplines such as religious studies, sociology, and geography to frame a holistic view of religion as a “lived” experience that connects religious dispositions, symbols, and ritual performance to the diaspora’s place-making and home-making.

With this background, the study aims to fill the gap in research towards other concepts related to diaspora, in addition to the concepts of home and exile, using diasporic and postcolonial frameworks. By so saying, it aims to answer the question, What other “illusions,” therefore, are seemingly essayed in the works of Filipino diasporic writers?

It is in this light that this study has been conceived. The paper sought to understand how Filipino writers, particularly novelists, essay the illusions faced by diasporic characters in their works by presenting these illusions as binary oppositions. Specifically, the study will answer the following questions: 1. What illusions (binary oppositions) are evident in the novels under study? ; 2. How are these illusions (binary oppositions) represented in the texts? and 3. What do these illusions tell about a common thought or pattern in the body of diaspora novels or even literature?.

Methodology

From the 1950s to the 1990s, a formalistic treatment of prose and poetry has been the standard in Philippine literary criticism. At present, with the emergence of postmodernism, literary theories and approaches lend themselves to criticism. As such, this study utilized the tenets of postcolonial criticism in literature, particularly Aschroft et al.’s *The Empire Writes Back to the Center* (2009). Postcolonial methods utilize social, cultural, and political analysis to engage with colonial discourse. Postcolonialism has been defined as both a social movement and a research approach whose main agenda addresses racism and oppression. Postcolonial research names the cultural, political, and linguistic experiences of former colonized societies by including voices, stories, histories, and images from people traditionally excluded from European and western descriptions of the world.

Moreover, the researcher used the descriptive-analytical approach defined by Mcmillan and Schumacher (1993) as “primarily an inductive process of organizing data into categories and identifying patterns (relationships) among categories” in interpreting the three novels. Furthermore, the study also utilized the textual analysis method, which is used for close readings of literary texts and consequently relies on literary

theories and background information to support the analysis. Textual analysis of literary texts involves the following: reading the text thoroughly; taking notes; noticing patterns or themes; considering the work as a whole and asking questions; seeking out “evidence” from the text of the patterns or themes; and finally, connecting these ideas to the narrative or analysis done.

The following criteria were derived from the suggestions and recommendations of preexisting studies on diaspora and postcolonialism in literature in the country. Such criteria were also the result of readings gleaned from articles dealing with the themes of diaspora and postcolonialism. More importantly, a blog published at <https://lit102.blogspot.com/contemporary-novel-in-english.html> posted on August 12, 2017 proved to be helpful in choosing which novels were to be included in the study. A portion of the blog says:

Among the Fil-Am fiction writers now published in the U.S. are: Ninotchka Rosca with State of War (1998) and Twice Blessed (1999), Jessica Hagedorn with Dogeaters (1990), Cecilia Manguera Brainard with When the Rainbow Goddess Wept (1995), Arlene Chai with The Last Time I Saw Mother (1995), Eating Fire and Drinking Water (1997), Michele Skinner with Mango Seasons (1996), Rinehart Zamora Linmark with Rolling the R's (1995), Peter Bacho with Cebu (1991), Bino Realuyo with Umbrella Country (1999), and the short-story writers Marianne Villanueva, Evalina Galang, and Eric Gamalinda.

The following criteria were then formulated to choose novels for the study: Table 1 shows the novels, their authors, and the year of their publication.

A. The Novel

- The novels are part of the canon of Philippine literature in English.

- The novels must be written by Filipino exiles (Filipinos who have undergone diaspora either by choice or by force)
- They are written in English.
- They were written or published from 1990–2012.
- They must reflect, in one way or another, the diaspora experience and/or postcolonial experience

B. The Novelist

- The novelist is natural-born Filipino;
- The novelist was forced or voluntarily went into “exile.”
- The novelists tackle the theme of the Filipino diaspora.
- The novelists have in one way or another experienced diaspora themselves.
- The novelists may or may not be alive.

Table 1
Novel Information Guide

Author	Title of Novel	Year of Publication
Merlinda Bobis	<i>Fish Hair Woman</i>	2012
Ninotchka Rosca	<i>State of War</i>	1998
Arlene Chai	<i>Eating Fire; Drinking Water</i>	1997

Noticeably, all the novelists chosen were women, since the majority of the novelists referred to in the blog used as the basis for novel selection were women. In fact, only Rinehart Zamora and Bino Realuyo were males. The researcher, too, banked on the notion that women, generally, are more emotional and detailed in their works; hence, they experience the diaspora better than their male counterparts. Besides, when the researcher surveyed the availability of novels in the bookstores, the works of the novelists included in the study were readily available. The other novels enumerated in the blog were either out of stock or were not part of the bookstore’s list of merchandise.

Results and Discussion

The illusions of diasporic or exilic characters come in the form of binary oppositions, a concept borrowed from linguistics by post-structuralist theorist Jacques Derrida (1967, 1971) to suggest that people in Western culture tend to think and express their thoughts in terms of binary pairs. The use of binary oppositions can be further backed up by the fact that postcolonialism, on which this research is hinged and anchored, is always represented by the clash between the East and West, hence the concept of dichotomies in literature.

Out of the readings of the student critic, the binary oppositions that surfaced from the novels under study are home vs. exile, citizen vs. transient, pure vs. hybrid, and dominant vs. subaltern. There are only a few binary oppositions that came out of the analysis. This is because other “possible” dichotomies overlapped with the binary oppositions mentioned above. For instance, the construct of national vs. transnational overlaps with the binary opposition of citizen vs. transient, and the dichotomy of pure vs. hybrid overlaps with monocultural vs. multicultural; hence, the student critic opted to combine related constructs to avoid redundant statements and to achieve clarity and brevity.

Home vs Exile

In **Fish-Hair Woman**, the construct of home vs. exile is seen in most of the characters who have either lost home or the sense of it, or they try to regain or find that elusive home, be it physical or just the idea of it. Estrella, for instance, has lost her home many times. Orphaned at childbirth, she was adopted by the village midwife but later given to the care of her politician father, leaving Iraya, her beloved village. She has spent some time in the city and in Hawaii, but the sense and memory of home have always haunted her. To assuage the pains brought about by homesickness and the hypocrisy of her father, Don Kiko, she resorts to consuming opium or heroin, for she feels a sense of

belongingness each time she is drugged. In Hawaii, she always feels that Iraya and the Philippines are her home. But because she cannot really separate herself from Iraya, Estrella, now Stella Alavarado, goes back to Iraya to finish her family’s story; she has brought with her the remains of her father (whom she killed) and let the people strip off Don Kiko Alvarado’s honor and integrity.

Another exile character who has returned “home” at the end of the story is Don Kiko, who has left Iraya for Hawaii but comes back home as a corpse. Luke, too, emerges as another character looking for “home”. Growing up in Australia with scanty information about his parents, he learns to disregard his parents and the Philippines. But as time goes by, he can hardly escape from the realities that beset his origin. He finally decides to come to the Philippines (through Don Kiko’s invitation) and start gathering the remnants of his past. As he comes to face not only Don Kiko but also the truth about his parents and his roots, he somehow feels a sense of completeness, of home, of belongingness. Such feelings are even more possible when he falls in love with Adora, the deaf adopted daughter of Don Kiko.

The river, most of all, serves as the archetypal home for Irayanons, as reflected from these lines in the novel: *“People walk to the river for many reasons; some to swim, some to wash, some to fish. To make love, to fall in love—but they always return home* (Bobis: 2012, p. 237). Irayanons may stray from Iraya and the river, but they will always come home, and once home, they will again dip themselves into the changing taste of the river’s water to reaffirm their homecoming.

The construct of home and exile, prevalent in the previously discussed novel, apparently reappears in **State of War**. Such a construct is mirrored in the characters Adrian, Anna, and Eliza going to the Festival of K. While taking part in the festivities, the ensuing events keep them from “home” (they are kidnapped, Ana and Eliza are raped, Eliza eventually dies, becoming the festival’s offering,

and Adrian loses his mind after being subjected to both physical and emotional torture), thus becoming “exiles” since what they have imagined and expected to be a respite (the festival) turns out to be nightmarish for them. It does not seem to draw them closer to their own heritage; rather, it ironically drifts them away from home—the genesis of the story (Mendible, n.d.). Although, in the end, some are able to come home (Anna, for instance), that homecoming is already different. They may have reached home in the end, but they have become different; their idea of home is always marred by the experience of exile they have experienced on the island of K. It goes hand-in-hand with the idea of exile. For instance, Anna’s journey back to the “basics” (i.e., the barrio, a primitive way of life) does not only spell home; more so, it mirrors how Filipinos must negotiate their identities—go back to the past to cement today and the future. Other characters, like the *guerilleros* and the musicians, left the Philippines (thus becoming exiles) but are always in search of home—forever haunted by the memory of the Philippines.

The construct of home and exile is not only seen in the experiences of the characters but also in the image of the mansion, which served as a mute witness to the colorful and equally controversial history of Maya’s family in particular and the Philippines in general, symbolizing the Philippines (the home)—it has stood the test of time yet can hardly escape doom—its beauty, once glorified, is now only a figment of history. In this way, it metaphorizes a place of home and exile.

Eating Fire, Drinking Water, on the other hand, is the story of the self-discovery of Clara, the protagonist. Growing up in a convent with a past as dark as the moonless night (she does not have any idea of who her parents were at the start of the novel), she grows up always guarding her identity, never letting anyone know her dark secret.

But fate has made its way for Clara. Unknowingly, in a work assigned to her as a junior reporter for *The Chronicle*, Clara soon uncovers

every leaf of her destiny, her identity as a person, and more importantly, her role as a citizen of the nation.

Clara’s fate resembles that of an expatriate always longing for “home”. Since she grew up in the convent, Clara lives in a world that is not exactly her “home.”. Worse still, she feels she has dwelt in a house, more than home. All these experiences make her an exilic character, and even when she already goes out of the convent of Sta Clara, she still tells readers that she does not have any perspective of a home—always detached, aloof, and seemingly disinterested in what it feels to have a family, much less a home. She tells readers that when some people ask where she lives, she thinks, “*I was always made to feel someone different, and still, I am* (Chai, 1996, p. 241).” She even intensifies this feeling when she says in the confrontation figured out with Consuelo, her mother: “*All my life, I had been Clara, convent waif, no one’s child yet everyone’s responsibility. The shared responsibility of two dozen nuns and novices, and of an invisible self-appointed guardian now dead. I had been all this, but I had never been someone’s daughter*” (Chai, 1996, p. 331).

Her journey then towards self-discovery resembles that of an expatriate longing for home—a “coming to terms with the country, thus an ending of the exile seeking for her own identity” (Hidalgo, 2008). Clara may not have been out of the country, and she may not have been, in its truest sense, an “expatriate,” but her experiences must not be taken literally. The convent of Sta Clara appears then as symbolically a home, and the world she has tried to have for herself outside the convent stands for her place of exile. Even outside its confines, from time to time, she comes back, each “homecoming” marked by significant moments in her life.

And although, towards the end of the novel, readers are told that Clara will not spend her lifetime at the convent, in the four corners of a home given to her by her “family,” this does not mean that she has forgotten her “home,” the convent.

Rather, she has come to establish a home away from home but is nonetheless connected to her former home. Campomanes (2017) confirms that return is “*redefining and rewriting ‘history’ from the perspective of banishment*”. Unless Clara would not go out of the convent’s confines, she would not know what home is, for in banishment she can ably reconstruct history—in this sense, Clara’s sense of home. Again, either one is given or stripped off the right to tell or retell his or her story through the “letter” (one’s transcription or codification of this story) or, in this sense, language and one’s subjection (Campomanes, 2017).

Clara’s plight has also become the same journey taken by her biological parents, Consuelo Lamuerta, her mother, and Miguel Pellicer, her father. Both characters have become “vagabonds on the run,” always searching for a place where they could be at peace with themselves and with the world. Consuelo Lamuerta, having been ditched by Miguel Pellicer (she was pregnant with Clara then) because of family obligations, shuts herself off from the world. Economically deprived, physically unfit, and mentally unstable, she chooses to leave Clara, as a foundling, outside the gate of the Convent of Sta. Clara. Since then, she has donned black dresses and become a devout, if not fanatic, woman. Not until she has met Clara (thanks to the fire that claimed the Chinaman’s life) does she slowly open once again her doors, thereby “ending” (even for just a while) her long years of “exile” to again embrace the idea of “home.”

Miguel Pellicer, on the other hand, put family obligations before her love for Consuelo Lamuerta and married the woman chosen for him by his mother. The years he has spent with his wife, even if the marriage is blessed with a son, seem to be his years of exile, for he has become a different man since then. He feels unhappy and that what he is doing runs counter to his will but fits his family (especially their businesses). Like Consuelo, he is freed from his exile as he meets “his family”—once again, he feels a sense of belongingness, even establishing a

home for the family he has long abandoned.

Moreover, the novel’s settings can be considered places of both home and exile for the characters; for instance, the convent represents both Clara’s home and exile—home for it provides her a sense of security, where she has at least a “sense of family,” yet also functions as her place of exile since it reminds her clearly of her mother’s indiscretion, notwithstanding her sense of emptiness that she gnaws her vitals sometimes. Corrolarily, for Consuelo, the apartment she rents beside Charlie the Chinaman’s store serves both her place of home and exile: home because she has “found” herself here after abandoning her daughter (Clara) and exile since she opts to lock herself here to avoid her neighbors’ scrutiny. For Miguel Pellicer, the house he has built for himself on an island functions again as both his place of home and exile: home because, like Consuelo, it is here where he has “found” himself after coming full circle with the loves of his life, Consuelo and Clara, and exile since he stays here alone, away from the prying eyes of the city and the influences of his doting mother.

Citizen vs Transient

Obviously, therefore, the next binary opposition surfacing from the novels under study also somehow relates to home and exile—citizen vs. transient, for to be home is to be a citizen, while to be an exile is to be a transient or transitory character. Moreover, the construct of citizen also relates to being a national since both of these entail a sense of belongingness, a fixed connection to a place. On one hand, the construct of transient equates with being transnational—they imply a sense of fleeting inhabitant; they both suggest a sense of unfixed connectivity to a place or country.

This construct, although not exactly prescribed, is underscored by Irene Bloemraad (2017) in her essay “*Citizenship and Pluralism: Multiculturalism in a World of Global Migration*”. Bloemraad affirms that citizenship is “*a legal status that accords rights and*

benefits but is also an invitation to participate in a system of mutual governance" (p. 108). A "citizen" therefore becomes a "national" since he gets to enjoy rights and privileges accorded to him by his place of citizenship or nationality. Franz Fanon (2011) affirmed this notion by saying that national culture sums up the totality of efforts exerted by a people in the sphere of thought to describe, justify, and praise the action through which those people have built and kept themselves in existence. Settler colonies have been able to impose simple concepts of the nation, such as those based on linguistic communality or racial or religious homogeneity. They have become examples of the constructed nature of nations.

For Fanon (2011), however, *"the demands of larger and more expansive solidarities are more compelling than national culture (p. 76)*, hence transnationalism, or the presence of an ethically and politically enlightened global community. He further explains that national consciousness gives way to international dimensions since national boundaries are redundant and, therefore, impermeable. The reason for this stance, according to Bloemraad (2017), is that transitory characters (immigrants) have illiberal attitudes; they do not assimilate enough, much less understand the "new culture" they are into. This is because the idea of home gives someone the right to be secured, to belong, hence, a citizen or a national, while to be in exile means to be an outcast, to be detached, to be there in limbo, hence a transient/transitory character or a multicultural character, someone who cannot adjust much more to "impermeable borders."

In **Fish-Hair Woman**, the construct of citizen vs. transient is reflected in some of the characters. A case in point shows Luke, who sets foot in the Philippines to search for his roots. Although he does not really plan to come over to the Philippines, he is unwillingly subjected to incident after incident that unravels not only the mysteries behind his own identity but also the mysteries shrouding Iraya and its people, the fish-hair woman. But even if he has set foot in the Philippines and comes full circle to

realizing his own identity, he feels that he is not of this country but of Australia. Yet, when secrets are revealed, he gets confused as to whether to cling to his Australian heritage or to his Filipino roots. More than Luke, there are other characters that were once citizens but later turned into transitory or transnational characters at some points in the novel, ultimately becoming citizens or nationals at the end of the narrative.

Don Kiko Alvarado, the once "mighty citizen ruler" of Iraya, turns into a transitory or transnational character following his sojourn to Hawaii after the EDSA People Power of 1986 and later his comeback as a key figure in Philippine politics and high society in 1997, the latter part of the novel. He, however, regains his Irayan "citizenry or nationality" when his corpse comes home to Iraya but is no longer endowed with the "iron fist" he once had as a ruler.

Estrella, the supposedly "fish-hair woman-citizen" of Iraya, sheds off her naivete and becomes a transitory or transnational character when she leaves Iraya after figuring in an accident, goes to the city, and later, to Hawaii with her father, Don Kiko. Her coming home to the Philippines and to Iraya later on brought her back to being a citizen or national, not primarily of the Philippines but more of Iraya.

Brother Nestor Ibay, the young acolyte and "once-trustworthy side" of the guerrilleros, becomes a transitory and transnational character when he leaves Iraya after he fails to deliver the letter Kumander Pilar has for Estrella. Reaching Manila, he studies at the University of Sto. Tomas, under a scholarship grant, takes up theology, and later becomes a professor or priest. Haunted by the unfinished task he has failed to carry on, he decides to finally deliver the letter to its receiver, Estrella. Although the meeting no longer takes place in Iraya but at the Manila Hotel, Nestor Ibay's finally fulfilling his task may mean that he is still a citizen of Iraya since he could not totally detach himself from it, even after years of being away from his hometown have passed.

Professor Ynez Carillo, the “Irayan classmate and best friend” of Estrella, may have become a transitory or transnational character when she left Iraya to pursue her studies at the University of the Philippines and later on married human rights lawyer Federico Carillo. She reclaims her being a citizen or national of Iraya when she rallies for justice following the deaths of her husband and of the hundreds missing in Iraya.

By so saying, most characters in **Fish-Hair Woman** have all left Iraya but returned with significant changes in their characters, associating themselves both with the Philippines and the country or places they have been to outside their native land. However, it can be seen that even if the characters have long “denounced” their Irayan citizenship after leaving Iraya, it is noticeably perceived that they totally cannot detach themselves from it. There comes a point in their lives when they have to reaffirm their Irayan citizenship because they need to come full circle with themselves. It is not that they despise being transitory characters, but for this critic, the characters appreciated more their citizenship with Iraya after being holed in limbo, becoming transitory and transnational characters.

Further, the construct of citizen (national) vs. transient (transnational) can be traced to the presence of western characters (Matt Baker), products, ideas, the coming of intruders (from other places or countries), and even the presence of mail-order brides.

In **State of War**, this binary opposition is seen in the characters who are engaged in the festival. All who engage in the festival are transitory characters; they are not natives of the island, yet as the festival goes on, they have considered themselves “citizens” of the island. (They have to act, anoint, paint, and decorate themselves in the festival’s fashion.). The novel’s essay on the journey of the characters is reflective of how characters do not only become citizens or nationals but, in the long run, transients or transnationals since, by and

large, they have to connect with a bigger world, much wider than their “place of citizenry.”. Some parts of the novel set in the present focus on Eliza Hansen and Anna Villaverde, the “*laughing princess and the princess who could not laugh*” (p. 13), and on Adrian Banaga, the “*son of a wealthy landowner who is their friend and lover*” (p. 14). Garcia (2014) claims that by chronicling the imaginary but symbolic histories of her main characters, *Rosca* narrates a web of communal identity built upon (but not limited to) shared experience” (p. 12). Familial and colonial underpinnings link Eliza, Anna, and Adrian’s histories. The text then seems to imply that enemies and friends in the present are distant cousins, half-brothers, and sisters. Even those designated “*invaders*”—the “*visitors who owed no allegiance to any tribe... the Japanese, the Chinese, the Caucasian, the urbanite*” (Rosca, 1998, p. 15)—can be “*subdued and merged*” into the rhythm and history of the event (Garcia, 2014).

Also, the genealogy of characters and the presence of too many influences reify the transitory tendencies or “transnationalism” of the Filipinos. Being subjected to more than 300 years of Spanish colonial rule, 45 years of American occupation, and 3 years of Japanese invasion (so carefully illustrated in the novel), it appears normal that the once “citizens or nationals” have (unconsciously) become transients or transnationals.

Taking part in the festival also projects the transnationalism of Filipinos—the gays, the transvestites, the lesbians, notwithstanding the presence of males and females, and a whole cacophony of characters—all colorful, significant, and driven, embodying the Filipinos’ sense of connection not only within the “nation” they are part of but of the outside world that they willingly or unwillingly become a member of.

Moreover, the character’s taking part in the war or revolution predates their need, want, or desire to be considered a citizen of a place or country. Since the novel spans at least four hundred years of Philippine history (from the Spanish era to the

Martial Law years), it chronicles the revolutions and wars in the Philippines. Such conflicts do not only mirror Filipinos' need for independence; moreover, such revolutions bolster their desire to be "citizens" of a particular country and not just of the world.

Like in the other novels already discussed, characters in **Eating Fire and Drinking Water** are caught in the dilemma of being transitory, transnational, or permanent (citizen or national) elements of a place. Clara feels she is merely a transitory character who does not know where she really belongs. She cannot decide what to consider as her "place," be it the convent, her apartment in Vito Cruz, or at The Chronicle (her workplace). She narrates: *"I was someone hungry for stories; more specifically, I was someone who craved after facts. It is easy now to see where this hunger came from and how it determined my choice of profession. I was, you see, at the start of this tale, a person with no history"* (p. 3).

Only when she goes out of the convent and gets herself involved in the job assigned to her has she started to have a sense of commitment, citizenship, and much more nationality. For again, she claims that she *"has only to close her eyes to return to the beginning of it all, to the precise moment when she ceased to be just a reporter of events..."* (an outcast, a transitory character), ... *becoming instead a "part" of them...* (p. 3) (thus, a citizen/ national, permanent character).

Getting out of the convent, she becomes immersed in politics while at the same time discovering that there is another vital world outside her. So, she confesses: *"I no longer live here, having left soon after graduating from university. The nuns had asked me to stay on, saying would always have a home with them, but I had returned down their kind offer...I felt my place outside these convent walls."* (p. 106). She goes on to say that she has realized, too, that the convent, with its generous grounds and solid walls, was only a minuscule part of a greater universe of which she had no knowledge.

For Clara, embracing the "real" world and putting it over the "ideal" world (the convent) is one way of coming to terms with herself. Not only does it give her new perspectives and new clues as to her identity, but more importantly, she realizes her role as not merely a reporter of events but a participant in them. Clara then evolves from just a transitory character to a citizen or national of a country.

Clara's experiences are paralleled by those of Laslo, the rebellious son of the Hanging Judge, and of the student activist—their being "transient" characters evolved into being citizens when they started to be aware of their nation's fate to ultimately fight for freedom and/or peace. For Laslo, what seemed to be just a rebellious act towards his father's verdicts and the idea that the love of his life, Sophia, is a part of the student demonstration propelled him to be really a part of his country's history. If at first everything for him appears to be just a game or a youthful activity, all these have changed when he becomes an eyewitness to events only a few have been into and still fewer know about.

Thus, by becoming involved and not just mere spectators of the turn of events, Clara and Laslo have evolved from being transitory to permanent characters—citizens or nationals of a place—in the novel, the city where all the actions have begun, taken place, and ended.

Like in **State of War**, the characters in **Eating Fire, Drinking Water** also immerse themselves in a "revolution" to affirm their desire to finally be considered citizens or nationals of a certain place, in this case the Philippines (although the novel does not explicitly say so). The characters' collective thrust toward toppling the dictatorship of *El Presidente* preludes their desire to live in a country where they can freely roam around, to live in a country uncontrolled by a few hands but governed by many minds. For the characters, joining the revolution does not only reify their sense of being; more so, it affirms their logic of citizenry since,

by joining it, they have become both consciously and unconsciously freed from being transitory or transnational characters.

Pure vs Hybrid

In postcolonial literature, hybridity commonly refers to the creation of new transcultural forms within the contact zone produced by colonization. Like syncretism, the term has been recently associated with Homi K. Bhabha (2018), whose analyses of colonizer/colonized relations stress the interdependence and mutual construction of their subjectivities. Spivak (2010) adds that, being too western in orientation, postcolonial intellectuals support the notion of hybridism yet cannot move away from the eastern perspective of the pure East, the pure universal, the pure institution, the marginal or specific, or the para-institutional. Fanon (2011) likewise instigates that hybridity, as a colonial expression, came out as a catalyst for the accelerated mutation of colonized societies. As a result, new attitudes, new modes of action, and new ways made their way into the “pure” culture. Hybridity then becomes an agent of “in-betweenness,” which questions the stability of meaning and identity.

Hybridity, however, is only possible when looked at vis-à-vis the lens of purity. The former cannot exist without the latter, and vice versa; they are mutually exclusive, therefore a binary opposition. More than that, it can be said then that purity can be equated to monoculturalism, or the cultivation of a single culture, to the exclusion of other possible cultures that might have been present, while hybridity is parallel with multiculturalism, or the cultivation of cultures present without disregarding the mono or native culture with the aim of refining or embellishing it.

Moreover, multiculturalism (Gandhi, 2018) is a procedure whereby the convenient othering and exoticization of ethnicity merely confirms and stabilizes hegemony. Monoculturalism, in contrast (Spivak, 2010), is once again longing for the pure

“Other” of the West; the neo-orientalist anxiety in the anthropological desire to retrieve and preserve the pure authentic native. This construct is also traced in the studies of Cesari (2017) and Landolt (2017).

Seemingly, then, the binary opposition of pure (monocultural) vs. hybrid (multicultural) also surfaces in the novels under evaluation. Since **Fish-Hair Woman** talks about “residing” between two opposing yet equally important locations and being endangered by the encounter between two confusing systems of belief, it follows that the novel tackles the construct of purity versus hybridity.

Having left the Philippines for Hawaii, Estrella, in **Fish-Hair Woman**, became Stella. has shed her rural ways to fit into the urban setting of Hawaii. The hybridization of the “pure” (if not mythic) Filipino identity is further represented by Estrella’s journey from Iraya to the city of Hawaii and then back to the Philippines. This journey she (un)willingly subjected herself to has “changed” her; thus, it symbolizes the hybridization of Filipino identity. She has to cut her hair short, has to dress like an American (...*Amber, burnished amber hugged by chartreuse tank top with matching slacks and nails. She’s a fashion plate with a slight American accent and a manner marked by agitation...* (Bobis, 2012, p 103) and has been addicted to opium—changes that bespeak how a once naïve shy Iraya lass turns into a “cosmopolitan” woman. On a larger scale, this metamorphosis reflects how a once “pure” or monocultural character becomes a hybridized or multicultural one.

Luke McIntyre, who was born and raised in Australia, has slowly accepted Filipino ways. His father Tony, too, Don Kiko’s friend, becomes a “Pinoy” when he falls in love with Pilar. He has solidarity with Iraya and its people, taking part in its food and engaging in its problems, which eventually causes his doom in the end.

This is also mirrored in the actuations of Don Kiko, a devout Roman Catholic who becomes a born-again Christian to alter his past and hide the machinations, most of them political in nature, he has done in his favor. His “hybridized character” can

also be supported by his use of both the Spanish and English languages, which, consequently, were the languages of Philippine colonizers. Moreover, his business partnership with a Japanese national for a “*private island with excellent games*” (Bobis, 2012, p. 131) completes the representation of all the colonizers the Philippines had.

But for Pilar and her guerilla lover, Tony McIntyre, such hybridity is taken on a different scale. By becoming involved with the underground movement, Pilar and her lover mirror the change in both their political orientations and their identities—by becoming guerillas, they have unknowingly embraced the hybridization of their culture and identity. Moreover, they have shed their naïveté and become involved in the drive towards peace, progress, equality, and justice.

For Pay Inyo, the gravedigger of hybridity, much more multiculturalism can be drawn from his penchant for Western products. His *sari-sari* store is always filled with western goodies—corned beef, crackers, sandwich spread, even liquor (J and B whiskey). Although he also sells native Filipino sweets and goodies, the novel tells readers that the Filipino goodies are meant for everyday trade, while the western products are reserved for important, if not powerful, visitors. More than this, his distortion of the English language by using “truly, truly” as his form of expression echoes how he “hybridizes” not only the English language but also his native tongue.

In **State of War**, the binary opposition of pure (monocultural) vs. hybrid (multicultural) is seen in Adrian’s distorted version of reality. Adrian’s minor problem of mind was brought about by an explosion that “*hurled him into a time warp, fixing him forever in a maze of words, a verbal account of four hundred years, tortured and tormenting*” (p. 376). This mirrors the destruction of the purity of Filipino identity, which is far from being pristine—the mythic past is an impossibility in a nation of many possibilities. Such impossibility amidst many possibilities is further seen in the genealogy of the novel’s characters, which in turn essays the hybridization of Filipino

identity (i.e., paternity issues). Flipping through the pages of the novel, one readily sees that Filipino ancestry, as represented by the characters of the narrative, has been infused with Spanish, American, and Japanese blood, among others. Needlessly, in their efforts to project an “ideal” ancestry, some characters have to lie (Maya has been repeatedly impregnated by a Capuchin monk; she bore seven sons, but has never told people this, although they know; Mayang, the wife of Luis Carlos, has had an illicit affair with Hans, her husband’s assistant, and bore him a child, yet Luis Carlos claims the child is his even if the child’s European features are too much to disregard). Such a source of conflict between and amongst characters signifies hybridity.

By taking part in the festival, the characters, like Adrian, Anna, and Eliza, and the rest of those who partake in the festivities become hybridized characters because the festival that serves as the frame of the novel is used by Rosca as a symbolic and literal site for questioning dominant belief systems and practitioners. Various referred to as a “*festival of memories*” and “*a singular evocation of victory in a country of too many defeats*” (p. 15), the festival essays the novel’s link to Filipino “*tradition and identity*” (Mendible, 2011). A celebration as a product of rebellion and relinquished through language and memory, the festival becomes the locus where anything is possible—where peasant farmers turn into ancient warriors in tribal costumes, guerilla fighters ululate and gyrate with enemy soldiers, and transvestites swagger through the street with sawed-off shotguns under their shirts.

Rosca also uses the festival on the Island of K in **State of War** as the basis of discussion for this binary opposition. In the novel, the festival seems to straddle between cultural amnesia and cultural renewal, which in turn spells the boundaries that multiculturalism (hybridity) has over culturally-bound (monocultural, pure) traditions. By acquiring a significant section of the waterfront property and building a haven for tourists, the dominant elite aims to achieve the “benefits” of a tourism-sponsored

“endless fiesta”—seen in modernization, progress, contact with the world, and employment—all precursors of multiculturalism. In their view, half the town would “*go on with the Festival for the tourists*” (p. 38), while the other half could be trained “*to work in hotels*” (p. 38). By fashioning the novel this way, a seemingly joyful becomes an exclusive show of domination—where folk “participation” means meeting the demands, if not needs, of an elite coterie.

The commercialization of the festival essays its paradoxical status as a cultural model or episteme. While the festival positions popular rebellion and explicates the complexities and tensions common within a community, it also depends on “*survival on economic support and the wink of an authorial eye*” (Mendible, 2011). Rosca further hints at this relationship through the “unauthorized” festival occurring during the official event. The Procession, or “poor folks’ festival,” as it is called, takes place in the margins of the central event and is attended by the islands peasants (p. 117). This event, ignored by most festival participants, is a somber and less vocal form of communication. It involves a modest candlelight display that pays homage to the spirits of Philippine ancestors; hence, in a sense, it is monocultural because it only involves the peasants. The solemnity of the event and the absence of too much pomp and pageantry reify the monocultural side of this modest festival.

Linked to a cultural ethos of self-determination (cf: Bakhtin’s “feast of becoming”), the novel represents the oppositional culture of the oppressed, a countermodel of cultural production and desire (Okamura, 1998). Ultimately, then, the novel bespeaks the very hybridity of the once “pure” Filipino identity by using characters and symbolism the novel is rich of.

Such hybridity is also seen in Clara’s evolution from a mere reporter/spectator to an “actress” in the stories she covers in **Eating Fire, Drinking Water**. Having grown inside the Convent of Sta Clara, she has to act based on the decorum set by the

nuns (hence, she is pure then), but once outside the portals of the convent, and when she starts immersing herself with the “real” world, she gets hybridized. She once did not know how to pick up the missing pieces of her life’s puzzle, but she is able to do so after going out and embracing the world.

Most characters in the novel, too, (like Laslo, who participates in the demonstrations to rebel against the inhumanity of his father but, in the end, gets truly involved in the cause they are fighting for; Luis Bayani, the founder of the YRM Movement; Sophia; Rogelio Campos and Dario, soldiers whose lives have been played with by fate); and a number of other characters who have to shed off their being “pure” to become “hybridized” elements. By becoming “hybridized,” these characters have undergone multiculturalism stemming from their culturally bound orientations (their being pure).

If there is someone who demonstrates the extent of hybridity the Philippines and Filipinos have been through in the novel, it is Luis Bayani. Wanting to awaken his comrades, the government, if not the Philippines, he, together with other members of the YRM, organized demonstrations aimed at denouncing the government. For Luis Bayani, to denounce the government and all its “inhumanity” is like “*putting out fire*” (p. 111), yet he admits that this fire is “*inside us, in the belly of the country*” (p. 112). Such words can be equated with him saying that we can no longer regain what was once a good, if not ideal, government (representative of purity, monoculturalism) since we have ingested the ways of a bad, abusive government (representative of hybridity, multiculturalism). And although we can fight “water with water,” which means we can have a new, pure culture and identity by once again allowing time and space to solidify us—he also makes us realize that the result is “*splattered in the pages of history: bloodbaths, uprisings, revolutions, you name it. And on it goes.*” *We can have a new, pure identity, but we will forever be at war in our journey towards achieving it, since “after many centuries, we’re still a people who eat fire and drink water”* (p. 243).

Dominant vs Subaltern

The binary opposition of dominant vs. subaltern, always present in postcolonial literature, reflects the clash of two opposing factions. The term subaltern was popularized by Ranajit Guha and Gayatri Spivak (2010); it includes those who have been marginalized or “othered” not only in history but also in all aspects of society. As Said (1978) says, postcolonial texts mirror political figures between domains, between forms, between homes, and between languages. The novels under study, being postcolonial texts, mirror in their pages the binary opposition of dominant vs. subaltern.

To exemplify, in **Fish-Hair Woman**, this construct is shown by Don Kiko Alvarado (Estradero) and his private militia (the dominant) and Etrella, Luke, Pilar, Mamay Dulce, and the rest of Iraya (the subaltern). Because of his heritage and power (he has Spanish blood, owing to his mother, a love-child of a Spanish friar and the maid; he is Iraya’s mayor and later the governor), Don Kiko Alvarado manipulates not only history but also the fate of the novel’s characters, driving them to the margins and making them forget what it is to celebrate life to the fullest. As the dominant force in the novel, he exercises power over and above everybody else. He orders the execution of those who are against him, the reason that many were “salvaged” and missing. He also orchestrates the story behind the longest love letter, fabricating tales to make those who are involved in it (Luke, Stella, and Estrella) believe that what he tells them is true. Because of his abuses, many turned away from the government (he was the governor then) and became involved with the underground. Many embraced the doctrines of the New People’s Army, among them Kumander Pilar, the notorious *amazona*.

Iraya, being the subaltern, had no choice but to accept the fate that befell them. When somebody dies, they summon the fish-hair woman to trawl out the dead body from the river. They weep, mourn, and give the dead their last respects. But in their

hearts is that silent prayer that peace and order will soon be restored. The people’s suffering reaches its height, and many take arms and fight Don Kiko’s corrupt government. However, since Don Kiko has the power to pacify such rebellious acts, he orders the torture and execution of some.

To “make peace with himself,” Don Kiko changes his religion and converts his religious orientation to that of a Born-Again Christian. Yet, people did not forget. In the novel’s climax, he is killed by his bastard daughter, Stella; she brings his body home and lets Iraya strip him of his honor and power during Don Kiko’s wake. Except for his underwear, Don Kiko is laid on his roughly hewn wood coffin while Iraya spits before his body. The “mourners,” far from crying, engage in merrymaking, drinking beer, drawing boisterous laughter, and are consciously aware of the blasphemous act they are extending before a dead body (p. 268).

Seen under the lens of postcolonial criticism, the way people behaved during the wake of Don Kiko, the dominant, seems to be the subaltern’s way of at least “making even” with the fate they once suffered from the former’s hand. On a larger scale, this profanity suggests that the subaltern can “speak” before the dominant, colonizing country. Like what the people of Iraya did to Don Kiko, so can the subaltern deal with the dominant power later on.

The subaltern’s voice in the novel is amplified even more during Don Kiko’s burial. Only Pay Inyo, Adora, and Luke show respect to the dead; everybody comes not to pay their last respects to him but to see and be sure Don Kiko is dead, powerless, and can no longer do any harm to them. Their spitting on the deceased expresses their disgust in his power, consequently of the colonized disgust towards the colonizer.

The presence of both the Philippines and Australia in the novel, represented by Adora and Luke, is another case in point. Both the Filipinos and aboriginal Australians have been once under colonial rule, both with the English master. The

Filipinos were under the hands of the Americans for fifty years, while the Aboriginal Australians were under the English master for some time. With Bobis incorporating them in the novel, she speaks of how the “*empire writes back*.” She seems to say that these once English-controlled territories (the subaltern) will one day find their voice and speak against the dominant, almost akin to what Foucault (1980) said: that the oppressed, if given the chance and the way through alliance politics, can speak and know their conditions.

Yet, the presence of Austalians in the novel, like Tony, Matt, and Luke, still points out Filipinos’ prejudice towards white men. Not once, but many times when Tony is referred to as *‘Merkan*o by the people of Iraya, referring to him as white, the oppressive force, to borrow their words, “...same same ‘Merkano!” (p. 272). Such observation is tantamount to the subaltern’s disgust over the dominant, implying all white people are oppressors.

Such disgust over the whites’ domination against the Filipino subaltern is re-echoed by Professor Ynez Carillo when she blurts out: “*We’ve had too much of the white men in our history—the colonizers, the liberators, the kingmakers, the anti-communists. Crusaders come to the brown country to reconfigure our lives, our stories*” (p. 227).

The binary opposition of dominant vs. subaltern can also be perceived in how the banagan (lobsters) “behaved” during the party Don Kiko holds in honor of a possible Japanese investor for Don Andres’ (Don Kiko’s friend’s) planned theme park—a private island with “excellent games” (i.e., a militarized zone). On this island, the people will be under the control of a militia, forever controlled by Don Kiko’s secret army group. The prawns are served to the guest alive and fresh, according to their specifications. But at dinner time, the *banagans* had gone out of control, jumped out of the platter, and clung to the Japanese crotch so badly that nobody, not even Don Kiko’s bodyguard armed with princes, could get it out of where it clung. As a result, the business deal was called off.

The *banagans* here represent the subaltern, manipulated and ready to be “eaten” by the dominant, represented by the Japanese, Don Kiko, and the rest of those who want to invest in the private island. How the banagans behave during the party mirrors how the subaltern seemingly fights back when it can no longer take the exploitations and manipulations imposed on him by the dominant force. Similarly, this incident foreshadows how Don Kiko is received by his townmates in Iraya after his death—they accord him the “welcome” he is long overdue.

In the preceding paragraph, the presence of a Japanese investor is very much felt. Foreigners are in continuous “exploitation” of the Philippines. The proliferation of foreign products in the midst of Filipinos is another telltale sign of the struggle between the dominant (foreign countries) and the subaltern (the Philippines). Pay Inyo has in his keeping lots of American goods reserved for the consumption of VIP’s; Don Kiko entices young men to be members of his private militia by giving them “remnants of domination”: Marlboro cigarettes, corned beef, sardines, and the like, which are, of course, readily received and gobbled by the hungry young men. Becoming members of the private militia turns these young men, who were once members of the subaltern, into dominants. But their domination doesn’t last a lifetime since, when they are no longer of use, Don Kiko orders their murder, and again, they are reduced to being subaltern.

Like in **Fish-Hair Woman**, in **State of War**, the binary opposition of the dominant vs. the subaltern is also represented by the clash of the ruling elite (herein, represented by the President, the First Lady, General Amor, and the rest of the president’s allies) and the people of the Island of K, including those attending the festival. Because of his powers, the president, through his men, orchestrates the weeding out of the subversive forcers (Eliza, Adrian, and Anna). The resulting chaos at the height of the festival, with the dominant shaken but still in power and the subaltern suffering different fates, some of

them dying (Eliza) while others are still living but have lost their sense of logic and reason (Adrian), suggests that the subaltern can speak out. But since the subaltern does not know what or whom to trust or seek help from (even Anna is betrayed by her husband), this speaking turns out to be neither successful nor effective.

Be that as it may, the ensuing events after the incident both affect the dominant and the subaltern. Adrian ends up crippled and forever connected to the wheelchair, “*mumbling words, a verbal account of the four hundred years, tortured and tormenting*” (p. 376); Eliza Hansen dies and because no one claims her body, the fishermen who found it, “*poured gasoline over the decaying flesh and set it afire*” (p. 377); taking with them her bones as remembrance of her being tribute to the festival and later on, it is said that she *brought good fortune* (p. 377) to them; Colonel Alejandro Batoyan falls ill and dies of a “*systemic disorder that saw his organs attacked by chemicals his own glands produced*”, (p. 377); Guevarra is wounded and captured again and his name and whereabouts became a legend (likened to Luis Bayani in the succeeding novel); Colonel Urbano Amor loses his left arm and writes a dissertation on the distillation of so much human pain that his panel waive his oral defense and pass him abruptly; and finally Anna Villaverde who has made it back to Manila opts to pluck herself out of the city, she goes to a small village in Laguna and teaches in the *flea-sized village* (p. 378).

The festival speaker (who has seven PhDs) who gave the keynote address during the festival on the Island of K also represents the dominant. Speaking before a mixed crowd of businessmen, industrialists, intellectuals (the dominant), and the masses, he needed the help of two secretaries and one translator to “*reduce his high-caliber English to plainer words for less gifted mortals*” (the masses, subaltern) (p. 139).

These said, notably, that when the subaltern speaks out, no matter how little the voice is will shake and bring some “changes” to the ruling

class or the dominant force. Moreover, Ana’s return to the laidback way of life, pregnant, means that before one can speak up before the dominant, or the colonizer, one must first come to terms with his past and his heritage so that he can carve an image of himself and, in return, can finally “*write back to the empire*.” Anna’s child forebodes the promise of a brighter future for the subaltern since it is the product of both the dominant (Adrian’s grandfather was close with the President) and the subaltern.

On a larger scale, though, the novel’s ending suggests that both the dominant and the subaltern are affected, once the latter chooses to speak. While it recognizes the “efforts” accorded to him by the dominant class, the novel clearly states that when the subaltern has been fed up with the many manifestations and orchestrations the dominant imposes on him, he will soon speak up. The result, as the novel clearly states, may be both advantageous and disadvantageous to both parties.

In **Eating Fire, Drinking Water**, like in **State of War**, it is also the government that is dominant, with the students, those from Milagros, and the ordinary people as the subalterns. Caught in a political quagmire brought about by their indifferences towards each other and climaxing in the First Quarter Storm (although the novel does not really tell so), the dominant and the subaltern exercise their will and rights over each other. Because of this event, lives have changed—a poor Chinaman dies, a woman develops stigmata, a soldier accidentally fires his gun, while many turn out missing, presumably dead, like Sophia.

The ensuing events after the rally reveal the subaltern’s fate after speaking. Although it succeeds in voicing out her indignations towards the dominant or the ruling class, the price it has to pay is too precious, for lives have changed; some of them really are lost forever, dead. But for Clara, the story’s main protagonist, these events seemed like “blessings in disguise.” Being subaltern in her job because she feels the stories she is given to cover are many, mostly trivial, when assigned to cover

not the First Quarter Storm but the Chinaman's death, she becomes closer to her vague past and her identity. Because of the assignment, she has not only found her voice and the long-awaited break she has been waiting for, but more importantly, she has found herself.

As mentioned earlier, the subaltern is also represented by the people of Milagros, who, because of Luis Bayani's initiative, have been conscientized, to use Freire's phraseology, of the futility of their existence. Wanting to denounce what the government (the dominant) inflicts upon them and the rest of the country, they converge into one big group and march on the streets, shouting their indignation towards the "abusive" ruler. Laslo's words, "*Milagros is marching. The poor of this land are calling for change; they are joining the protest march, and I call on you to do the same*" (p. 77), encapsulate how a subaltern finds his voice and soon speaks up before the dominant.

Rogelio Campos, a *sacada* turned soldier, epitomizes how a subaltern finds his voice and ultimately speaks up before the dominant. Coming from a family of underpaid and exploited *sacadas* for many years, his mind is awakened by a book he has read (Rizal's *Noli and El Fili*) given to him by Luis Bayani. To change his family's destiny, he escapes the sugar plantation (owned by Don Miguel Pellicer) and eventually becomes a soldier. By being a soldier, it is assumed that he transcends from a subaltern to a dominant, yet, even if he already has "power," it is insufficient for him to be considered as such—he remains a subaltern character. Common soldiers, like Rogelio Campos, are considered "pawns" in a game of chess, whose lives are sacrificed for the more significant and powerful to survive.

The novel's falling action, when Luis Bayani's comrades continue to fan the flame of his ideals, Clara among them, by telling both the government and the masses that he is "alive"(cf: Guevarra in **State of War**), which eventually will result in the downfall of the government (although the novel

does not really tell so), perfectly represents how the subaltern will someday find his voice and speak up, confront, or better yet "fight" the dominant force that for many years has been engulfing him.

Lastly, Clara, being the novel's narrator, is a subaltern character who speaks up before the empire or the dominant since she, in her own ways, tries to fight the government, herein the subaltern, through her writing. Influenced by Luis Bayani's ideals, notwithstanding the fact that she is a journalist herself, Clara keeps alive the cause Bayani and the rest of the subaltern want to achieve, or, if not, the voice they want the dominant to hear.

After careful evaluation and analysis of the novels, the study found that the following illusions of exilic characters emanated from the novels: home vs. exile, citizen (national) vs. transient (transnational), pure culture (monoculture) vs. hybrid culture (multiculture), and dominant characters vs. subaltern characters. The novels' narrative techniques, characterizations, and significations, therefore, represent the illusions peculiar to diasporic and/or exilic characters. It is, therefore, recommended that future studies dwell on the same topic using the same or different literary theories as bases. It is also recommended that a similar study be done involving other representative literatures of the Philippines and literatures of other colonized or diasporan communities or countries.

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Solitary Sentinels: Unraveling Grief Struggles in Solo Parenthood

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This qualitative research investigation explores the complex and frequently disregarded experiences of single parents coping with bereavement. This study aims to gain insight into the distinct difficulties single parents face in the face of various forms of loss, such as bereavement, divorce, or separation. By conducting comprehensive interviews and employing theme analysis, this research study reveals the various dimensions of individuals' grief process, providing insight into the emotional, psychological, and practical challenges they experience. The research findings indicate that individuals raising children on their own face unique difficulties when dealing with the grieving process. These issues mainly arise from the lack of support from a partner and the additional burden of independently handling family matters. The research reveals many themes like isolation, financial stress, emotional load, and the challenge of managing personal grief alongside parental responsibilities. Moreover, the study emphasizes the coping strategies utilized by single parents, demonstrating their resilience and ability to adapt. Support networks, whether in official or informal capacities, are recognized as crucial in mitigating the effects of sorrow. Furthermore, the research underscores the significance of customized interventions and available resources that cater to the distinct requirements of single parents navigating the intricate challenges of grieving. The present study enhances the comprehension of the complex dynamics associated with sorrow in the specific single-parenting setting. The results of this study offer a basis for the development of focused support programs and interventions aimed at enhancing the overall well-being of single parents who are experiencing bereavement. Through the recognition and active engagement with the distinct challenges faced by these individuals, society can assume a crucial function in cultivating an environment that is both inclusive and characterized by empathy.

Keywords: *grief, solo parenthood, challenges, responsibility, Philippines*

The transition to solo parenthood, often precipitated by significant emotional upheavals such as the death of a spouse, relationship dissolution, or marriage termination, represents a critical shift in familial dynamics and individual responsibilities. In the Philippines, a considerable demographic shift has been noted, with over 2 million single-mother households, as reported by the Philippine Statistics Authority (2016). These households primarily emerge in the wake of spousal loss or relationship dissolution, a trend that is also echoed in Western contexts. The Office for National Statistics (2020) indicates a substantial portion of households with dependent children in the country are under the sole guardianship of single parents, primarily due to the loss of a partner. This phenomenon places these individuals at the crux of coping with bereavement while navigating the complexities of solo parenthood, against the backdrop of traditional nuclear family expectations.

The experiences of solo mothers in the Philippines, as elucidated by Del Mundo et al. (2019), often encompass profound grief, social isolation, and stigma, challenges that are exacerbated by the sole responsibility of child-rearing. This disenfranchised grief, characterized by marginalization within social discourse and support networks, is not confined to the Philippine context but resonates globally. Studies, such as those by Thompson et al. (2011), have documented similar patterns of prolonged, isolating bereavement among solo mothers in other countries. Yet, there remains a paucity of research delving into the unique mourning experiences of single parents, especially through phenomenological approaches.

The existing body of bereavement research has predominantly focused on nuclear families, thereby overlooking the distinct and complex grief trajectories of single parents (Park & Kim, 2023). The study by Del Mundo et al. (2019) highlights the multifaceted challenges faced by solo mothers in the Philippines, including societal stigma and the

overwhelming responsibility of single-handedly managing household needs post-partner loss. Such experiences often remain unrecognized and underrepresented in both scholarly discourse and societal support systems.

The prevalence of single-parent families, particularly those led by women, is a growing global phenomenon. As reported by the Philippine Statistics Authority (2016), about 13.6% of families in the Philippines are headed by single mothers. Similarly, in the United Kingdom, a significant segment of the population comprises households with dependent children led by single parents undergoing bereavement (Office for National Statistics, 2020). This underscores an urgent need for research focused on the bereavement experiences within the context of solo parenting—a demographic that, despite its significance, has often been neglected in scholarly investigations.

Consequently, this study aims to provide an in-depth exploration of the mourning experiences of lone parents in the Philippines, utilizing interpretative phenomenological analysis. By shedding light on the nuanced progression of sorrow experienced by single parents, this research seeks to contribute to the development of tailored support strategies. The findings are anticipated to not only enrich the understanding of bereavement in the context of solo parenting but also to catalyze further global research efforts addressing this critical but frequently overlooked demographic.

Methodology

Research Design

This study adopted a qualitative phenomenological approach to explore the intricate grief experiences of solo parents. Phenomenology, with its emphasis on understanding human experiences from the participants' perspectives, is particularly suited for delving into the complex emotional landscapes of bereaved solo parents. Semi-structured interviews were utilized to elicit rich, descriptive data, facilitating a deep understanding

of the participants' lived experiences. This approach aligns with the aim of capturing the nuanced and personal nature of grief in solo parenting.

Participants

The study involved five solo parenting mothers from Payatas, Quezon City, all of whom were accessing support services from the Department of Social Welfare and Development INA Healing Center. These participants were selected based on specific criteria: having experienced child loss within the past five years and currently raising their remaining children alone. This criterion was established to ensure that the study captured a range of experiences related to recent bereavement and ongoing solo parenting challenges. The mean age of the participants was 32 years, offering insights into a demographically representative group of solo mothers in an urban Filipino context.

Data Collection

Data were collected through individual semi-structured interviews, each lasting between 60 and 90 minutes. The interview protocol was meticulously developed based on a comprehensive review of existing literature, focusing on key areas such as the mothers' grief journey, support systems, coping strategies, parenting challenges, and processes of meaning-making. This approach ensured that the interviews were both structured and flexible, allowing for the exploration of topics significant to each participant's experience. To enhance the validity and relevance of the interview questions, the protocol was reviewed and refined by a multidisciplinary team of experts, including a psychologist, psychiatrist, clinical social worker, and counselor. All interviews were audio-recorded with the participants' consent and transcribed verbatim, with identifying details anonymized to maintain confidentiality.

Data Analysis

The data analysis was grounded in thematic analysis, following the guidelines set forth by Clarke and Braun (2013). Initially, the researcher immersed themselves in the data by thoroughly reviewing the transcripts to gain an in-depth understanding of the participants' narratives. Initial codes were generated from these narratives, which were then systematically collated into preliminary themes. An iterative process involving the core research team was employed to refine these themes, ensuring they accurately reflected the data. This collaborative approach allowed for the validation and triangulation of findings.

To augment the analytical rigor, Kawakita Jiro's affinity diagram approach (Kawakita, 1967) was integrated into the analysis. This method involved physically arranging codes on notecards and iteratively grouping them to identify emergent theme clusters. This tactile and visual technique facilitated a more nuanced and comprehensive organization of the data, enhancing the inductive analysis process.

Results and Discussions

The present study offers a profound exploration into the grief experiences of solo parents, uncovering layers of emotional, social, and practical complexities that characterize their bereavement journey. The findings resonate with existing literature on the isolating and disenfranchised nature of grief trajectories in solo parents (Park & Kim, 2023; Thompson et al., 2011) and extend our understanding by providing a nuanced view of these experiences in a specific cultural context.

Enduring Emotional Anguish

This theme signifies the depth of the grief experienced by solo parents. The narrative, "Ang bigat sa puso ko, parang dinudurog ako. Kahit ilang taon na ang nakalipas, ramdam ko pa rin ang pighati" ("My heart feels so heavy, like it's being crushed. Even years later, I still feel the anguish."),

encapsulates the profound and persistent nature of their sorrow. Such expressions are crucial in understanding the prolonged and complex nature of grief within the context of solo parenting. They highlight the need to acknowledge the enduring nature of grief beyond the conventional timelines of bereavement.

Lack of Empathy

The theme of a lack of empathy underscores the social challenges solo parents face. One mother's expression, "Akala ng iba dapat okay na ako ngayon. Hindi nila naiintindihan na iba ang pagiging mag-isa" ("Others think I should be okay by now. They don't understand what it's like to be alone."), reveals the societal misconceptions and insensitivity towards the unique challenges of solo parenting in grief. Another parent's feeling of alienation, "Nakakaramdam ako ng pagka-alienate. Parang hindi sila maka-relate sa pinagdadaanan ko" ("I feel alienated. It's like they can't relate to what I'm going through."), highlights the lack of understanding and support from their social network, indicating a need for more empathetic and informed social support structures.

Sole Parenting Burdens

The narratives surrounding the burdens of sole parenting shed light on the dual challenge of grieving while managing parenting responsibilities. A participant's account, "Mahirap mag-isa kong alagaan ang mga anak habang nagdadalamhati" ("It's hard to take care of my kids alone while grieving."), and another's reflection, "Doble ang pasanin ko bilang nag-iisang magulang. Pero kailangan kong maging matatag para sa mga anak ko" ("The burden feels twice as heavy as a solo parent. But I have to be strong for my children."), underscore the heightened responsibilities and emotional toll on solo parents. This dual role can exacerbate stress and necessitate a multifaceted support system that addresses both emotional and practical needs.

Sociocultural Isolation

The theme of sociocultural isolation highlights the societal marginalization of solo parents' grief. The narrative, "Tila ba walang puwang ang kalungkutan ng solo parent sa lipunan" ("It's like there's no space for a solo parent's grief in society."), and the perception that "May stigma pa rin na kapag naulila ang anak, kasalanan ng nanay" ("There's still a stigma that if a child dies, it's the mother's fault."), point to the disenfranchisement of their grief. These narratives emphasize the need for societal recognition and the de-stigmatization of solo parents' grief, advocating for a more inclusive and empathetic social discourse.

Resilience

Despite the overwhelming challenges, the theme of resilience reflects the strength and adaptability of solo parents. One parent's determination, "Kahit mahirap, patuloy kong binubuhay ang alaala ng aking anak sa pamamagitan ng pagtulong sa iba" ("Even if it's difficult, I continue my child's memory by helping others."), and another's self-compassion, "Natutunan kong maging mahinahon sa sarili sa proseso ng pagdadalamhati" ("I've learned to be gentle with myself in the grieving process."), highlight their capacity for resilience and growth amidst adversity. This aspect of their experience provides a critical perspective on the potential for post-traumatic growth and the importance of support systems that foster resilience.

Conclusions and Recommendations

These findings underline the urgent need for a more comprehensive understanding of solo parent grief in both the public and professional domains. There is a clear need for tailored interventions that recognize the complex interplay of emotional and practical burdens faced by solo parents. The establishment of peer support groups and community-based initiatives could play a crucial role in providing the empathy and validation lacking in their current support structures.

The study contributes to the existing body of knowledge by providing a culturally contextual exploration of solo parents' grief experiences, enriching our understanding of these experiences beyond existing literature. Future research should aim to explore these themes in diverse cultural settings and examine the effectiveness of different support interventions in aiding solo parents through their grief journey.

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Historical, Sociocultural, and Artistic Values of Nuestra Señora de Candelaria Parish Church of Silang, Cavite that Led to its Recognition as a National Cultural Treasure

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Giving value to built heritage involves recognizing the historical and cultural significance of these structures and preserving them for future generations. In the Philippines, historic Spanish structures tend to be examples of built heritage. One of these is the Nuestra Señora de Candelaria (NSC) parish church in Silang, Cavite. Through interviews and thematic analysis, this research sought to understand the historical, sociocultural, and artistic values of the NSC church and how it became a National Cultural Treasure (NCT). The findings show that the church possesses historical values such that it played a key role in the revolution between Filipinos and Spaniards. It also exudes socio-cultural values, serves as an agent of moral development, and is a center of fellowship and practice. Further, the church has unique artistic values and showcases a baroque architectural style. The recognition of the NSC Church as an NCT strengthened heritage preservation. Promoting it can be done through activities like heritage walking tours and scale model making, and its effective lobbying can be featured in workshops. Further research on the artistic representations of the Retablos can be pursued.

Keywords: *Silang Church, cultural studies, built heritage, heritage preservation*

Giving value to built heritage involves recognizing the historical and cultural significance of these structures and preserving them for future generations. This includes maintaining the physical integrity of the buildings, restoring them when necessary, and ensuring that they are accessible to the public (Cultural Heritage, 2021).

According to Republic Act 10066 (RA10066) (House of Representatives, 2009), built heritage refers to the physical structures, buildings, and cultural landscapes that have historical, architectural, or cultural significance. These structures serve as a tangible reminder of a community's past, and they provide a window into the lifestyles, beliefs, and practices of previous generations, as stated in article 2, section 3 of Philippine Republic Act 10066

In December 2016, the decision to declare the church of Nuestra Señora de Candelaria Silang as a National Cultural Treasure was made. According to the National Museum, a National Cultural Treasure is a unique object found locally that has outstanding historical, cultural, artistic, or scientific significance and is important to the country and the entire nation (Pino, 2019).

The study covers the historical, sociocultural, and artistic values of Nuestra Señora de Candelaria Parish Church of Silang, Cavite that led to the recognition of the church as a National Cultural Treasure and provides specific and comprehensive findings on how the church qualifies to its recognition

Methodology

Research Design

As it concentrates on the in-depth study of the upbringings of the church, this research has mostly used one of the qualitative research designs, specifically historical research. While McDowell (2013) emphasizes that historical research examines the past for further contextualization of the past circumstances in relation to when and where they occurred, But it goes beyond only acquiring information; it also entails interpreting it through the historians' analysis of the available data.

As one of the most prominent structures in a community, Nuestra Señora de Candelaria has played a significant part in Silang's history as it was proclaimed a National Cultural Treasure, and the study used a qualitative approach by utilizing source critique, historical document synthesis, oral history, and photographic interpretation, Analysis was done using the historical method. Although the old and new world systems have different systems of source criticism, both schools follow the same rules. It is necessary to evaluate a source's date in relation to the historical, cultural, and scientific significance of the event it documents.

Population and Sampling Technique

Purposive sampling was used in this study to find worthwhile individuals. It is discriminatory in nature and aims to deliberately choose people who have the qualities listed in the inclusion criteria but who do not meet the requirements for exclusion. Due to the nature of the issue, the study also used snowball sampling, in which sourced individuals can consult with other participants to determine whether they are qualified to join based on established inclusion criteria:

Inclusion Criteria

Participants in the interview met the following requirements: Give proper consent prior to the interview by being fully concrete proof; have knowledge of local history, especially as it relates to Nuestra Señora de Candelaria Parish Church of Silang, Cavite; and be related to church administrators, local government officials, local historians, and Silang local librarians.

Exclusion Criteria

If any of the following situations exist, participants may be excluded: When candidates failed to supply reliable information prior to, during, or after an interview session during questioning, the only proof offered was anecdotal.

Instrumentation

The researchers sought approval in ethical consideration from the university's Ethics Research Board (ERB), and the interview questionnaire was validated by the research adviser, a social science expert. The interview was conducted in a semi-structured manner. These answers to the second research question were determined. The researcher asked for recommendations for the ERB before conducting the interview.

Analysis of Data

The information gathered was subjected to textual and contextual analysis to create a narrative of the events that took place throughout the parish church's history, Nuestra Señora de Candelaria. Additionally, it analyzed and interpreted the current story while presenting a historical perspective. It also employed interviews with notable people who have authority over some of the sources that the researchers have acquired. It was synthesized using Interview transcript Analysis and Thematic Analysis for codes that were repeatedly mentioned in the interviews.

Ethical Considerations

The researcher secured approval from the Ethical Research Board of Adventist University of the Philippines. To engage willingly in this study, volunteers were asked for permission by the researchers. Additionally, they were informed of their rights to confidentiality and privacy, as well as their ability to decline or withdraw from this study. The participants were informed of the rights and risks of their participation. The researchers undertook the study with care and attention to any regional customs because Nuestra Señora de Candelaria is essential to the neighborhood Catholic congregation and the municipality of Silang.

Results and Discussion

A photograph of the Nuestra Señora de Candelaria church is presented in Figure 1. This photo was taken around 1942.

Figure 1

Nuestra Señora de Candelaria (1942)



Source: Museo de Silan, a Virtual Museum

Historical Values

According to the results, Nuestra Señora de Candelaria of Silang witnessed the revolution between Filipinos and Spaniards. Furthermore, it was considered as a symbol of Spanish oppression and colonial rule.

Symbol of Spanish Oppression and Colonial Rule

The church also witnessed a tragic past between the Filipinos who sought independence from the Spanish conqueror in the 1896 Philippine Revolution (Rodao & Rodriguez, 2001). During the Revolution, the church in Silang, Cavite, was one of the targets of the revolutionary forces.

The Silang church was seen by the revolutionists as a symbol of Spanish oppression and colonial rule (Medina, 2013). On September 2–4, 1896, the Katipuneros attacked the convent where the guardia civiles were hiding, under the command of Generals Vito Belarmino and Vicente Giron. Lieutenant Juan Briseño was in charge

of the Spanish force in Silang. The result of the Katipuneros attack was the killing of the parish priest, Padre Toribio Morena, who fled to Tatyaw first. Vicente Giron's group chased the parish priest until he was captured and made to walk; when they were close to Kaong, he was killed. The guardia civiles quickly surrendered when Vicente Giron thought of using the two sons of a guardia civiles as bait. Except for Lieutenant Briseño, who did not surrender at the hands of the soldiers, who were later found dead, the Spanish forces finally surrendered in Silang on September 4 (Unabia, 2000). However, this victory was short-lived, as Spanish forces would soon arrive in February of 1897 and recapture the town, including the church.

On December 13, 1896, when General Camilo de Polavieja took charge of the Spanish force consisting of 16,000 soldiers and another 13,300 coming from Spain, a few months later, on February 15, 1897, of the following year, Polavieja began the reconquest of Cavite. Jose Lachambre y Dominquez led the campaign to overthrow revolutionary forces in Cavite from February 15 to April 2, 1897 (Quirino, 1998). The Spanish colonial authorities mobilized their forces to retake the town. The Spanish government sent additional troops to reinforce their army in the Philippines and deployed them to Cavite to suppress the rebellion (Medina, 2001). The Spanish army implemented a strategy of attrition, gradually wearing down the rebel forces through a combination of military operations and blockades. They targeted lines and strongholds, cut off supply lines, and prevented reinforcements from reaching the rebels. As a result, the rebels were increasingly isolated and weakened, and many surrendered or were captured by the Spanish army (Medina, 2001). Unabia (2000) stated that on February 19, Lachambre captured the town of Silang, the Royal March was played at noon, soldiers shouted "Viva España" as the Spanish flag was waved from the top of the church tower, and the Spaniards burned everything except the church and convent.

The church has a rich history dating back to the Spanish colonial period in the Philippines. It was built in 1637 and has since undergone several renovations and additions, reflecting the different architectural styles that were popular during various periods of Philippine history.

The Church's Sociocultural Values

The church has played a significant role in shaping sociocultural values throughout history. Religion, particularly Christianity, has influenced many aspects of culture, including art, music, literature, and even the way people think and behave (Medina, 2013).

Minister the Catholic Faith

The old church of Silang (Nuestra Señora de Candelaria) is a standing witness to how Christianity transformed the lives of the natives. The church served as a house of worship for the natives and as a home for the religious order that came to Silang town to minister the Catholic faith. and once a fortress of the Spanish Guadia Civiles that gave protection to its jurisdiction against bagamundos or tulisanes (Medina, 2013).

The Franciscans, under the leadership of Fathers Diego de la Concepcion and Juan de la Cruz, introduced Christianity in the town of Silang in 1585 (Unabia, 2000). The mission used to cover most of Cavite's highland towns, including Maragondon, Ternate, Indang, and Alfonso, as well as some of Marindugue (Medina, 2013). In all their missions, the Franciscans started by looking for a piece of land on which to construct a chapel. All the churches that the Franciscans built at that time were made of wood, including Nuestra Señora de Candelaria, which was built in 1585. Due to a lack of missionaries from other regions in the Philippines, the Franciscans left Silang for other regions in 1589. As a result, Captain Diego Jorge de Villalobos, the encomendero at the time, asked the Jesuits to send missionaries. Hence, Fray Prado, who was at the time in the Visayas, deployed Fray Diego Sanchez

and Fray Santiago in Silang (Unabia, 2000). On May 8, 1599, the Jesuits obtained ecclesiastical permission to hold Silang as a diocese through Fray Diego Garcia, and Silang Church became their permanent mission. However, on August 30, 1603, the church was burned down, and nothing was left except the image of San Ignatius of Loyola. Gómez Pérez Dasmariñas, the seventh Governor-General of the Philippines, encouraged locals to build their houses with stone, and even the Manila Cathedral was built on stone (Morga, 1609). Thus, the new church was going to be built in stone. According to Medina (2018), the construction of a stone church began in 1637 under the direction of Fr. Juan Salazar's architectural design is Baroque, and the church's entire setting and building were constructed on an elevated area. It was the Filipino men who actually built the Silang church through the Polo y Servicio system; even the women and children helped in piling up soil for the church site.

King Carlos III issued an order requiring the Jesuits to leave Spanish colonies on February 27, 1767 (De la Costa, H. 1959). On May 17, 1768, the order was delivered to the Philippines by the Count of Aranda. On May 19, the Jesuits were informed. The Jesuits finally left Silang after 169 years, in accordance with the law (Unabia, 2000). For 81 years, Silang had the services of secular priests. The Recollects started managing Silang's religious affairs in 1853, even though the royal proclamation had already been issued on March 8, 1848. From 1868 to 1910, the seculars once again took over the ministry (Unabia, 2000). For 81 years, Silang had the services of secular priests. The Recollects started managing Silang's religious affairs in 1853, even though the royal proclamation had already been issued on March 8, 1848. From 1868 to 1910, the seculars once again took over the ministry (Unabia, 2000). Under Fray Juan de Salazar, the stone church that stands today was constructed and finished about 1639 (Medina, 2013); when it was done, it was described as "muy grande para un pueblo más grande" (very big for a bigger

town). It was described as "all of stone, covered with tile, and in good condition" (Unabia, 2000). Since Franciscans were the first missionaries in the town, San Diego Alcalá was the first patron saint of the church in Silang. But when the Jesuits arrived, the church was named in honor of Nuestra Señora de Candelaria. The Virgin Mary's image was discovered by Andrés in the Silang mountains in 1640, according to the story told by Friar Murillo Velarde. The statue on the retablos is currently de bastidor, while the one on the church's façade is currently a polychrome (Unabia, 2000).

Teaching Morality

One of the primary ways the church has impacted sociocultural values is through its teachings on morality and ethics. The church has traditionally taught that certain behaviors, such as honesty, compassion, and respect for others, are virtuous, while others, such as greed, selfishness, and dishonesty, are sinful. These values have helped shape societal norms and expectations and have influenced laws and codes of conduct (Medina, 2013). The Church emphasizes the importance of following the Ten Commandments, which provide a moral code for believers to live by. The Church also teaches the virtues, which are habits that lead to a good life and help individuals live in accordance with God's will. The virtues include humility, patience, kindness, and generosity, among others. The teaching on morality and values at Nuestra Señora de Candelaria Silang Church is rooted in the Catholic tradition, which places a strong emphasis on living a virtuous life that is guided by love, justice, and respect for human dignity (Unabia, 2000).

Center of Fellowship and Practices

The church is the center of fellowship, and people gather here to worship. At that time, the worshipers and the people nearby the church were gradually influenced by the new colonial culture. Native perception is thought to center on the natural environment, including what is and what

isn't apparent. This serves as the foundation for all connections and is the source of everything from life to sustenance to salvation to death to knowledge in the afterlife. Filipinos are devout believers in God (or gods), nature, and the value of the environment and its application to daily life (Medina, 2013).

The belief in the spirit is also influenced by the traditional beliefs of the native Filipinos, according to which it might temporarily depart from the human body or join with others, similar to their belief in God, which is also embodied by the spirit and has the capacity to merge with individuals (Castillo, 2015). Philip Medina (2013) stated that this is another method for communicating to those Babaylan or Katalonans the message, wish, approval, caution, and directive of the one raising or nearby.

With the arrival of the Spaniards, the objective of evangelization was to extend the territory of the Spanish colony through apostasy and affiliation with the religion. Faith and the word of God were used in occupation (Fernandez, 1979). In the realization of the objective of conquest and subjugation, the educación system was implemented and used to consolidate and control the scattered and often native communities in Silang. This was done by building towns and settlements and relocating the indigenous populations into these areas. The goal of the reducción system was to make it easier for the Spanish colonizers to monitor and govern the native populations, as well as to convert them to Christianity (Blair & Robertson, 1903). According to Blair & Robertson (1903), the church has also been instrumental in promoting education and literacy, both of which have played a significant role in shaping sociocultural values. The church has been a major patron of the arts, commissioning many of the world's greatest works of literature, music, and art. In doing so, it has helped shape cultural values and aesthetic standards.

Filipinos are more drawn to Christianity because of its rituals, symbols, and doctrines, as well as the construction of the church. It also upholds Christ as the representative of God, who is

the creator of all (Medina, 2013). It is comparable to the native Filipinos' faith in the existence of the all-powerful God who created everything (Castillo, 2015). The concept of father, mother, and son, which is the basic indigenous knowledge about the family, is also used in the concept of the trinity of the Godhead, which is in the doctrine of Catholicism. The Catholic faith also consists of God the Father, God the Mother, and God the Son. This is also the reason why the devotees of the beloved Virgin Mary, who is considered the mother of Christ in the Bible, have continued to this day (Medina, 2013).

Perhaps the natives of Silang are not aware of the cultural changes brought about by the colonizers. One of them was the belief in amulets and anitos (Jocano, 1998), which was used by priests to make the natives patronize the saints. They were made of gold, silver, gems, ivory, and precious stones. The giving of objects, objects sanctified by priests, was also a symbol of social status among the elite Filipino families (Medina, 2013). The superstitious beliefs of the Filipinos were also used by the priests to bring the natives closer to the Catholic faith. An example of this was the indigenous belief that calamities were an expression of Bathala's anger (Jocano, 1998), which the missionary priests of Spain condemned, along with not recognizing God as the creator of everything or not attending mass on Sundays (Medina, 2013). The priests also spread stories about death, pestilence, and disease, which were brought by the devil that roamed outside the Silang pueblo. All of these were insinuated by the priest so that the natives would live in the distant areas together and join to stay in the residencia and, of course, be converted to Christianity.

A Katalonan guardian of indigenous knowledge was also able to persuade him to become a catechist. One of the peaks of victory is when a local spiritual authority gives their blessing and affiliation. What a beautiful outcome of colonial evangelization to be able to share the gospel as a Katalonan (Medina 2013).

It is important to note that the process of conversion was not always peaceful or voluntary. The Spanish colonizers often used force or coercion to convert the native populations, and many people were forced to abandon their traditional beliefs and practices in favor of Catholicism. This has had a lasting impact on the cultural and religious landscape of Silang and the Philippines as a whole.

Place of Celebration of Religious Heritage

The Feast of Nuestra Señora de Candelaria.

The feast of Nuestra Señora de Candelaria is a three-day event held in Silang, Cavite, from February 1 to 3, but the main celebration is always held on the second of the month. In accordance with their customs and in honor of the celebration of the feast of Nuestra Señora de Candelaria, the residents of Silang make an effort to create certain regional foods that they will give to their visitors. Residents of the nearby town of Silang attended the celebration. Fiesta celebrations were much simpler during the 17th century. The earliest recorded occasion dates back to February 2, 1601; two baptismal services concluded the Feast of Purification, and the encomendero Don Jorge de Villalobos and his wife, Doña Magdalena de Illesca, served as sponsors for the townspeople who had been converted. The use of a candle as a distinctive religious symbol is one of the rituals that ought to be done for the Purification feast. People bring candles to be blessed every Sunday, especially if it is a church feast. This remains a tradition today (Medina P., 2021).

The Tradition of Dressing the Image of Nuestra Señora de Candelaria. The tradition of dressing the image of Nuestra Señora de Candelaria is an old tradition in the town of Silang. It is dressed whenever there are special occasions and when his feast is approaching (Medina, 2013). From then until now, only women can dress the Virgin and the Child, and men can help take down the image from its throne (the retablo mayor), take it to its camarín (the place where the Virgin is dressed), and it will be returned to her throne. While lowering the image

of the Virgin, it is sung by the Dalit. After carrying and landing the image in his camarín, the men will be dismissed, and the doors and windows will be closed. Until the Virgin is finished dressing, men are not allowed to enter. The Holy Rosary and Novena continue to be prayed until the Virgin is finished dressing. After they finish dressing the Virgin, she will be perfumed and return to her seat while singing the Virgin of Candelaria. According to Unabia (2000), this tradition of dressing the image of Nuestra Señora de Candelaria has been practiced for more than 300 years. The people of Silang take a piece of the dress of the patron with the belief that it can heal their diseases.

Good Friday (Biyernes Santo). The program in celebration of Good Friday in Silang Cavite was practiced by showing respect to the shrine of Nuestra Señora de Candelaria through reading the word of God, and then after that, they would read or sometimes act the salmo and responsory, followed by a prayer that was offered to the church, priest, pope, and the whole congregation. And then comes the last part, which is the procession of the saint (Unabia, 2000)

Flores de Mayo. Flores de Mayo is one of the most celebrated Christian festivals in the Philippines and was introduced by Spanish conquistadors and friars in the mid-1800s. It is a tribute to the Virgin Mary, who gives rain when farmers ask for it, and the celebration for it represents the farmers' unwavering gratitude. It has been practiced for hundreds of years and is now widely observed throughout Luzon, Visayas, and Mindanao. It is gaining recognition abroad, such as in Europe and America, due to Filipino immigrants who brought it with them. Festive Flores de Mayo is a Filipino festival celebrated for the entire month of May (Diño, 2021). It is so extravagant that no other celebration can match its grandeur and beauty. People are expected to give daily prayers and flowers to the Virgin Mary in front of the altar, and the grand procession takes place at the end of the month. It is a tradition passed down for generations

and is more prevalent in the provinces. Visitors to the province will be amazed at how this celebration brings townspeople together and brings out the best in them (Unabia, 2000).

Hermanos, or Hermana, is a Spanish term given to the sponsors who facilitate or manage the holy celebration. They are also the ones who provide prizes for activities and competitions in the community. Some games that most Filipinos are fond of are coconut grabbing, pig grabbing, and a marathon. Unabia (2000) stated that during the time of Spanish colonization up to 1977, the children of the elite family were the ones who would shoulder the expenses of the procession; they were called “hermanas.” (Unabia, 2000). The hermano mayor is the one in charge of decorating the carousel of the Virgin Mary, while the hermana is in charge of decorating the church in preparation for the feast. Today, the hermano mayor is the only one responsible for the event; they will just choose the hermanas who will serve as sponsors for the procession.

Pagrorosaryo. Silang people dedicate the entire month of October to rosary prayer. In every barangay block, the rosary is recited. Following that, there are readings, lessons, sharing, and the taking of the Holy Communion. Block leaders and lay ministers oversee the work. There is a novena mass from October 22 to October 30. The Virgin Mary’s image is carried throughout the in-charge barangay for nine days. All of the blocks gather in a procession on the last day (Unabia, 2000).

The church is an important religious and cultural center for the people of Silang and the surrounding communities. It has played a significant role in the development of the local culture and identity, and it continues to be an active place of worship and community gathering.

Church Artistic Values

Baroque Architectural Style

Exterior. According to Medina (2018), the construction of a stone church began in 1637 under the direction of Fr. Juan Salazar, and was

completed in 1639. The structural design of the Nuestra Senora de Candelaria is baroque, which was common during this era. In terms of structural style, Baroque architecture often features curved lines, asymmetry, and an emphasis on light and shadow. The use of contrasting colors, textures, and materials is also common. Baroque buildings often have ornate facades with intricate details such as columns, sculptures, and decorative motifs (Ludwig, 2022). However, Father Salazar, who oversaw the church’s construction, passed away in 1645 before it was fully completed; therefore, the exterior of the building is entirely plain (Medina, 2013).

The simplicity of the exterior of the church is noticeable. The whole structure is big and solid, but it has no ornamentation compared to other creations of Father Salazar in Antipolo and Taytay, and the exterior style is not ostentatious as typical of a baroque style of architecture (Medina, 2013). The rich decoration, dramatic forms, and theatricality that defined the baroque architectural style that first appeared in Europe in the 17th century. It has a reputation for grandeur, extravagance, and lavish décor (Bogna, 2022). Father Salazar, who oversaw the church’s construction, passed away in 1645 before it was fully completed; therefore, the exterior of the building is entirely plain (Medina, 2013).

Stone, gravel, and sand from the river, along with several kinds of wood, were the main structural elements utilized to construct the church. The men are given a set number of days each year to work on finishing the church’s construction as part of the polo y servicios system. To prepare the soil for the mound, women and kids also worked (Unabia, 2000). The colonial church is shaped like a Latin cross, where the two large halls cross the form. The shorter horizontal is called the transept, compared to the straight nave. The apse is called the branching point of these two parts (Medina, 2013).

The finished church was made of stone, with thick columns and walls. There are large windows on the front and sides that seem to be on the second floor. The church door, which is made of wood, is

also quite large. The top of the building has a wide pediment of little height and two pinal-like spears on either side. The bell tower has four stories with small windows attached to the building. The first floor is square, while the second, third, and fourth floors are eight-sided or octagonal (Medina, 2013).

Giving focuses on the entire structure and environment of the church. It stands on high ground because of considerations. First, the thick walls made of rock are a possible protection against bandits from the mountains. The solid rocks certainly provided protection within the church and for the treasures hidden in it. Its small but tall windows, as well as its elevated location, also provide protection. The second is the tactical aspect of showing power. It can also be noted that the church is the largest structure in the area, reflecting luxury and power. The towering bell tower serves as an eye or observer for the future and its territories (Medina, 2013).

In 1880, a strong earthquake destroyed some parts of the church and the fourth floor of the bell tower (Unabia, 2000). Buttresses were also added around the church to support it in case it experiences a strong earthquake again. The bell tower was rebuilt in 1989. The old wooden floor of the church was replaced with tile in 1937, as was the ceiling that burned in 1950 (Medina, 2013).

Interior. The interior appears uninteresting at first glance. The pilasters have no decorations, and the windows are high up on the walls. However, the retablos in the middle and on the sides are artistic masterpieces.

The word “retablo” comes from the Spanish word “tabla,” meaning “board,” and refers to the wooden boards on which the paintings were traditionally created. Retablos typically depict religious scenes or figures, such as the Virgin Mary or a particular saint, and are often used as objects of veneration in churches (De Guzam and Cham, 2020). They can also depict scenes of personal significance or miraculous events that the artist or patron experienced or witnessed. Retablos are known for their bright colors and intricate details,

and they often incorporate elements of folk art and indigenous traditions (Medina, 2013).

The church was constructed using baroque architecture under the supervision of a Jesuit priest, which typically features large, open spaces that are filled with light and color, with ornate altars, sculptures, and paintings. The style often incorporates elements of local traditions and cultures and is known for its dramatic use of light and shadow, as well as its complex geometries and intricate decoration (Unabia, 2000).

The interior of the church has three altars; the main altar is immediately visible upon entering the church, while the other two are placed in opposite corners. Remember that the shape of the church is cross-shaped. If you examine the three altars inside the church, it repeatedly shows the use of the numbers three, seven, and twelve that the Bible considers sacred numerology.

The number three is a significant symbol in Christian teaching and represents the Holy Trinity, which is the belief in one God in three persons: the Father, the Son (Jesus Christ), and the Holy Spirit. This doctrine is central to the Christian faith, and the number three is used to represent the unity and indivisibility of the three persons of the Trinity (Pfandl, 2006). The number three is used frequently in the retablos, including: the three floors and three altars in the Silang church; the three pediments, each with three sides and three corners in architectural detail; the perspective side-altars that give the impression that the composition of the retablos is three layers forward; the three magi who came to the birth of Jesus; and many other instances. Three angels appear in the paintings on the right side altar, three angels on the side of Jesus with a ray of three potencias on the areola ray surface, three angels on the side of Santa Helena in the carving of the left side altar, three angels carrying the Virgin appear in the Coronation and Kotska paintings, and three pinyal angels appear, two on the side and one in the middle of the pediment of the third floor of the side altars (Medina 2013).

The number seven is a significant symbol in Christian teaching and represents completeness, perfection, and divine fullness. In the Bible, the number seven is often used to indicate completeness or totality, and it appears frequently in the context of important events or concepts (Harvestime International Network, 2015). The number seven can be seen in the total number of carvings and statues on each side altarpiece. This is also the number of saints and carvings on each level of the retablo's mayor. The Messiah had seven guests at his birth. In total, there are seventeen saints and scenes of faith that make up the three altarpieces of the Silang (Medina, 2013).

The number twelve represents the chosen of God. In the Old Testament, God chose twelve individuals to form the foundation of the nation of Israel. In the New Testament, twelve disciples were chosen to serve as representation of the countless number of sincere disciples who would come after him throughout time. The number twelve stands for God's people (Harvestime International Network, 2015). In retablos, the number twelve is also represented by the twelve blooms that each overflow the pediment of the altars, the number of stars in the patron saint's areola, and even in some saints. (Medina, 2013).

Retablos can be compared to visual aids, which can help grab your audience's attention and keep them engaged throughout your presentation or lesson. They can make your content more interesting and memorable and can help make it clearer and easier to understand (Dalali and Mwila, 2022). It can be said that this method helped to arouse the attention of the people of Silang to the colorful works of retablos. Through this, it will be easy to understand and remember the teachings of Christianity that are being sown by the priests in the town.

The mixing of local and western art in the construction of the retablos is what inspired the people of Silang to patronize the teachings of the church even more. The retablo also shows the way of life that the Silang people have, which

is agriculture. Animals used in farming, such as buffalo, calves, and dogs, can be noticed in the retablos. even the use of a lamp and a farmer's hat (Medina, 2013).

Use of Artistic Visuals

The use of retablos artistic colors and figures as a visual aid. The color of the dress of the saint on one of the altars of the church emphasizes the Franciscan priests, who were the first missionaries in the town. The blue color of the veil that is worn by the lady in the curving retablos reveals who she is (Virgin Mary) (Medina, 2013). The numbers 3, 7, and 12 have repeatedly been counted on the retablo's figures and level. This makes it easy for the devotees to understand and remember a specific number of things that are related to the Bible teaching. The curving in the retablos emphasizes the specific events in the Bible in accordance with local daily life.

The church is an outstanding example of Philippine Baroque architecture, characterized by ornate facades, but the uniqueness of the church compared to other baroque churches in the Philippines is that its facade is plain and not decorated. It is also considered one of the best-preserved examples of a Spanish colonial church in the Philippines. The church houses a collection of valuable and rare religious artifacts, including retablos, altarpieces, and religious paintings, that are considered to be of exceptional artistic and aesthetic value.

Preservation Efforts

To be declared a national cultural treasure, the parish church administration, along with Local Government Units (LGUs) and private entities, made efforts to assure its recognition by lobbying and gathering all documents to present to the NCCA.

Parish Administration. The Nuestra Señora de Candelaria Parish Church, under the leadership of Rev. Father Marty Dimaranan, organized the

Silang Parish Council for Culture and Heritage (Pamparokyang Sanggunian para sa Kultura at Pamanang Bayan ng Silang), the prime commission in charge of protecting the retablos, in 2013 at the parish convent. The objectives include the acquisition, protection, preservation, and research of the tangible and intangible cultural heritage of Silang, particularly of the Church (Pallera, 2023). Through the leadership of Pallera, the commission has already set up exhibits, conducted tours for schools and universities, held meetings with government agencies and non-government organizations for heritage concerns, and made possible the transfer of the old convent from the Missionary Sisters of the Immaculate Heart of Mary to the Nuestra Señora de Candelaria Parish Church (Medina, 2023).

As part of its community outreach and extension program, the Far Eastern University (FEU) offers to provide technical assistance to the Municipality and Church of Silang for the conservation of the Silang Church's (Our Lady of Candelaria Church's) colonial period retablos (Medina, 2023). By offering technical support for the National Museum's designation of the Silang Church retablos as National Cultural Treasures or Important Cultural Properties and for their eventual conservation, FEU asserts its role as a steward of cultural heritage through its FEU Cavite Campus and the FEU Manila Institute of Architecture and Fine Arts (Velazco, 2023).

Local Government. The local government of Silang, under the administration of Hon. Mayor Emilia Lourdes Poblete has participated in the lobbying of the retablos as national cultural treasures. The Sangguniang Bayan, through the Committee on Tourism, passed a resolution requesting the National Museum to declare the three retablos as national treasures and creating a tripartite council, composed of the local government, the Nuestra Señora de Candelaria Parish Church, and the Far Eastern University, for the aforementioned cause (Pino, 2023).

Multi-sectoral Collaboration. The Silang church's declaration as a national cultural treasure further inflamed the faith of Silangueno and the towns nearby (Medina, 2023). To promote the protection and conservation of the church, the Sangguniang Bayan of Silang, together with heritage councils, have laid out various programs that will help the church and its rich history (Datiles, 2023).

Upon the declaration of the church as NCT, the NCCA (National Commission for Culture and the Arts) grants Php 250, 000 for 3D scanning for architectural documentation of the retablos, which are measured up to the last centimeter (Medina, 2023). The reason for conducting the 3D scanning is to duplicate the retablos when they are affected by an earthquake or other catastrophe. And according to Philip Medina, he considers the preservation of retablos a miracle even before it was declared a national cultural treasure.

The church administration is the one who oversees whatever projects it can do in the church. To maintain the external beauty of the church, the administration decided to clean it in collaboration with Karcher Philippines, a German company that led the cleaning of the church as a preliminary in June 2022 and followed up on it from March 8 to 10, 2023 (Datiles, 2023). Retablos are cleaned manually using cotton and mineral water to preserve their aesthetic appeal (Casini et al., 2023).

The Impact of Recognition. In recognition of being Cavite's oldest church, the Silang church receives an increasing number of tourists, boosting the town's profit and local businesses. It is also considered the pride of the town of Silang, which in turn can be proud of its neighboring towns. The church's declaration has also had an impact on the growth of its followers and the appreciation of the locals (Datiles, 2023). The declaration of the church as NCT has a great impact on the people of Silang, not only on tourism and the growth of the community, but especially on the faith of its people. The local government of Silang, along with the private organizations that take care of the town's

heritage, continue to develop programs that will help the church as well as other heritages in Silang. Which will be considered the riches of a town and will be recognized by the people here (Medina, 2023).

Conclusion and Recommendation

The Annales-Braudel theory provides a useful framework for understanding the historical, sociocultural, and artistic values of the Nuestra Señora de Candelaria Church.

From a historical perspective, the church is significant because of its rich history, dating back to the Spanish colonial period in the Philippines. It reflects the different architectural styles that were popular during various periods of Philippine history, and it has undergone several renovations and additions over the years, making it an important historical monument in the region.

From a sociocultural perspective, the church is an important religious and cultural center for the people of Silang and the surrounding communities. It has played a significant role in the development of the local culture and identity, and it continues to be an active place of worship and community gathering. The church also houses a collection of valuable and rare religious artifacts that reflect the artistic and aesthetic values of the region.

From an artistic perspective, the church is an outstanding example of Philippine Baroque architecture, characterized by ornate facades, intricate details, and elaborate decorations. The church also houses a collection of valuable religious artifacts, including retablos, altarpieces, and religious paintings, that are considered to be of exceptional artistic and aesthetic value.

The value of Nuestra Señora de Candelaria Silang Church as a historical, sociocultural, and artistic heritage cannot be undermined. To strengthen this, cultural activities promoting it can be organized. Walking heritage tours highlighting Silang's heritage can be conducted. A scale model-making competition of the church, whether

traditional or digital, among schools in Silang can also be conducted.

Workshops that discuss the subject of lobbying for heritage preservation can use the case of Nuestra Señora de Candelaria Silang Church as an exemplar. The collaborative efforts between the parish, LGU, and a private university have led to speedy actions regarding the heritage conservation status of the said built heritage. Local agencies may lead workshops of this kind to cater to heritage advocates, students, teachers, and the public in general.

Integration of Nuestra Señora de Candelaria Silang Church's values into local schools' MAPEH and/or AP curriculum can be helpful in bolstering the future generation's interest in heritage preservation. Educating the youth well is also investing in the town's heritage, potentially furthering active citizenship. This may also help enrich education in the MAPEH subject and raise interest in local heritage.

Further research can be explored about the retablos artistic representations that can be pursued. What each art detail may mean in the context of when it was created can help deepen our understanding of its artistic value. The carvings on wood and the techniques and tools that were used to create them can also be explored in another study.

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Communication Methods Used by LGUs and Common Agricultural Waste Management Practices of Farmers in Isabela: A Phenomenological Study

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Isabela province is named the rice and corn granary of Luzon because most of its lands are arable and are used for farming. Agricultural waste disposal in the province has been a challenge among farmers and the local government, and there is a dearth of literature describing communication on agricultural waste management. Thus, this study was conducted to answer three research questions: 1) How do the farmers in Isabela receive information from the LGU; 2) What are the communication methods used in agricultural waste management by the LGU as experienced by farmers in the province of Isabela; and 3) What are the common agricultural waste management practices of farmers in Isabela? This study used a qualitative research approach, with phenomenology as the research design. Data were gathered through one-on-one interviews. The participants of this study were six farmers in Isabela with a minimum of five years' experience in farming, one coming from each congressional district in the province. To achieve trustworthiness, particularly the credibility of the results, triangulation was done with two LGU employees. Colaizzi's analysis framework was used in the analysis of the data. Results revealed that the farmers receive information through face-to-face interaction, visual printed materials, and radio. The communication methods the farmers used in AWM are step-by-step procedure and demonstration, and visitation and monitoring. The farmers' common AWM practices were decomposing the rice straws and using them as cow fodder. These results imply that the efficacy of communication methods in AWM is reflected in farmer's common practices.

Keywords: *agricultural waste management, agricultural waste, communication methods, common agricultural waste practices, Isabela farmers*

Environmental concerns are often overlooked because the consequences are not easily detected, especially in the agricultural waste sector. One of the repercussions of agricultural waste is the production of carbon dioxide, which has an impact on the air and environmental quality (Foster, 2015). When it comes to distributing policy to the public, communication methods are crucial since some farmers' activities are harmful to the environment because of a lack of information.

Agricultural waste, including crop waste and processing residues, that has not been properly disposed of in recent years has had a significant impact on the degradation of natural resources (Broitman et al., 2018). People in developing countries are experiencing the effects of environmental problems, even though the effects are barely recognizable to most people. According to Sodangi et al. (2011), agricultural waste increases the risk of floods and droughts in developing countries because poverty and population force people to live in risky areas such as flood plains and unstable hillside. Thus, it is important to manage agricultural waste to avoid further damage and risks to people vulnerable to the effects of environmental problems.

There are farmers whose activities are unfriendly to the environment since waste management has not been well communicated. Due to the lack of information, farmers have become accustomed to employing their own methods of waste management. Some of them are incompatible with local government policies and management. Farmers' decision-making in terms of environmental awareness is influenced by their economic incentives as well as their behavioral and attitudinal characteristics (Despotovic et al., 2021).

Agricultural waste is the production or remnants of raw agricultural products such as fruits, vegetables, cereals, meat, fish, milk products, and crops from production and cultivation (Obi et al., 2016). Agricultural wastes come in a variety of shapes and sizes, including solids, liquids, and slurries, depending

on the nature of agricultural production (Foster, 2015). Rural locations create more agricultural waste than urban ones, resulting in increased earnings and risks for rural communities (Visvanathan & Chiemchaisri, 2008). Agricultural waste is used for various purposes, including feed, fuel, and revenue. According to Nigussie et al. (2015), fertility control contributes to agricultural waste as well.

The estimated 1.3 billion people and agricultural wastes produce 1.3 trillion dollars' worth of goods (Clay, 2004). Worldwide production of 998 million tons of agricultural waste. In the Philippines, the production of agricultural waste is 078 kilograms per day, and in 2025, the expected production of agricultural trash is 0.120 per day (Agamunthu, 2009). Agriculture production climbed by 25 percent, while other foods that needed to be produced only increased by 10 percent (Clay, 2004). Soybeans, sweet potatoes, sugarcane, beets, and bananas account for more than 80 percent of the overall crop tonnage. Wheat, rice, corn, potatoes, barley, cassava, and sorghum, on the other hand, accounted for 75 percent of global crops in 2000 (Kimbrell, 2002). The tons of agricultural waste affected different areas of the environment.

Cagayan Valley is one of the major rice producers in the Philippines, with more than 1.2 million hectares of rice-producing areas. With these statistics, the country can produce 16 million tons of rice in the year 2015. With the estimation given, the country has rice husks, known to be the waste of rice production, and it is estimated to be 2 million tons per year (ASEAN Briefing, 2017).

According to the Philippine Statistics Authority (PSA, 2004), Isabela has the biggest number of farms in the Cagayan Valley region, with 129.7 thousand farms spanning 240.6 thousand hectares of agricultural land. The province's total farms accounted for 40.3 percent of the region's total farms. Isabela, being a climate-risk province, reported 844.27 kg per hectare of damages in 2018 alone; thus, the number of damages is the same as the number of wastes (Malanon & Sumalde, 2021).

Due to agricultural waste, droughts and floods get more intense as the growing season progresses. The release of greenhouse gases has an impact on the atmosphere; this is one of agriculture's side consequences (Pant, 2009). In the nutrient cycle, agricultural waste causes global nitrogen and phosphorous cycles to increase, which has several implications, including human health issues, air pollution, and anoxic dead zones in freshwater and marine environments (Benett et al., 2014). That is why there is a need to reexamine how agricultural waste is regulated to prevent further environmental damage.

Agricultural Waste Management (AWM) is the collection, transportation, processing, treatment, recycling, disposal, and monitoring of waste products. Humans will participate in this activity with the goal of reducing environmental issues (Demirbas, 2011). Agricultural and rural development strategies, plans, and options are laid forth by development, and AWM is employed to protect productive agricultural activities (Hai & Tuyet, 2010). AWM is also defined as the operation and maintenance of a waste management system from manufacturing to waste disposal (Amend, 2011).

Agricultural waste management is critical for protecting human health, natural resources, and the environment. Environmental degradation will be reduced, if not prevented, because of this management (Bennett et al., 2014; Giovannucci et al., 2012). The management of agricultural waste is to produce maximum benefits from the residue of the goods while producing minimum trash (Obi et al., 2016). The change in the waste management system and the risk of increased global warming are being diminished (Xue et al., 2016). There is a need to improve the relationship between humans and nature with the help of agricultural waste management (He et al., 2019).

To implement AWM in the Philippines, Republic Act (RA) 9003, also known as the Ecological Solid Waste Management Act, requires all local

government units (LGUs) to submit a 10-year EWM plan, which must include agricultural waste management (Premakumara et al., 2015). The RA 9003 stated that barangays should collect waste from agricultural, residential, and commercial sources. The LGU must evaluate all sources for recycling components, and all sources must segregate their wastes. The Clean Air Act of 1999, also known as RA 8749, advocates the avoidance of biochemical and health-hazardous agricultural waste incineration (Acosta et al., 2012).

Communication strategies are essential in disseminating policies to the public. A public hearing is a mechanism for disseminating new policies by holding a discussion hearing with concerned parties and providing information on government plans (Howlett, 2009). Officials employ surveys and polling to get information on the affected areas and parts of people's lives (Benjamin, 2008). The government takes advantage of electronic communication to discuss and promote its policies (Sharma & Wanna, 2005).

The farmers' top information needs are regarding seed variety, pesticides, fertilizer, equipment, harvest, and post-harvesting (Meitei and Devi, 2009). However, farmers have minimal interaction with the experts because they feel no need for information (Naveed and Anwar, 2013). A study was conducted in Nigeria on the information sources of the farmers. The study shows that 63.2% use radio and 44.8% use their fellow farmers; these were the top two results (Opara, 2008). Furthermore, according to Aonngerthayakorn and Pongquan (2016), the number of information sources has increased as farmers have begun to use the agricultural information that has been presented.

The best way to communicate public laws on waste management is through interpersonal communication (Malihaan, 2007). It is stated by Talonghari et al. (2010) that the most effective way to communicate with the village-level community is through interpersonal communication. In

implementing the Republic Act, 9003, collaborative communication is significant because there will be hands-on monitoring of the progress (Premakumara et al., 2014). Thus, agricultural waste management needs to be effectively communicated because waste management is also people-centered (Abila et. al., 2023).

The purpose of this study is to describe the communication methods used by LGUs in Isabela Province, as there has been no research done in the area. It also specifies the Isabela farmers' agricultural waste practices. Waste management studies regarding agriculture that focus on its concept and process have been explored by Loehr (2012), Obi et al. (2016), and Hansen & Cheong (2019). However, communication methods in agricultural waste management have received limited attention in existing research. This study does not tackle the effectiveness of any of the communication methods with the farmers. This research provides ideas for effective communication methods in agricultural waste management for both LGUs and farmers in Isabela.

Droughts and floods are produced by agricultural waste in many regions due to the annual disposal of 998 million tons of agricultural trash, making it a severe concern (Foster, 2015; Agamuthu, 2009). Farmers who are uninformed and without a communication plan in this area are more likely to dispose of their agricultural waste in a damaging manner to the environment. This phenomenology study will contribute to the body of knowledge on communication methods for AWM and farmers' agricultural waste management practices.

This study aimed to describe the AWM's communication methods used by the LGU with the farmers in Isabela. It also described the farmers' common practices in AWM. Overall, the goal of this research was to learn more about the AWM communication methods that are being used, as well as the environmental practices of farmers in Isabela. In this phenomenological study, the following three research questions were addressed:

1. How do the farmers in Isabela receive information from the LGU?
2. What are the communication methods used in agricultural waste management by the LGU, as experienced by farmers in the province of Isabela?
3. What are the common agricultural waste management practices of farmers in Isabela?

Methodology

Research Design

This study employed a qualitative approach because it has a distinct interpretive theoretical framework that fits to describe, explore, and understand the farmers' experiences with communication strategies used in agricultural waste management (Creswell & Poth, 2018; Flick, 2018). This study also used the phenomenological method as it applies to investigating or inquiring into the meaning of one's experiences as he or she lives them (van Manen, 2016). Merriam (2009) defines it as the study of conscious experiences from the first person's point of view. Aside from the definitions given, phenomenology is considered a philosophy (Creswell, 2003, 2013; Creswell & Poth, 2013) because it explains the being and consciousness based on the analysis of evident phenomena, and in this case, the phenomenological approach to capture the communication methods and AWM practices of farmers in Isabela.

Participants

The participants of the study are farmers who were selected based on the following criteria: (a) could either be the owner or the tenant for as long as he is directly involved in the farming activities from farm preparation to harvesting and post-harvesting for at least five years; (b) a resident in the congressional district for at least five years; (c) willing to participate; and (d) able to participate via online platforms.

Tables 1 and 2 show the profiles of the participants. For triangulation, the researcher contacted a nearby municipality and interviewed two local government unit workers. The LGU delegates were from the municipality's agricultural and environmental sectors. The participants willingly engaged in the interview, both for the study and for the triangulation.

Table 1
Farmers' Profile

Participant	Years Farming	District	Age
Farmer 1	42 years	Third district	62 years old
Farmer 2	20 years	Fifth district	70 years old
Farmer 3	52 years	Second district	68 years old
Farmer 4	29 years	Sixth district	39 years old
Farmer 5	20 years	Fourth district	59 years old
Farmer 6	20 years	First district	55 years old

Table 2
LGU Officers' Profile

Participant	Years in the LGU Service	Agency
LGU Officer 1	20 years	Agricultural
LGU Officer 2	15 years	Environment and Natural Resources

Data Gathering Tools and Procedures

A phenomenological interview is an informal and interactive process that uses "open-ended questions and comments" (Moustakas, 1994, p. 114). In this study, the researcher used in-depth interviews. In the interview, self-constructed questions are utilized as a guide (Merriam, 2001). This technique helped the participants share their lived experiences and also facilitated the obtaining of rich, vital, and substantial descriptions (Moustakas, 1994, p. 116).

Data Analysis

Data analysis is a relevant procedure in conducting research as it leads to the results and findings. The study used Colaizzi's strategy (1978) for a more organized, systematic analysis of data. As a result, the analysis produced a brief yet comprehensive account of the phenomenon being studied, which has been validated by the people who produced it (Morrow et al., 2015). The Colaizzi method employs a seven-step process to thoroughly investigate the narrative data to arrive at a comprehensive description of the problem (Vignato et al., 2021). These are familiarization, identifying significant statements, formulating meanings, clustering themes, developing an exhaustive description, producing the fundamental structure, and validation of the exhaustive description and its fundamental structure.

Ethical Consideration

The protection of participants is the most important consideration when it comes to ethical issues in research studies (Marshall & Rossman, 2011). The researchers are in charge of informing, orienting, and safeguarding the participants. This role entails enlisting voluntary assistance and participation (Bloomberg & Volpe, 2012). The study evaluates four ethical issues: (a) ethical approval; (b) informed agreement and voluntary participation; (c) confidentiality; and (d) relevant data and protection.

Results and Discussion

How Farmers in Isabela Receive Information From the LGU

For research question 1, how do farmers in Isabela receive information from the LGU? The participants experienced various ways in which they received information from the LGU. The themes that emerged indicate that farmers in Isabela received the information face-to-face, through visual printed material, and through audio material using radio. Each of these methods is discussed elaboratively, one after another.

Face-to-Face

Face-to-face information on how to properly dispose of agricultural waste is provided through the LGU's sponsorship and organizing of a seminar. Farmer 1 emphasized that *"they are still presenting the things that we are supposed to do (F1, L23–24)."* Local Government Unit officers mentioned the frequency and purpose of the face-to-face activities that they do:

"we only have a few face-to-face activities in communicating, now that we are experiencing the pandemic" (LGU1, L19–21). "We should talk about it just in case we have a new problem that needs to be addressed and information that needs to be taught. We are doing that face-to-face." (LGU2, L14–16).

The seminars are usually conducted at the barangay level in their community centers. Some seminars were held on a municipal level, where representatives were sent from the barangays. The latter was found to be less effective because the representatives are not able to re-echo what has been presented to them.

The seminar was an avenue to educate farmers on why rice straw should not just be burned but instead allowed to decompose and used as fertilizer. Farmers have been implementing the information presented through face-to-face seminars. As a

result, farmers have organic fertilizers on their farms. As revealed, *"they are saying that we have a lesser expense on fertilizers because these decomposed organic materials also affect the soil"* (F6, L26–27). However, attendance at the face-to-face meeting is voluntary; those who want to listen will do so, and other farmers will inform those who do not attend. The information being provided is relevant and necessary for what farmers need at that time.

Literature discloses that as a result of the seminar, the farmers were informed and engaged, which is part of public perception as a communication strategy (Kirkman & Voulvoulis, 2017). As a result, the LGU of the province devised a plan to educate the farmers about the dangers of burning and encourage them to embrace natural disposal methods. Messages are easier to communicate when individuals are willing to act on them, according to Morton et al. (2011), and this is precisely what the farmers were experiencing with a voluntary seminar.

Visually Printed Material

The LGU employed printed materials such as posters, leaflets, and other items to distribute and inform farmers. Farmer 5 stated that *"they are giving us printed materials from the DA wherein we follow it"* (F5, L29). Farmers believe that printed materials are difficult to forget because they can be revisited at any moment. Farmers appreciate this because the printed material contains a step-by-step approach that explains what to do before, during, and after the harvest. Information through printed material is important, and it is effective, especially if an expert produces it.

Accordingly, participants and LGU admit:

"It is better if we follow them (referring to the printed material) because, just like me, I have not finished my degree, but that is their expertise. They have much knowledge that they can share with a farmer like me. The outcome is better when we follow it" (F5, L30–31).

"We are giving information through an information drive, letter, notice, and memorandum (LGU2, L9–10)."

The step-by-step approach demonstrated in the printed material displays efficient communication for the contents, messages, and channels that have been appropriately selected. Furthermore, communication strategies were strengthened because the scientific community effectively delivered data (Patt & Weber, 2014). As a result of their ability to listen to experts, farmers have absorbed and practiced the information offered to them.

Audio Material (Radio)

One of the audio materials used by the LGU to inform farmers from all over the province is radio. The LGU has been using local radio stations to launch programs that the LGU wants the farmers to follow. Farmer 4 discussed how the LGU informs them through audio material: *"They were broadcasting about it before, but now they have stopped broadcasting because farmers are already practicing it"* (F4, L50-51). Farmers were capable of executing their work more efficiently by turning leftover rice hulls into organic fertilizer because it was demonstrated properly. Moreover, farmer 5 stated that *"they do not present it in one; they are presenting it from the start-up to the end, like how to farm. You start by sowing, and then you end by rotting the rice hulls, just like that"* (F5, L37–38).

As new technology transcends, many farmers, however, are still using radio to get their source of information. That is why radio is one of the most effective strategies for spreading information (Hassan et al., 2010). Moreover, LGU radio programs were information-focused campaigns that eventually turned into influence-focused campaigns, which ensured the behavioral change outcome for the farmers (Manheim, 2011). An efficient communication approach provides the general sense of being environmentally friendly (Patt & Weber, 2014). This becomes the reason

why farmers are listening and looking at it as an environmental cause.

Communication Methods on AWM Used by the LGU to the Farmers

For research question 2, what are the communication methods used in agricultural waste management by the LGU as experienced by farmers in the province of Isabela? The results of the interview revealed that the participants experienced two communication methods on AWM used by the LGU. The two communication methods are step-by-step procedure and demonstration, and visitation and monitoring. Each will be discussed in the paragraphs that follow.

Step-by-Step Procedure and Demonstration

In the fliers and radio programs they heard, the farmers were given a step-by-step procedure from the LGU. The farmers characterize the procedure as "like farming" because it tells what needs to be done, from cultivating the soil to what should be done to the remaining rice straw. LGU officers disclose that *"we mostly do the method demo wherein we are showing the farmers how to decompose the rice straws"* (LGU 1, L18-19). Additionally, they explained that *"method demo is about showing the people, farmers, what to do so that they will know about it immediately. We are not just lecturing because there is a tendency that they will not understand. It is better if, after the lecture, we show it to them"* (LGU1, L23–25)).

In addition, farmers affirmed that "they presented waste management on how we can process so that the remaining rice straw after harvest can be used to improve the soil that we are farming (F1, L34)." In the seminars that the farmers experienced, there were demonstrations that provided step-by-step instructions. However, farmers have stated that they would appreciate it more if they did it on-site. Farmers voiced it out by saying, "They are demonstrating it to us, but we want them to demonstrate it on the site (F6, L56)."

Visitation and Monitoring

The farmers experienced visitation in either their barangays or on their own farms as a strategy employed by the LGU. Together with that, the farmers have also experienced being monitored by the LGU and interacting with the LGU personnel. Visitations were usually done after farmers were informed by the barangay officials that the LGU official for agriculture would be visiting all the farmers. Farmer 3 mentioned that *“they supervise. They are visiting and asking what our needs are—fertilizers or such”* (F3, L61–62). Farmers would then attend the visitation in the community center. The interaction done whenever LGU monitors the farmers is asking them about their concerns and then giving them certain incentives.

Farmers and LGUs confessed that:

“They will talk to us about how we can make our farms better, and then they will proceed with giving free fertilizers, vitamins, and many more (F4, L47–48).

“We are going there to visit their farms and monitor them” (LGU1, L18–19).

“We are monitoring related programs, such as if they are managing their waste properly. In addition, we are also helping other LGU programs because we care about the overall projects of the LGU.” (LGU2, L37–39)

In explaining agricultural management, interpersonal communication is an effective and excellent strategy because there is an interaction with the farmers, and they will eventually know what the farmers need (Pidgeon & Fischhoff, 2011). According to Mondol (2010), after the farmers have received a piece of information through interpersonal communication done by the LGU, they apply what they have learned about AWM. However, farmers are usually interacting with a reliable source after understanding the issue (Mondol, 2010). In talking about agricultural and AWM information, farmers should be handed the information through interpersonal communication because it is found to

be more effective and is preferred by the farmers (Opara, 2008).

Common Agricultural Waste Management Practiced by Farmers in Isabela

For research question 2, what are the communication methods used in agricultural waste management by the LGU as experienced by farmers in the province of Isabela? The results of the interview revealed that the participants experienced two communication methods on AWM used by the LGU. The two communication methods are step-by-step procedure and demonstration, and visitation and monitoring. Each will be discussed in the paragraphs that follow.

Decomposing the Rice Straw

This practice was introduced by the LGU to the farmers so they would not burn their agricultural waste, which is rice straw. The farmers plow it immediately in order for the rice straw to be mixed with the soil, making it rot. To plow, the farmers are using the tractor to make the job easier. Farmers stated that *“I use the tractor for my farm; rice straw will be mixed into the soil immediately until it rots, and earthworms will eat it and continue to rot so that it will become fertilizer”* (F6, L35).

A similar statement comes from LGU officers:

“Most of them just scatter the rice straw and rice husks on their farms to let it rot. However, if we have available compost activator, we are giving it to them.” (LGU1, L28–29)

Rice straw is a good organic fertilizer. Because of this, farmers are just leaving the rice straw in the field until it decomposes. This practice was introduced to them by the LGU, and the farmers acknowledged it to be something that is beneficial to the soil. Farmers even confirmed that “I just leave it there to rot when it is time to use the reaper; the straw will just be there, and it will be mixed with soil. So, we just leave it there because they told us to” (F4, L60–61).

Rice straws, according to Kadian, are not a major issue in some countries since they are plowed into the soil to decompose (Kaur et al., 2019). Furthermore, rice straw contains silica, which is widely recognized as a valuable fertilizer for rice plants (Sekifuji et al., 2019). When used as a fertilizer, rice straw contributes to the growth of healthy plants (Kadian et al., 2019). An experiment was done in Japan where rice straws were used in a certain plant to check if there were any negative effects of rice straw, but there were none; therefore, rice straws can be used in rice cultivation (Kaur et al., 2019).

Cow Fodder

The remaining rice straws were sometimes burned because farmers did not know where to dispose of them. However, other farmers feed it to their cows, especially if it dries up. With that, it will also help the cow not to be malnourished, especially during farming season again. Farmers stated that *"We are feeding it to our cows. If the harvest time is already done, we are letting our cows eat there because if it's time to farm again, they will get thin because they do not have any food to eat. That's why if it's harvest time and it's already done, we will let them eat there"* (F2, L45–48).

The LGU's statement that follows supports the statements of farmers:

"Only a few of them are feeding it to their cows, maybe 10%. There are places that practice that because they are scared to have livestock of their own because of the ASF, AVM Flu, and Bird Flu" (LGU1, L31-33).

Rice straws are said to be a good alternative food for the cows to eat because they have a lower cost of production compared to the others. However, rice straw is low when it comes to its nutritional value (Drake et al., 2002). Agricultural waste, such as corn silage, is beneficial to cattle because of its high nutritional value. In comparison, rice straws can only be fed if there are no other options (Nazli et al., 2018).

Conclusion and Recommendations

Agricultural Waste Management is taught to Isabela farmers through three methods: face-to-face, print, and the radio. In training the farmers, LGUs show step-by-step procedures and demonstrations, which are followed up by visitations and monitoring. The effectiveness of the communication strategies on AWM could be seen in the best practices of Isabela farmers, which include decomposing the agricultural waste and using it as cow fodder.

The concepts of Environmental Responsible Behavior Theory and Waste Management Theory were seen in the farmers and LGUs showing concern for the environment by practicing AWM by decomposing their waste and cow fodder. LGU, on the other hand, advocates for saving the earth through seminars and information drives conducted face-to-face, through printed materials and audio materials presented in a step-by-step procedure and demonstration, and eventually follow-up through visitation and monitoring.

This study suggests that the LGU should use more information dissemination strategies, including the media, in order to improve farming experiences and increase return on investment. It also suggests that needs assessments be carried out by development communicators to better understand the communication needs of farmers and help the LGU in the dissemination.

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Experiencing Female Students Diagnosed with Depression Residing in Dormitory: A Phenomenology Qualitative Study

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Depression is a debilitating and distressing illness that profoundly impacts the abilities and academic pursuits of adolescents. Manifesting in various aspects, such as the physical, emotional, cognitive, behavioral, and social domains, depression disrupts academic functioning and impedes learning. This research employs a phenomenological qualitative approach with semi-structured interviews to gather data. The study involves six female adolescents, aged 18 to 20, who are diagnosed with depression. They are enrolled at an Adventist university in Indonesia during the 2022–2023 academic year. The primary objective of this study is to gain a deep understanding of depression among female adolescents. By doing so, faculty members can develop a deeper comprehension of how to effectively support and assist students dealing with depression. The following six themes emerged from the data analysis: family condition, dormitory condition, feeling hopeless and helpless, an experience of loneliness and isolation, “feeling unworthy,” and “therapy as a last resort.” The feeling that they must deal with themselves or the lack of support for the students in getting help are also revealed. The findings suggested the importance of reducing stigma and promoting mental health education for the students as well as their parents, deans of dormitories, and school staff. It seems that the present research implicitly opens a way to explore and understand the intersubjectivity of students as an important part of dormitory society.

Keywords: *depression, physical, emotional, cognitive, social, academic functioning*

Depression is a psychiatric state characterized by profound negative emotions (UtamiHingtyas, et al., 2021). Depression encompasses a range of emotions, from apathy to significant disruptions in daily functioning. Depression is defined as a persistent low mood and lack of interest in life lasting for a minimum of two weeks. Depression is a typical reaction that occurs when an individual faces a discouraging occurrence. Depression is a mood condition characterized by a continual sense of melancholy and a lack of interest.

Although there is a lot of knowledge about the causes of depression among young adults in Indonesia, it is still hard to find effective treatments. In the first half of 2021, UNICEF and Gallup surveyed teens in 21 countries and found that, on average, one in five around the world are depressed or lose interest in things they used to enjoy. Of all the countries with teens, Indonesia has the third most depressed teens—up to one-third of all teens there. A UNICEF survey from 2022 found that the country where teens are most likely to be depressed is Cameroon. Indonesia is only three points behind that country. The Indonesian National Adolescent Mental Health Survey (I-NAMHS) found that one in three Indonesian teens had a mental health problem in the past year, and one in twenty had a mental disease in the same time period. These numbers are equal to about 15.5 million and 2.45 million teenagers, respectively. The Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) was used to make the mental disorder diagnoses for the teens. This is the standard way to make mental disorder diagnoses in Indonesia and around the world. 3.7% of teens had an anxiety disorder, which is a mix of social phobia and generalized anxiety disorder. This was followed by major depressive disorder (1.0%), conduct disorder (0.9%), and then PTSD and ADHD (both 0.5%). I-NAMHS also found that few teens get professional help for their mental health problems, even though the government has made it easier for people to get to many health centers. The National Adolescents Mental Health Survey (2022) found

that only 2.6% of teens and young adults with mental health issues used services in the past year (Isfandari, 2011)

There are nine million depressed people in Indonesia, which is 3.7% of the total. Someone in Indonesia kills themselves every hour. The shocking number of 3.4 deaths for every 100,000 people in Indonesia was found by the World Population Review. Some 16 million people (15+ years old) have shown signs of anxiety or sadness, and another 400,000 people (1.72% of the population) live with more serious illnesses like psychosis. In this group, 57,000 people have been shackled before, according to a study from the Health Ministry in 2013. About 19% of young people in Indonesia have thought about committing suicide, and 45% have actually done it. Indonesia has about 270 million people, making it the fourth most popular country in the world. However, it only has about 800 psychiatrists (0.3 psychiatrists per 100,000 people), 450 psychologists, and 48 mental health facilities. It's not easy to get to these kinds of services. It is where almost half of all therapists work. There are also 34 provinces in Indonesia, but more than half of the 48 mental health centers are in four. Only in Yogyakarta has it been possible to put a psychologist in each of its 18 public health roles. (Wilopo, 2022).

Among people aged 15 to 24, 6.2% had depression, according to the Indonesia Basic Health Survey (Riset Kesehatan Dasar or RISKESDAS). A different study found that about 7.7% of Indonesian kids had mental or emotional issues. Only 9.2% of depressed 15–24-year-olds went to a health facility for help, which is a shame (Isfandari, 2011).

There is a gap between the availability of health facilities and the large number of teens and young adults who suffer from depression. One big problem is that kids and teens often don't get professional help until years after they first noticed they had a mental health problem, which is a lot later than adults (Korczak & Goldstein, 2015; McGorry, Purcell, Goldstone, & Amminger, 2011).

Methodology

Research Design

Interpretative phenomenology analysis (IPA) was used in this study. This is a way to understand and analyze the stories that people tell about their lives. According to McGorry, Purcell, Goldstone, and Amminger (2011), interpretative phenomena are more than just a list of events; they are put together in a way that gives them meaning and purpose. IPA stands for interpretative phenomenological analysis. It is a type of qualitative psychology study. Idiographic focus means that IPA doesn't try to find generalizations. Instead, it tries to show how one person in a certain setting makes sense of a situation. Usually, these events are very important to the person involved. An important relationship starting to grow or a big life event are two examples. The ideas that led to IPA (Smith, 2007) are more than just a list of events; they are put together in a way that gives them meaning and purpose. Researchers can use narrative analysis to find themes and patterns in stories and learn about the social and cultural setting in which they are set. I. Riessman (2008). The main point of a narrative inquiry study is for people to tell the researcher about their life events through long, detailed stories. "Connelly and Clandinin" (1990).

Participants

The subject of this investigation is a dormitory complex located in one of the cities in Indonesia. The residents of this complex are typically female students who are enrolled in a public university. In the context of this study, the participants are college students attending one of the Adventist universities in Indonesia.

In story inquiry studies, purposeful sampling is used most of the time. People who want to take part in the study must meet some kind of requirement that fits with the study's purpose, problem, and goal. People who had sadness were asked to take part in this study. This type of study doesn't have a set rule for the size of the group. The usual number of people in a group is between 6 and 10.

Purposive sampling, sometimes referred to as judgmental, selective, or subjective sampling, is a type of non-probability sampling where researchers use their own judgment to select participants from the population for their surveys. (Patton, 1990). Six women between the ages of 18 and 21 are taking part in this study. This is because sampling should end when there is no new information to be found. This is called "sampling to the point of redundancy," and it is a popular method used in qualitative studies. Haydon G. and Riet. (2017).

Data Gathering Tools and Procedures

Interviews with some frameworks were used to collect data. The semi-structured interview showed that all the subjects talked about bad feelings that made them feel alone, angry, and not worthy as signs of depression. When the subjects talked about these emotions and states of mind, most of them talked about hurting themselves.

The researcher conducted discussions and observations with utmost precision, utilizing the semi-structured interview method. This method involves the interviewer asking open-ended questions rather than following a rigid and standardized set of questions. (George & Tegan, 2022)

Ethical Consideration

It is important to follow the principles of "anonymity and confidentiality" as much as possible during the semi-structured interviews with the subjects. So, the name of the university and the dorm building were left out, and every effort was made not to mention any signs either. The student's information, like first and last name, hall name, or room number, was also left out, as was the field of study. After that, the names that were used were only "aliases," not their real names. People were also free to take part in the interview and work with the experts.

Credibility and Conformity

To ensure accurate and valid results and analysis, multiple strategies were considered. Efforts were made to choose the methodology for the investigation. The researcher utilized purposive sampling to get insight into the nature of depression and how people experience it, along with its repercussions. This study utilized interpretative methodological analysis as a qualitative research method.

Results and Discussion

All participants in the conversations and interviews expressed negative emotions such as “bad temper,” “isolation,” “lack of sleep,” “irritation,” and “sensitivity.” Subjects often mentioned self-destructive behaviors such as irregular medicine use, self-harm, and suicide attempts as repercussions of depression when discussing their feelings and mental states. Various approaches, such as drugs and psychotherapy, are utilized to treat depression. Family therapy can be beneficial if familial discord is exacerbating a teenager’s depression.

Regarding Family Condition

The participants’ families, who were experiencing depression, were causing significant distress and emotional issues for them, potentially worsening their sadness. The family is generally perceived as a tranquil and supportive setting. The main concerns regarding this topic revolved around cases of inconsistency, verbal, physical, and sexual abuse within the family; a lack of affection within the family; financial and economic issues within the family; and forced, unwanted marriages arranged by the family.

(A) I was bullied by my classmates during my elementary and secondary school years because I have dark skin and a skinny body. Every time I talked to my father about it, he became really angry and confronted the school and the students who were bullying me. My friends also mocked me

because of those incidents. As a result, I became an introverted and antisocial girl. When I was in my second year of high school, my father passed away. I completely broke down because I no longer had anyone to protect and comfort me. Since that time, whenever someone bullied me, I felt incredibly sad and began hurting myself by grabbing my hair until it was almost bald. Nobody knew about it because I wore a hijab (headscarf). When I reached college, it was difficult for me to interact with other students, and people considered me irritating, sensitive, and antisocial. When I had conflicts with my friends, I resorted to the same self-harming behavior. My family eventually urged me to see a doctor and take medication. After that, I started to get better, feeling calmer and more peaceful.”

(B) I grew up in a happy family; my father is a pastor, and my mother was a housewife. My father had a more democratic style than my mom, who was a perfectionist mother, always expecting the best from her firstborn. Sometimes, I couldn’t cope with it, and it made me feel sad and unworthy. This marked the beginning of my episodic panic attacks. I truly didn’t know how to handle them. My family asked me to see a doctor and take medication, but the panic attacks persisted.

(C) My family was really dysfunctional. My parents had affairs and dated other people. My mother bullied me because my skin was darker than that of my two older sisters, who were really loved by her. When I was 5 years old, my parents separated. I stayed with my father, even though I didn’t see the good side of his attitude, but at least he tried to support me financially. I really hated them, especially when my father molested me at the age of 19. I was so upset with him. The anger and bitterness hit me like a wave, causing me to have panic attacks and self-harm. But no one cared, even when I tried to end my life with 125 sleeping pills. Now, I am studying in college with the help of a sponsor. My mother still doesn’t support me continuing my studies, but my father still supports me with a small amount of money.

(D) My mom passed away when I was 4 years old. I lived with my older brother, but I really missed having a mother figure in my life. My dad remarried someone who didn't care about us. She only cared about pleasing my father. I wasn't comfortable staying with my stepmother, so my father put us in the homes of some of his relatives. We kept moving from one house to another, and I became a very introverted girl. I didn't know how to relate to others. I was good at household chores, but I never initiated conversations with others. My family just knew me as the quiet girl.

(Di) I grew up in a pastor's family. Both my parents were devoted ministers, but they didn't have much time for me. They expected me to be the mature, independent, and role model daughter of a minister. Since they were so busy, they didn't have much time for me. They didn't know I was struggling with these expectations and many other things, but I faced them alone. I met someone on social media who was a good man with a different religion than mine. He was good-looking, attentive, caring, thoughtful, and always there for me when I needed help. I didn't tell my family about him at first. But eventually, they found out about him through the things he sent me. They were disappointed and forced me to break up with him. It was devastating, but I did it for the sake of their reputation. I was so sad that I tried to end my suffering by cutting my wrists. I was depressed and sought professional help. The doctor prescribed me medication, but it didn't help much. I tried to forget my boyfriend by continuing my studies and staying in the dormitory.

(M) I grew up in a broken home. My father was a womanizer who loved to date many women, even though he was married and had two children. One time, they had a fight, and I was curious to see what was going on in their room. I was shocked to see my father beating my mother and throwing the television at her face. I screamed and ran away to seek help, but no one was around. It was 1 AM in the morning, and I kept crying until I fell asleep on the front yard of our house. Eventually, my parents

separated and moved to different cities. I was confused because I loved my irresponsible father, but I loved my mother more. I decided to stay with her and my hyperactive younger brother. My mother was a good businesswoman. She had a small store that was very profitable. She also owned several houses and had expanded her business. My father, on the other hand, was a spoiled brat. Even though he had a good business, he couldn't manage it well and ended up broke. He now owns a small florist shop. Even though my mother was a single parent, we had everything we needed. She put us in an expensive school and made sure we had the best education possible. I missed my father deeply, but he didn't care about us. I kept texting him, but he never replied. When I started high school, my mother asked me to move to the city where my father lived. I was upset, but I tried to convince her that I would be okay. I stayed with my paternal grandmother for a few months, but she was always siding with my father. I tried calling him again, but he still didn't answer. Moving back to my father's family was not easy. I had to adjust to everything, including the house and the school. But the most discouraging thing was my father's lack of interest in me. He really didn't care about me. I was very sad, but I didn't know who to talk to. My mother didn't agree with my decision to move in with my father, so I couldn't share my burden with her. And my paternal grandmother was always siding with my father. I became depressed and started having tantrums. I even started hearing strange voices that reminded me of my parents fighting. I realized that I needed professional help. My psychiatrist diagnosed me with depression and prescribed medication. He told me that if I didn't take my medication regularly, my depression could lead to schizophrenia.

Family is one of the elements that can influence adolescent mental health. Info Datin highlights family as a stressor that can elevate the likelihood of mental problems. A study found a strong positive link between two factors, with a correlation coefficient of 0.626, indicating that higher levels of

family dysfunction are associated with increased likelihood of depression (UtamiHingtyas, et.al, 2021). Adolescent depression can result from a deficiency in comprehension, focus, and care. Parental sadness, lack of emotional attachment, parental marital strife, and economic troubles in the family can also cause it. The functioning of a family can significantly impact the growth, development, and well-being of its members. If the structure and dynamics of family relationship are ineffective, the family might be considered dysfunctional. Research indicates that inadequate family dynamics can result in depression in individuals (Cheng et al., 2022). Family functioning significantly influences the progression, trajectory, and recurrence of depression (Keitner et al., 1995; Sireli and Soykan, 2016).

Family functioning pertains to a family system's capacity to fulfill its members' fundamental needs and handle conflict efficiently. The circumplex model of marriage and family systems evaluates family functioning based on cohesion, flexibility, and communication. Cohesion refers to the emotional connection between family members. Flexibility is the capacity of the family structure to adjust to change. Communication is the capacity of family members to exchange information and emotions in a coherent and considerate manner. Effective communication enhances family unity and adaptability. Effective family communication enhances dispute resolution, mutual support, and meeting the needs of all family members.

Numerous theoretical and empirical studies have linked family dysfunction to depression in adolescents. Family system theory explains this link by saying that when the family system works better as a whole, the mental health and behaviour of its members also improve. This means that members are less likely to be depressed or have other emotional and behavioural issues. Family cohesion can create a warm family environment and offer positive emotional support, which can lower the risk of teens getting depression or other

forms of negative emotional distress. On the other hand, family freedom helps families deal with change and lessens the effect that bad things have on teens' mental health. Less family strife happens when people talk to each other positively. This makes families more flexible and cohesive, which is good for teens' mental health.

Family functioning has a big effect on a teen's sadness, according to empirical studies (Lin et al., 2008; Sireli and Soykan, 2016; Shao et al., 2020). There is a strong link between family cohesion and sadness (Kashani et al., 1995; Roley et al., 2014; Zahra and Saleem, 2020). Teenage sadness is caused in large part by families that can't change or talk to each other well (Gladstone et al., 2005; Sheeber et al., 2007; Lee et al., 2017). A recent meta-analysis found that family dysfunction is linked to depressed symptoms and that family functioning is a key indicator of depression in individuals (Guerrero-Muñoz et al., 2021).

Dormitory Condition

(A). It was the first time I had to stay in a dormitory. It wasn't easy to relate to my roommates. I'm a perfectionist, and I like everything to be orderly and neat. But my roommates sometimes weren't. This made me upset and irritated, so I kept fighting with them. My roommates talked to my classmate about my behavior. Instead of speaking directly to me, she sent me a PDF message. But I was really scared that the messages would spread to my other friends. I became so upset that I unconsciously started grabbing my hair and became hysterical. Seven of my friends tried to calm me down, but nothing worked until someone gave me sleeping pills. This went on for more than five hours. The next day, I woke up feeling weak and empty. After that, my family and the dean of the dormitory asked me to see a psychiatrist. She diagnosed me with panic attacks and self-harm tendencies, and prescribed antidepressant medication. The medication worked well. I became more calm, and the symptoms only came out occasionally with smaller effects.

(B) As the firstborn, I was determined to be the best in my studies, as a role model for my younger siblings. However, my perfectionist mother always considered me a loser and inadequate. She even put me in the same class as my sister, who is very intelligent and determined to be the best in every aspect. Every time we had a quiz or exam, I would become depressed and have a panic attack. My friends in the dormitory thought I was pretending to seek attention. No one knew how much I was suffering in this situation, and they didn't understand what was happening to me.

(C) Staying in a dormitory was one of the hardest things that ever happened to me. I had a hard time dealing with my roommates and making friends, especially with those who were critical and judgmental. Since I had panic attacks often, many of them thought I was faking it for attention. I didn't understand what was going on with me either. Because of the bullying I experienced in high school, I had a hard time relating to my roommates. I had panic attacks many times, and many of them thought I was just faking it for attention. Rumors and negative comments started to spread, which added to my trauma. It seemed like no one understood me.

(De) I am an introverted girl who struggles to relate to others. My friends consider me bashful. One day, I disagreed with one of my roommates. I done nothing wrong, but she continued to blame and yell at me. I apologized, but her attitude left me extremely hurt. Everything looked to be improving, until I realized they weren't treating me fairly. I abstained from all social activities. I had no ambition to study, so I skipped classes, didn't complete my homework, and didn't care about anyone. Nobody knew I was suffering from depression. I would spend all day in bed, napping and doing nothing. Nobody seemed to care about how horrible I felt.

(Di) My parents sent me to the dormitory for summer classes so that I might participate in more healthful activities rather than staying at home and continuing my relationship with a guy my parents didn't like. I was still taking medication, but I didn't

tell the dean since I didn't want everyone to know about my condition. The gloom and melancholy of my depression loomed over me, and I had no desire to attend summer sessions. So I took my antidepressant every morning, but I slept all day and couldn't attend class. My dormitory dean entered my room and asked if I had a problem or was taking any medication, but I refused, saying that nothing was wrong. Finally, she told me that I couldn't attend courses and that I should return home. I was afraid my parents would be furious with me, so the next day I didn't take any medication and attended classes until I finished the program.

(M) My mother described me as a bright girl. However, I lost enthusiasm to attend class after moving to another place and experiencing numerous issues with others. Sometimes I'd just stay in bed for two or three days. One day, my dormitory dean came into my room and inquired about my troubles. I confessed all of my worries with her, and I realized that someone genuinely cared about me. Since then, anytime I have a difficulty, I usually consult her. I no longer have tantrums and attend class on a regular basis.

Most students regain their psychological stability while living at home with their parents. However, boarding college students have to adjust to living away from the security of a family and away from parental guidance. Therefore, boarding students find psychological physical problems because they do not receive care from home. For many boarding students, the separation from home for the first time may create feelings of doubt, confusion, and anxiety (Weis, Rs, 1973). In the harassed mental symptom of boarding students, loneliness is the most terrible problem. They were overwhelmed by a longing for warmhearted family loving. If they get over this process, loneliness leads an individual to achieve deeper self-awareness, a time to be creative, and an opportunity to attain self-fulfillment and to explore the meaning of life (Perlman, 1982). However, not every boarding student is psychologically mature enough to convert their

loneliness to positive outcomes. Most outstanding students learn how to deal with the attachment and separation processes of interpersonal situations in normal psychological growth and to create a unique self-identity. However, those who fail to learn how to manage stressful situations suffer from unpleasant and distressing consequences due to their social and emotional loneliness (Cutrona, CE, 1982). To solve this problem, it seemed that difficulty in talking to parents, Dean dormitory and issues arising from peer relations should first be managed. For this, good social support from school administrative officers, dean dormitory, parents, and classmates may help individuals and provide relief to distressed students, nourishing them to maintain sound mentality. To deal with specific issues among boarding students, a comparison study between boarding and day students would be helpful in the future. (kim, et al, 2015)

Feeling Hopeless and Helpless

(A) Due to my background, depression, and self-harm habit, I doubt my future. Will I be able to finish my studies, find a job, meet someone to be my future husband, and have a happy family?

(B) I have a hard time dealing with my mother. She is a perfectionist, authoritarian, and determined to do the best for the family according to her will. I am confused about how to continue my life. Every time I make a decision, she interferes, believing that her ideas are the best for everyone. I fear for my future. With my health condition, will I be able to finish my studies? Find a job? Have a successful career? Find a husband? Have a happy life?

(C) I doubt whether I can continue my life without the support of my family. I am dependent on my sponsor. My mother does not agree with my studies, and my father does not have enough money to support me. I hope that someone will continue to support me financially. I fear that I will not be able to continue my studies. Will I be able to finish my studies? Find a job? Find a husband and have a happy family?

(De) I fear for my future. I am like an orphan, with no one to care for me. My mother passed away when I was 5 years old, and my father remarried. I was passed from one house to another. Fortunately, I have an older brother who showed me the way to go to a dormitory and work and study there. I have followed his path until now. Before I had problems in the dormitory, I had no problems with my studies. But since I have been suffering from depression, my grades have been declining. I do not know how I will...

(Di) When I had depression, of course I was afraid of my future. But now that I have finished my studies, I am confident that I can find a job and have a successful career as a nurse.

(M) I have no problems with my studies. I always have good grades. However, my emotional level is very fluctuating. Sometimes I feel very excited about doing something, and sometimes I feel very lazy. I fear for my future career. I am afraid that I will not be able to stay in one activity consistently.

It can be useless for people with depression to think that their symptoms will go away any time soon. Someone may also feel like they can't do anything. They might think or say that no one can help them get better and that they will always be sad. (Berry and Kubala, 2022)

Feeling of Isolation

(A) It is very difficult for me to deal with my friends in the dormitory and in the classroom. I feel unworthy, inadequate, timid, and insecure. I am comfortable staying alone. These feelings lead me to conclude that I am isolated.

(B) Because I have frequent panic attacks, my dormitory friends think I am a spoiled girl who is seeking attention. But I understand what is happening to me, and it is out of my control. Because of this, I feel unworthy and isolated from others.

(C) Since it was my first time staying in a dormitory, it was difficult for me to deal with my friends. I had many panic attacks, and others

thought I was a problematic girl who was seeking attention. In crowded places, I feel insecure, unworthy, and isolated.

(De) Because I had a problem with my classmate, my friends accused me of making a mistake (even though I did nothing wrong). I feel inadequate, guilty, unworthy, and lonely.

(Di) It was difficult for me to deal with my friends, and I only have a few friends who are really close to me. No one understands me, and I feel insecure and lonely.

(M) I only have a few friends who really understand me. I am a very sensitive girl, and I get angry and irritated easily. No one likes to be close to me. I feel lonely.

People who are depressed do things like hiding and not telling others about their problems for a variety of reasons. This can make them feel lonely, which makes them feel worse, which makes their depression worse. The year 2020 by Achterbergh et al. According to Perlman (1982), loneliness is a bad feeling that comes up when there seems to be a gap between what you want and what you have in terms of social ties. It is now well known that being alone is bad for your mental and physical health (Morrison & Smith, 2018). Most of the research that has been done on the link between loneliness and mental illness has been on depression. Cross-sectional work shows that people with depression are ten times more likely to feel lonely than the general population (Bebbington et al., 2013). Longitudinal studies demonstrate that loneliness not only increases the risk of becoming depressed, and worsens depressive symptoms amongst those who are already depressed [Stessman et al. 2-13), Rottenberg], but also that loneliness and depression influence each other reciprocally. This means that people who are lonely are more likely to become depressed, but also that their depression reinforces their loneliness. (Caoppo, 2016)

Depressed individuals engage in certain behaviours (withdrawing; not confiding) for a range of reasons, this can lead to feelings of loneliness,

an awareness of which worsens their mood, thus perpetuating their depression. (Achterbergh, 2020)

Base on study students demonstrate a variety of coping strategies to manage the distressing experience of loneliness. Accommodation, mainly in the form of distraction, support-seeking, social isolation, self-reliance, and problem-solving behaviours were the most prevalent coping strategies mentioned. Coping reflecting helplessness, escape, submission, and more rarely, opposition, were also found, albeit less often. Students showed evidence of a wide-ranging coping repertoire, with the deployment of specific coping strategies presenting as highly selective and contextual. Strategies for coping with loneliness take into account constraints and opportunities in the environment, the availability and appropriateness of social resources, as well as individual resources and needs.(Vasileiou, et al2018)

Feeling of Unworthy

(A) Because of all the problems in my life, many people around me have suffered because of me, including my family, relatives, and close friends. I have become a burden to them, and they feel embarrassed because of me. This makes me feel unworthy.

(B) My mother expects me to be a role model for my younger siblings, but because of my depression, I cannot fulfill her expectations. My life feels like a waste, and I feel unworthy.

(C) My depression, self-harm, and suicide attempts have brought shame to my family. I feel useless and unworthy.

(De) My life is empty. No one cares about me. I feel worthless and unworthy.

(Di) All of my problems have really embarrassed my father. I feel nothing and unworthy.

(M) When I was in my hometown, I had a goal to unite my parents, but since I moved here, my father doesn't care. My goal cannot be achieved. I am a loser and a failure. My life has no meaning. I feel empty and unworthy.

A low sense of self-worth and bad thoughts about yourself are often linked to depression. The American Psychiatric Association (APA) says that sadness often causes people to feel worthless and guilty. Even though it may be hard to deal with feelings of worthlessness, remember that there are many things you can do to find or get back happiness and self-confidence. Being kind to yourself is one of the most important things you can do for yourself. Know that feeling like you're not worth anything is a part of sadness.(2) Caselli (2021) One of the best ways to treat depression and improve your sense of self-worth is to do things on purpose that give you a sense of meaning, purpose, or mastery. People who are depressed might think they are not good enough or that their life has no point. Some people may also think that they are a bother and that the world or their family would be better off without them. If someone is having these feelings along with suicidal ideas, they need to get help right away. (Berry and Kubala, 2022).

Looking for Therapy

(A) When I could not control my self-harm and panic attacks, I saw a doctor and took medication for three months. After I stabilized, I stopped seeing the doctor. I feel better, but sometimes when I face a problem, I have a little tantrum and scream for 5 to 10 minutes.

(B) I can't control my panic attacks, and they are really disturbing me. My parents suggested that I see a doctor. I did, and he prescribed me some medication. But it doesn't seem to be working very well. I keep having panic attacks, especially when I'm facing problems or have a quiz or exam. I'm getting hopeless. But if I'm involved in activities at church and I'm happy, nothing happens. I'm going to try to maintain my emotional stability. It seems to be working.

(C) When my panic attacks were really disturbing me, my parents suggested that I see a doctor. For the first two weeks, the medication seemed to be working well. I felt calm and could

control my emotions. But then I met my father, and the wave of anger and anxiety made me have a tantrum again. The condition got worse when my friend sent me a message about my ex-boyfriend. I was so upset that I took the rest of the medication I had left and got drunk. My counselor rushed me to the hospital, and they gave me some medication to neutralize the effect. Since then, I haven't seen the doctor. I still have panic attacks sometimes, but the symptoms are milder.

(De) When I felt prolonged deep sadness (for more than two weeks), I realized that I was suffering from depression. But I didn't have enough money to see a doctor. I just looked for activities that made me feel better. I need to have more trustworthy close friends so that I can share my burden with them.

(Di) When I felt so depressed because my parents forced me to break up with my boyfriend, I committed suicide by cutting my wrists. But I was unsuccessful. My parents took me to the doctor, and he gave me some medication.

(M) When I felt so depressed because my father didn't care about me, I started hearing strange voices in the middle of the night. When I saw the doctor, he said that I had depression that was leading to schizophrenia. He gave me some medication, and I take it regularly. I don't know how long I'll need to take it.

According to the American Psychiatric Association (APA), depression is often linked to having low self-worth and negative thoughts about yourself. APA also says that feelings of worthlessness and guilt are typical signs of depression. Even though it may be hard to deal with feelings of worthlessness, remember that there are many things you can do to find or get back happiness and self-confidence. Being kind to yourself is one of the most important things you can do for yourself. Know that feeling like you're not worth anything is a part of sadness. Caselli (2021) One of the best ways to treat depression and improve your sense of self-worth is to do things on

purpose that give you a sense of meaning, purpose, or mastery. People who are depressed might think they are not good enough or that their life has no point. Some people may also think that they are a bother and that the world or their family would be better off without them. If someone is having these feelings along with suicidal ideas, they need to get help right away. (Berry and Kubala, 2022). The type and intensity of your teen's depression symptoms will determine the appropriate treatment.

Medications and therapy are just two of the many ways that sadness can be treated. If fights in the family are making a kid depressed, family therapy might help. Teenagers who are having problems at school or with their peers will also need help from their family or teachers. The FDA says that antidepressants can sometimes make kids and teens with depression and other mental illnesses more likely to think about and act on suicide thoughts. Because of this, younger patients who take antidepressants need to be closely watched and followed up on by their doctor. (The Brenann 2022)

Teenage sadness usually comes and goes in waves. Teenagers are more likely to become depressed again at some point after having one episode. Teenage depression can have very bad effects that can even be fatal if it is not managed. (Bruce, 2022) WHO's 2017 report noted some problems related to human resources in mental health care in Indonesia. In Indonesia, there are only 0.31 psychiatrists, 2.52 mental health nurses, and 0.17 social workers for every 100,000 people. Only 32.5% of the 685 state hospitals that the government owns offer psychiatry services, and only 8% offer inpatient services. These polls and studies show that Universal Health Coverage (UHC) in Indonesia's mental health care is a problem.

Conclusion and Recommendation

Depression is defined as a psychological condition in which a person experiences deep negative feeling. Teenagers get depressed when

they don't get enough love, care, and understanding. There are six themes that emerged from the experiences of the participants. These include family condition, feeling hopeless and helpless, feeling lonely and isolated, feeling unworthy and therapy is being considered as the last resort.

Dormitory deans should let students feel that they are willing to help. Help them to avail of professional help and let them realize that their condition is not a flaw or weakness and treatment is available. Most importantly, family members should be able to love and support.

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Self-Deception in Zhang Ailing's Novel *Crumbs of Ligumaloes—The First Incense Burnt*

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Self-deception, a key contributor to the erosion of ethical values, is a concept commonly explored in the fields of philosophy and psychology. This paper explored how self-deception is depicted in the novel *Crumbs of Ligumaloes—The First Incense Burnt*, offering psychological insights and bridging a gap in previous literary studies that focused on aspects of linguistic style, text structure, and literary devices. This study was conducted to find out the forms of self-deception manifested and reflected in the novel. It also explores other forms of self-deception that can be extracted from the novel, utilizing Fingarette's notion of the concept. Employing qualitative content analysis and drawing on Burton's (2019), O'Connor's (2019), and Fingarette's (1969) notions of self-deception, this study used a directed approach to content analysis in analyzing data, following the framework of Hsieh and Shannon (2005). Out of 14 existing forms of self-deception, seven were found in the novel, namely: denial, repression, rationalization, projection, doublethink, minimization, and procrastination. Additionally, one form of self-deception based on Fingarette's notion was found, which is disintegration. Results suggest that the protagonist's self-deception, driven by motives of self-protection and guilt alleviation, culminates in tragedy. It is therefore recommended that one face and accept one's genuine self. Moreover, readers are encouraged to develop self-awareness by supporting honesty, increasing awareness of the authentic self, and emphasizing ethical behavior to mitigate the effects of self-deception. Furthermore, future research can be done on the influence of gender roles, culture, and socio-historical context in the novel on the protagonist's self-deception.

Keywords: self-deception, psychoanalysis, content analysis

"To see the self as deceiving itself has seemed the only way to explain what might otherwise be incomprehensible: a person's failure to acknowledge what is too obvious to miss" (Bok, 1989, p. 60). This basic explanation of self-deception is a type of dishonesty that involves avoiding the truth, telling lies, and keeping secrets from oneself (Bok, 1989). Simply put, it is an act of omission.

Self-deception is a psychological concept that involves distorting reality to maintain a positive self-image or to avoid facing uncomfortable truths about oneself or one's situation. Trivers (2011) argued that people frequently lie to themselves before they lie to others. To lie, they conceal their motives and the specifics of their deceit; they tend to remember information selectively and present arguments that are biased to support their deception. At its most fundamental level, self-deception is the inability to be honest with oneself. It is anything that one cannot confess to oneself (Warren, 2018).

Self-deception also refers to a state of not being conscious of the mental processes that shape a person's beliefs and evaluation (Messick & Bazerman, 1996). Fingarette (1969) explains that self-deception occurs when people do not want to explain clearly to themselves and others the underlying reasons for their obligations and actions. The reason self-deception can be potentially harmful and crippling is because of a lack of perspective, as well as the need and want to see oneself and the situations in particular ways (O'Connor, 2015). In addition, it was pointed out that self-deception does not necessarily result in depression, but excessive self-deception may indicate mental illness (Triandis, 2013).

Like any other form of deception, self-deception is similar to the way people deceive others. One study by von Hippel and Trivers (2011) claimed that to fool oneself, it is not necessary to have two versions of reality. People might deceive themselves in the same manner they deceive others by withholding important information and not giving the complete truth to themselves. However, Kant

stated that "a lie requires a second person whom one intends to deceive, and to deceive oneself intentionally seems to contain a contradiction" (as cited in Kinghorn, 2007, p. 535). Hence, for self-deception to occur in the strictest sense, one must believe some proposition in one's role as a deceiver while also believing the proposition in one's role as the deceived.

Deweese-Boyd (2016) explores the concept of self-deception as more than just another intriguing philosophical puzzle; it is an obstacle to self-knowledge, both individually and collectively. It is an existential concern because it implies that a person could be living with an erroneous perception of himself, others, and the world, making him or her stranger to himself and ignorant of the nature of significant moral obligations. According to the intentionalism concept of self-deception, a self-deceiver believes what he wants and chooses to believe in. In other words, his strong desire outweighs his sound judgment, so he is believing something against his better judgment (Cervac, 2015, p. 145).

The longer a self-deceived person persists in his or her habitual practice, the more difficult it is for that individual to make an accurate assessment of her condition and state. In his research, Pak (2016) found that "self-deception is lying to oneself, often unconsciously, with an intention to avoid facing an uncomfortable truth about oneself" (p. 15). O'Connor (2015) also explained that some self-deceptions are intentional, while others are unintentional. Moreover, at any time, one form can shift to another.

Another issue related to self-deception is the fading of morality. Self-deception diminishes the ethical significance of a choice, enabling individuals to engage in perplexing behavior while not realizing that they are doing so (Tenbrunsel & Messick, 2004). As a result, self-deception has been regarded as morally objectionable, or at the very least, morally perilous, as it undermines moral self-awareness, provides a shield for immoral conduct, and violates

one's authenticity (Deweese-Boyd, 2021). Some scholars argue that self-deception is instrumental in the process of ethical fading (Costa et al., 2021; Tenbrunsel & Messick, 2004; Tenbrunsel et al., 2007).

In making ethical choices, there is often a balancing act between personal gain and moral values. When individuals intentionally overlook or mask the ethical implications of a decision, they can act in their own self-interest while maintaining the belief that they are behaving ethically (Tenbrunsel & Messick, 2004). Lack of awareness and holding false beliefs about oneself can lead to errors in assessing moral responsibility and the extent of harm caused, while obscuring potential ways to rectify an immoral decision at the same time (Bok, 1989). Consequently, self-deception is considered a hindrance to morality. Bok (1989) claimed that if individuals were able to eliminate such self-deception, they would enhance their ability to make ethical choices and live lives characterized by greater virtue. By distancing individuals from their own values, self-deception can pose a risk to moral uprightness (Jenni, 2003). According to Pak (2018), the foundation of self-deception lies in the distorted self-love of the self-deceiver. Moreover, self-deception arises from attachment to oneself (Triandis, 2013). Because of people's partial and affectionate regard for themselves, it becomes difficult to truly understand their own character and the inner workings of their mind. Even more challenging is the ability to judge one's own actions accurately. Wood (2013) similarly suggests that the "rational blindness associated with self-deception is interconnected with the moral blindness of misguided self-love" (p. 353).

Fingarette's (1969) work on self-deception delves into the broader implications of the concept within the context of human consciousness and self-awareness and seeks to resolve the paradox of self-deception by viewing it as a practice or lack thereof of certain skills rather than solely in terms of knowledge and belief (Drengson, 1973). Although

in his later publication Fingarette (1998) argues that self-deception does not need explanation as it is an "ordinary and familiar... mental activity as one can imagine" (p. 289), he also explains that self-deception happens when the subject has "strong" and "decisive" reasons not to "spell-out" certain parts of his or her engagement in the world and behaviors, to others, and to the subject himself or herself (Fingarette, 1969). In his work *Self-Deception* (1969), his account includes two parts: (1) self-deception as a behavior problem, and (2) self-deception as a moral problem. Firstly, the concept of self-deception should be understood as a problem not solely related to cognitive states but rather to actions. Secondly, Fingarette argues that self-deception is deeply intertwined with moral considerations. The act of deliberately concealing or denying an engagement, which serves as the mechanism of self-deception, raises ethical questions when examined within its context (Burns, 1970).

As self-deception is seen as a key contributor to the erosion of ethical values, scholars should understand its broad effect and its impact on immoral decisions. As Messick and Bazerman (1996) argue, "if we can accept the fact that the human mind has an infinite, creative capacity to trick itself, we can guard against irrational, unethical decisions" (p. 9). While numerous studies on the problem of self-deception have been carried out in the fields of philosophy and psychology, some studies on this specific issue explore other dimensions and do so by focusing in particular on literary treatments of the topic (e.g., Anderson, 2020; Marcus, 2006; Wu, 2020).

Zhang Ailing, the author in focus, has had her works discussed by many Chinese and foreign scholars (e.g., Li, 2016; Zhang, 2014; Zhao, 1983). *The First Incense Burnt* is one of her important works, which can be considered a representative of Zhang Ailing's early style (Xv, 2020). The novel portrays the story of a naive girl, Ge Weilong, who gets lost in the ostentatious Hong Kong city and

ends up in prostitution. Scholars have interpreted the novel in terms of linguistic style (Li, 2016), text structure (Wang, 2007), and literary devices (He, 2006). Some scholars were also attracted by its rich themes and vivid characteristics of the characters and tried to interpret the novel through literary comparison (Zhu, 2013). However, the aspect of psychological literary analysis of the novel has been rarely discussed. Particularly, there seems to be a dearth of literature on how self-deception is reflected in the novel under scrutiny. It is this gap regarding self-deception that this study tried to fill. Based on Miles' (2017) taxonomy of research gaps, the researchers identified an apparent knowledge gap in the prior research concerning the aspect of psychological analysis of *The First Incense Burnt*. In addition, prior studies (e.g., Lin, 2019; Zhan, 2007; Zhu, 2013) did not address the subject of the characters' psyche of self-deception.

Considering Fingarette's (1969) notion of self-deception, the self-deceptive psychology of the protagonist in *The First Incense Burnt* was explored to better understand the hidden factors of the character's tragedy. This study probed how self-deception and its forms are manifested in *The First Incense Burnt* through analyzing the main character's speech, thoughts, and behavior on the basis of Burton's (2019), O'Connor's (2019), and Fingarette's (1969) notions of self-deception. Specifically, it aims to answer the following questions: (1) What forms of self-deception are manifested in the novel, and how are these forms of self-deception reflected?

(2) Utilizing Fingarette's notion of self-deception, what other forms of self-deception can be extracted from the novel?

Methodology

This section presents the research design, data source and collection, and data analysis employed in this study. It also discusses the scope and limitations of the study.

Research Design

This research employed qualitative content analysis. Bhandari (2020) defined qualitative research as a process that involves the collection and analysis of data, which is not numerical in nature, with the aim of enhancing understanding of concepts, perspectives, or experiences.

There is a scarcity of a specific research design for literary studies since literary research methods tend to differ from research methods in the hard sciences (such as physics and chemistry). In literary research, the focus frequently revolves around inquiries regarding meaning, social norms, depictions of real-life encounters, and artistic impacts. These inquiries encourage dialogue and diverse perspectives rather than relying on a single definitive experiment to resolve the matter. Therefore, literary research usually involves a combination of methods such as archival research, discourse analysis, and qualitative research methods (Mauer & Venecek, 2021). As a result, the data analysis for literary research somewhat functions as a research design for this paper.

Data Source and Collection

The researchers chose the novel *The First Incense Burnt* as the main data source because of the following merits: (1) it is a novel/novella that tackles the theme of self-deception and has enough description and depiction of the protagonist's mental activities and behavior; (2) it is a modernist work—the kind of literature that delves extensively into the realms of psychology, particularly the unconscious, to uncover the vulnerabilities of human nature—written by Chinese famous writer Zhang Ailing; and (3) it has been discussed by many scholars and has a good foundation in research, making it valuable to researchers.

To collect the data for decoding forms of self-deception reflected in the novel, the researchers used close reading, note-taking, and reading memos. These reading and noting techniques are all part of the process of extracting information from the novel.

Data Analysis

The data gathered for this study was analyzed using a directed approach to content analysis. This approach provides predictions about the variables of interest or about the relationships among variables, thus helping to determine the initial coding scheme or the relationships between codes (Mayring, 2000). Additionally, content analysis using a directed approach is guided by a structured process (Hickey & Kipping, 1996).

In this study, the steps of data analysis proposed by Hsieh and Shannon (2005) were utilized. First, key concepts as initial coding categories based on existing theory or prior research were identified. In this study, Fingarette's (1969), Burton's (2019), and O'Connor's (2019) notions and forms of self-deception served as an initial framework to identify forms of the character's self-deception in the novel, *The First Incense Burnt*. Second, the operational definition for each category using the theory was determined. The researchers determined operational definitions of forms of self-deception such as minimization, denial, rationalization, etc., which are identified in O'Connor's (2019) and Burton's (2019) accounts of self-deception. Third, coding was started by reading the transcript and highlighting the texts. The researchers coded by perusing the English translation of the novel and highlighting texts that appeared to describe the character's self-deception. Fourth, all highlighted passages were coded using predetermined codes or given new codes if they did not belong to any predetermined codes. The researchers coded highlighted text into different forms of self-deception, and the text that could not be coded into one of these categories was marked with a new code. Last, existing theory or prior research was used as a guide in the discussion of the findings. The researchers explored forms of the character's self-deception based on Burton's (2019) and O'Connor's (2019) concepts through analyzing the description of the character's behavior and speech. Moreover, the researchers went further

and extracted another form of self-deception in the novel based on Fingarette's notion of self-deception.

Scope and Limitations

This paper aimed to explore the various forms of self-deception the main character exhibited on the basis of Fingarette's (1969) notion of self-deception and Burton's (2019) and O'Connor's (2019) forms of self-deception. Fingarette (1969) offers a view of self-deception that is suitable for a literary analysis of this phenomenon. In addition, Burton's (2019) and O'Connor's (2019) accounts helped the researchers define various forms of the character's self-deception from an observer's perspective.

The researchers' original intent was to investigate different characters in the novel. During the process of data collection, the analysis was finally centered on the protagonist, Ge Weilong. This decision was made due to a lack of narration to identify other characters' self-deception. In the novel, Weilong is the only person who has a lengthy description of her thoughts, behavior, and speech. There is not enough evidence in the narration of *The First Incense Burnt* that can support the identification of other characters' self-deception.

Another limitation of this study is the assumption that only one can identify the self-deception of the subject. This idea neglects both the narrator's capacity to manipulate language and the reliance of the narrator on these manipulations. The readers of the story, the audience of oral narratives, and even experimental psychologists who investigate self-deception using scientific tools cannot transcend the borders of language and the relation between language and behavior on which their interpretation rests. Therefore, as Marcus (2006) believes, it is in principle impossible to determine the privileged locus for identifying self-deception, nor is this simply a matter of overcoming a conceptual or empirical obstacle. This implies that the interpretation of self-deception in the novel *The First Incense Burnt* was

only based on the researchers' comprehension of the text of the novel and the theoretical frameworks this study is anchored on.

It is also worth noting that an electronic copy of the English translation of the original novel was used as the data source. Hence, it is possible for some cultural nuances to have been missed or lost in the process of translation. Finally, Fingarette's theory of self-deception is rarely used in literary analysis. This dearth in the utilization of Fingarette's theory in this field led the researchers to rely mainly on existing online resources and adapt patterns of text analysis from other literary studies.

Results and Discussion

This section presents the results, interpretation, and implications of the findings of the study from Zhang Ailing's novel, *The First Incense Burnt*. Through content analysis, a discussion of findings answering the research questions is presented, including the conclusion and recommendations drawn from the findings of the study.

Forms of Self-Deception Manifested in the Novel

By examining the text carefully, the researchers analyzed the description of the character's speech and behavior and identified seven forms of self-deception that manifested in the protagonist's psyche. These forms of self-deception that are reflected by Ge Weilong include denial, repression, rationalization, projection, doublethink, minimization, and procrastination. In some situations, various forms of self-deception could also be reflected in the same text of the novel.

Denial

Denial occurs when a person allows themselves to hold incorrect or unsubstantiated ideas (Styx, 2022). It is a type of defense mechanism used to reduce tension by ignoring or rejecting the reality of a situation (Cherry, 2022). It is a way for individuals to cope with difficult emotions or situations by refusing to acknowledge the truth of the matter.

Weilong's behavior in certain situations can be seen as an example of denial in action.

First, Weilong refused to acknowledge her own abilities and potential. Instead, she exhibited a lack of confidence in her abilities and was uncertain about whether pursuing education and a future job was the best path for her. "*She no longer was the simple girl she'd once been. Go to school, then go out and get a job; perhaps this wasn't the best path for someone like her—pretty, but without much ability*" (p. 59). Despite being a young person brimming with potential, Weilong hesitated to acknowledge her abilities and was afraid to confront the consequences of her previous actions.

Another instance that revealed Weilong's denial of reality was her decision to stay with George despite knowing his character and George expressing his true nature as well. In fact, George was fully aware of his negative qualities and told Weilong, "*Someday you'll have to admit that I'm despicable. When that happens, you'll regret having sacrificed so much for me. Who knows—maybe you'll be so enraged you'll murder me! It scares me, I tell you!*" (p. 64). However, Weilong refused to admit the reality of George's character. Her response to George was to tell him that she loved him. "*I love you, so I'm not going to blame you for anything*" (p. 64). Her response suggests that she is in a state of denial, where she is actively avoiding the reality of the situation to preserve her positive image of George and the relationship.

Repression

Repression is defined by Freud (1937) as the act of consciously disregarding and preventing something from entering one's awareness. As a result, it is linked to a diminished recollection of distressing or prohibited thoughts, impacts, and desires (Kessler et al., 2017). For Weilong, it is her way to decrease conflict and guilt within herself when she faces her immoral desires, such as her vanity and sexual urges, and her negative self, who continuously pines for impossible love from George.

Weilong's repression is closely related to her growth environment. Weilong's family is a traditional middle-class Shanghai family. Although Weilong was pampered by her family, she had never seen the outside world. When she had a glimpse of her Aunt Liang's luxurious life, she felt self-aware, so she laid off the old servant who was tasked to take care of her by her family because she *"realized that this longtime servant was not at all presentable"* (p. 19). On the way back home after visiting Aunt Liang, Weilong felt "slightly dazed" (p. 17).

A symbol used to imply Weilong's desire and ambition is presented in this text: *"A pale phoenix with a plump white breast had alighted somewhere along the winding road ahead and was nesting in the forking tree"* (p. 17). This image in Chinese culture refers to a poor woman who gets a precious opportunity to be rich and live a better life. In the story, Weilong found a chance to change her fate through Aunt Liang, and her suppressed desires in her conservative family life were triggered by the new world. The life in Aunt Liang's house is full of new things—pretty dresses she never saw before, attention from the young men of Hong Kong's upper class, and extravagant parties—which attracted her to the life in Hong Kong.

Boag (2007) argued that repression refers to the case of both desiring and not desiring some state of affairs. Weilong struggles with this dilemma. On the one hand, the new lifestyle and ideas of Hong Kong society have evoked her desires and vanity; on the other hand, she refuses to accept that she has been assimilated into Aunt Liang's world. In other words, life in Hong Kong satisfies her physical yearnings, but she is afraid to face her negative self, who is easily addicted to a life of indulgence. Aunt Liang is the kind of person who makes Weilong's family feel ashamed since she married an old, rich trader as his fourth concubine. Because of this, the relationship between her and Weilong's family has been distant. On this point, it can be inferred that Weilong's family is conservative and upholds traditional social values and principles. Therefore,

in her family's view, chastity and reputation are the most important things for women. Her family's influence on her beliefs is so significant that she just cannot cast off the yoke of her conscience.

Rationalization

For this form of self-deception, Weilong rationalizes difficult or disagreeable sentiments with seemingly reasonable arguments and justifications. Rationalization occurred when Weilong justified her wrong behavior by making up beliefs that made the wrong action rational (Cushman, 2020).

At the beginning of the story, the author had already dropped a hint about Weilong's tragedy. When Weilong, a normal Shanghai girl, was first introduced into Aunt Liang's life, she was astonished and felt curious about Liang's opulent lifestyle; contradictorily, she looked down on Aunt Liang's self-indulgent life. When she was allowed to stay in Aunt Liang's white mansion, she looked back at the mansion on the way home, and she felt

like one of those young students in Pu Songling's old ghost stories, the kind who goes up a mountain to see a relative and then, on the homeward journey, looks back at the mansion and finds it has become a grave mound, and she thinks she is charging straight into the devil's lair. (p. 17)

Both the grave mound and the devil's lair symbolize a sinful world that is full of temptations and enticements that can swallow up innocent people. Obviously, Weilong already had a clear picture of how she would be tempted, but she still chose to fall into the trap of money and luxury. She persuaded herself with an excuse: *"I keep on my best behavior. If others want to talk, let them talk—I'll just concentrate on my studies"* (p. 17). Thus, she took the first step to her final degeneration.

Since Weilong was treated as a little princess in her family, she knew very little of the world; however, she nurtured high ambitions for herself, especially after tasting the sweetness of being a social butterfly

under Aunt Liang's packaging. Consequently, when she met the rich, handsome dandy, George Qiao, who is a master at flirting, she fell in love, in spite of Glint's warning regarding George's character. In her relationship with George, Weilong always felt humbled. She easily surrendered herself to George, even though George had no plans to marry her. She knew clearly that she could not be George's only one, yet she still entertained illusions of George. The following statement describes Weilong's psyche of self-deception:

He'd said many tender things, but never that he loved her. And yet now she knew that George did love her. . . . But her self-respect had sunk so low that she was easily satisfied. Tonight, George had loved her. The memory of this little happiness was all hers; no one could take it away. (p. 49)

She tried to rationalize her premarital sex with George and convinced herself that George loved her indeed. Moreover, Weilong started to convince herself that "George was always right" and that "people who marry for love are as foolish as the man with the cloud-filled jars" (p. 50).

Projection

Projection refers to an individual attributing unwanted thoughts, feelings, and motives to another person (Freud, 1937). In Weilong's case, she projected her own unacceptable thoughts to George, which are true of herself. McLeod (2023) explains an example of projection in that a person might hate someone, but his or her superego tells himself or herself that such hatred is unacceptable. That person can't solve the problem by believing that he or she hates himself or herself.

An example of Weilong's projection occurred when Weilong and her husband George were walking in the New Year market. "George suddenly cried out. 'You're on fire!'" (p. 64). George found that the sparks of firecrackers ignited Weilong's dress. Weilong thought George was "tricking (her)

again," but later found that her dress was truly on fire. Weilong's initial response seemed to imply that George tricked her often. George's answer was so straightforward; he said, "It's true, Weilong; I love to tell a lie, but I've never lied to you. Even I don't quite understand it" (p. 64). Weilong knew this point clearly. George never cheated her, despite knowing very well that a tiny little lie could make her very happy, but he refused. George's next words revealed the true self of Weilong: "You don't need me to lie to you. You lead yourself on, all by yourself. Someday you'll have to admit that I'm despicable" (p. 64).

Ironically, the one who is always cheating Weilong is Weilong herself. She was deceiving herself, and she hoped George could also be untrue to her and tell her that he loves her, even if it is a lie, because she had no courage to accept that without George's love, all her sacrifices as a prostitute and earning money for George are meaningless.

Doublethink

Doublethink is defined by O'Connor (2019) as a type of self-deception that involves the capacity to hold and practice contradicting ideas. Orwell (1984) also mentioned doublethink as the act of simultaneously believing and holding two opposing, mutually incompatible concepts or beliefs. Fingarette's idea of self-deception states that if a person has done something bad or shameful, he will take responsibility for the conduct of his action; nevertheless, he would avoid concentrating his attention on the shameful component since the specific guilt is profoundly damaging to him. In other words, a person may recognize shame in words without truly paying attention to the content of what makes the conduct shameful (Fingarette, 1998).

Weilong's deliberate self-deception of doublethink was prominently described by Ailing in this text:

As for me, Weilong thought, here I am charging straight into the devil's lair. Whose

fault will it be if I get caught in a trap? Then again, we are, after all, aunt and niece, and she's got to consider appearances. She'll treat me properly, so long as I keep up my best behavior. (p. 17).

Based on the given text, Weilong was aware of the consequences of the action and decision she was going to take; still, she sought to delude herself by instilling in herself the positive notion that she wanted to believe. In his novel *Nineteen Eighty-Four*, Orwell (1984) explains that doublethink is “to know and not to know, to be conscious of complete truthfulness while telling carefully constructed lies” (p. 34). In other words, Weilong directed her mind to the less hurtful thought when she tried to believe that her aunt would treat her properly and would not ask her to sacrifice her body, even though she knew that she was “charging straight into the devil's lair” (p. 17), which represents her aunt as a devil, and a devil would not be kind to anyone. This means that Weilong would not get proper treatment from Aunt Liang, despite the fact that she is her own aunt. Additionally, she also believed that she would meet someone who would love her despite her bad reputation. Simply put, Weilong held two contradictory beliefs and accepted both as true. Despite knowing the truth, she chose to ignore it and hold onto the false belief just to maintain a sense of hope and self-worth.

Minimization

Minimization is when a person acknowledges the truth but tries to justify their behavior as acceptable (Wessel, 2016). It also includes lessening the importance or scope of the situation (O'Connor, 2019).

The novel showed conduct that portrays minimization when Aunt Liang gave Weilong a speech regarding her reputation after engaging in a premarital affair with George, in that she was no longer valuable in the marriage market. Despite being aware of the impropriety of her actions,

Weilong appeared to have accepted and made peace with her decisions, which may indicate that she is downplaying the negative impact of her behavior on her future. “*You're in a fix, and you've done it to yourself! Here you are all grown up, but you behave like a child; pay no attention to your own reputation—how are you going to face others now?*” (p. 54). Weilong minimized the seriousness of her action by convincing herself that it was a common mistake for young people to make in order to avoid feeling guilty and ashamed. She refused to accept that her actions had taken innocence and instead minimized the significance of the situation. By providing reasons and justifications for her behavior, Weilong attempted to reduce the gravity of her actions and avoid taking full responsibility for her choices. This behavior of minimizing her actions may be a sign of her desire to maintain her self-image and avoid the shame and stigma associated with her actions.

Such acts of self-deception are a common defense mechanism used by people who are uncomfortable with the consequences of their actions. “*Aunt must forgive me, she replied. I'm still young and immature. Maybe, just maybe, when I'm Aunt's age, I'll know how to fall in love with elegance and flair!*” (pp. 54–55). Here, Weilong engages in an “appeal to emotion” error when she seeks to downplay the seriousness of her acts. Weilong's actions serve as an illustration of the minimizing form of deception. Although she recognizes that her behavior is unacceptable, she strives to make things appear acceptable. In doing so, she is letting her feelings affect her judgment and defying logic. This kind of conduct is destructive since it results in a lack of personal accountability for one's actions.

Procrastination

Procrastination refers to the mindset and behavior of an individual who intentionally postpones tasks that they are fully aware they should be doing at the moment. In the novel,

Weilong has procrastinated leaving her aunt's place when she knew she should have done it long ago. She knew very well that her aunt would ask her to sacrifice something of herself to please an old man, as reflected in the following excerpt:

No doubt this wasn't the first time that Madame Liang sacrificed a girl in order to please Situ Xie. And Madame Liang would be sure to require other sacrifices from her as well. The only way to refuse would be to leave the house altogether. (p. 44)

Despite Weilong's awareness of the possible consequences of her staying at her aunt's place, she lingered. When one delays acting on one's moral beliefs, such conviction often deteriorates or even fades in time. Procrastination will lead the belief to weaken or even entirely disappear if one postpones action long enough (TenElshof, 2010). In the same way, Weilong encountered a situation that required her to act instantly, but she chose to linger. Therefore, she ended up staying with her aunt instead of leaving her house.

"Weilong was smitten with doubt—could she have fallen ill on purpose? Was she unconsciously unwilling to go home, seeking to delay her return? It was easy enough to say that she'd go back, become a new person, start a new life, and so on; but she no longer was the simple girl she'd once been. (p. 59)

Weilong questioned herself about why she was delaying her trip home. She recognized the allure that holds her back from going home in that she is no longer the simple and conservative girl she used to be, the kind of girl her parents knew. Weilong was aware of the cost of staying, but her desire and longing to belong to the world of her aunt prevented her from escaping and running towards home. Her predicament led her to delay and procrastinate making a decisive choice for her future. Radwan (n.d.) explains that people choose inaction when

caught in a dilemma where they are hesitant to do something but at the same time are also pressured to do it.

Other Forms of Self-Deception Extracted from the Novel

Utilizing Fingarette's (1969) notion of self-deception, the researchers only extracted one form of self-deception from the novel. This form of self-deception is disintegration. By analyzing the novel, the researchers found that disintegration was reflected by the protagonist, Ge Weilong. According to Fingarette (1969), self-deception is a crisis of identity since it is a motivated strategy by which one is unable to face one's disintegrity. In other words, the self-deceiver breaks down the integration of self because the person refuses to spell out an engagement, which is the way a person is involved in the world that they find threatening to their self-image, "for to avow it would lead to intensely disruptive, distressing consequences as to be unmanageable to the person" (Fingarette, 1969, p. 87). Simply put, people deceive themselves to protect themselves from apparent harm

This point of view provides an explanation to describe Weilong's self-deception. Fingarette (1969) finds "the self" to be fundamentally a developmental notion. The self is as much made as it is found—an "integration" of inclinations, aims or values, and practical engagements. Similarly, Erikson (1994) believes that the identity of an individual is formed during a long struggle. The disintegration of the physical self, personality, potential roles, and occupations often occurs in the period that Erikson (1970) defined as the fidelity stage (identity vs. role confusion, 11–19 years old). In this stage, adolescents become curious about the roles they will play in the adult world as they transition from childhood to adulthood. During this stage, adolescents encounter a multitude of inquiries, conflicting expectations, and thoughts that compel them to confront various conflicts. These conflicts predominantly arise due to physical,

mental, social, psychological, emotional, and familial changes (Elsayed, 2021). In the novel, Ge Weilong, a high school girl, is exactly experiencing the fidelity stage. At this stage, she is standing at the crossroads of life and facing many choices, which means she is in the process of exploring her future identity. For Weilong, staying with Aunt Liang would be a good opportunity to discover her value and have a chance at a better life. However, life in Hong Kong also becomes the main source of Weilong's inner conflicts.

The original intention that motivated Weilong to stay with Aunt Liang was for her to continue her studies in Hong Kong. She thought if she just concentrated on her studies, the rumors brought about by her aunt's bad reputation would not plague her. *"I worked very hard for this chance to study, so now I have to do a good job and get respectable grades"* (p. 27). It is not hard to imagine that Weilong will become a promising intellectual if she successfully enters university and finishes her studies in Hong Kong. But life in Hong Kong is challenging her understanding of her identity, values, and the kind of person she wants to be.

In Hong Kong's high society, under the packaging of gorgeous clothes and jewelry, Weilong discovered her new "value," which she had never imagined before. She smiles, and there are rich men catching up to make acquaintances with her. Her beauty and her talents in singing and piano can be exchanged for money. She felt she was not that naive, rustic-styled girl anymore. However, behind the life of luxury and indulgence she has set foot on was her struggle and self-loathing. Her conscience and morals, which developed from her traditional family environment, remind her that what she is doing is dealing with the devil. Meanwhile, people around her in Hong Kong continually insinuate that she can obtain success through wealthy attachments. Even Glint, her aunt's servant, also knew this social rule as she persuaded Weilong to *"use all these social occasions to look around and find someone who'll be right for [her]"* (p. 27). This

thought had gradually engulfed Weilong. She then started doubting her future and fell into confusion about her identity. She thought a beautiful but normal girl like her had no way out if she would only study hard.

Schultz & Schultz (2009) explained that adolescents undergoing an identity crisis may struggle to make decisive choices about their future. In some cases, they may even engage in negative behaviors like criminal activities or substance abuse. This can stem from their perception that having a negative identity is more acceptable than having no identity at all. In Weilong's case, she chose to be married to George, thinking that she would escape a future like her Aunt Liang's, but ironically, she ended up becoming another Aunt Liang, who was infamous in the upper class as someone who had various attachments and acquaintances with rich men. Despite Weilong's decision to marry to receive love and belongingness, she never truly had a man who loved her and ended up being an outsider in the upper class.

In this paper, the researchers analyze how self-deception, a common psychological phenomenon, was reflected in Zhang Ailing's novel *The First Incense Burnt*. In the analysis of the character's self-deception, the researchers provided a new perspective to interpret the story—to decode the character's behavior and her speech through a psychological lens.

The analysis revealed the negative aspect of Weilong's self-deception. All seven forms of self-deception that Ge Weilong engaged in reflected her refusal to face her true self and withdraw from her fantasies. Meanwhile, such self-deceptions also embodied Ge Weilong's self-convincing and inner conflicts and struggles. Her self-deception ultimately led to her tragedy since it caused her to fail to admit her weakness, overcome temptations, and ultimately leave Hong Kong and turn back to a simple life. In the process of self-deceiving, Weilong gradually lowered her moral standards and became another Aunt Liang, whom she once disdained. Not

only did she lose her promising future, but she also lost her identity and direction in life when she later turned to prostitution for her existence.

In a sense, Ge Weilong's self-deception showed her own weakness—her vanity and desires. On the other hand, her self-deception could also be her coping mechanism to protect or comfort herself in a loveless marriage or in a money-worshipping patriarchy. In conclusion, Weilong's tragedy is not merely attributed to her self-deception but also to the abnormal social values and norms she was exposed to and her lack of spiritual support and guidance.

The study of self-deception in Zhang Ailing's novel *The First Incense Burnt* shows the negative effect of self-deception. Although Zhang Ailing's novel is fictional, the main character's experiences mirror several youths' desires and experiences, as well as the temptations they face. Weilong's confusion about her values and life could also be the same dilemma Gen Zs face nowadays. Therefore, it is recommended that readers and youth are given support to develop self-awareness through honesty and acceptance of their authentic selves. Guidance should also be provided for them to practice ethical behavior to mitigate the effects of self-deception.

Moreover, on the basis of this study, the following recommendations for the further research of the novel are given: (1) explore the ways in which the novel engages with the idea of gender and self-deception; (2) consider the ways in which self-deception is related to other themes in the novel, such as love, power, and betrayal to analyze how these themes intersect with self-deception, and how Zhang Ailing uses these connections to comment on human relationships and behavior; (3) investigate the significance of the novel's setting, both in terms of its physical location (Shanghai) and its historical context (the 1930s; and (4) consider the reception of *The First Incense Burnt* both in China and internationally to find out how the novel has been interpreted and received by different audiences, and what this says about the cultural and historical context in which it was written.

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High School Students' Awareness on Natural Disaster Preparedness

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Natural disasters pose significant threats to communities worldwide, affecting lives, homes, and infrastructure. In the face of such calamities, preparedness becomes paramount in mitigating their impact and ensuring the safety of individuals, particularly students who are vulnerable members of society. An essential aspect of ensuring students' safety in such situations is the assessment of their preparation for natural disasters. The researchers wanted to help these students by conducting a study to assess their preparedness for natural disasters. This descriptive design study was conducted among 203 high school students using stratified random sampling. In summary, the study investigated the preparedness of high school students for natural disasters. It found that 42.40% of the respondents were highly aware of natural disaster preparedness, and many had experienced a natural disaster, which could contribute to their preparedness. The study also noted that there was no significant difference in awareness when considering the gender of the students. Furthermore, a majority of the students expressed an interest in gaining more knowledge to reduce danger in their lives. The researchers recommended using social media to raise awareness and suggested additional programs and activities such as first aid and survival training, drills, poster-making, and anxiety management to enhance disaster preparedness not only for high school students but for everyone in the community. Overall, the study underscores the importance of preparedness in mitigating the impact of natural disasters on communities, with a focus on the vulnerability and readiness of high school students.

Keywords: *awareness, natural disaster preparedness, practical things to do during natural disaster*

Disasters caused by nature that occur in any part of the world may pose a threat to human safety and livelihood. Natural disasters have always had a negative impact on society. They cause disruption in people's lives, devastate infrastructure, and leave behind effects that can persist for several months. Each of these elements has a unique impact on the world economy. There was an estimated \$3 trillion in global economic loss from natural disasters between 2000 and 2017 alone. Nonetheless, some nations are more susceptible to natural disasters than others due to differences in their geographic locations. For instance, the UK frequently experiences flooding, Chile and New Zealand earthquakes, and heatwaves and droughts in Africa and South America. These occurrences are unavoidable (Mo, 2018).

The Philippines is included in the Pacific Ring of Fire. Typhoons frequently hit the country from June to December each year. These catastrophes made the Philippines vulnerable to natural disasters. Moreover, being aware of these phenomena helps people prepare, especially vulnerable groups (Nurvianti et al., 2021). Although 83 percent of Filipinos reported having emergency planning with their families, 31 percent of Filipinos are either partially or entirely unprepared for it (Bollettino et al., 2016).

A natural disaster is the presence of a natural hazard that significantly damages a society (Prasad & Francescutti, 2017). The abnormal intensity of a natural agent, such as a typhoon, earthquake, or volcanic eruption, classifies it. Typhoons can result in flooding caused by their heavy rains (Zehnder, 2022). On the other hand, according to the National Park Service (2022), a volcanic eruption is identified as releasing gases, rock fragments, and molten lava through a vent onto the Earth's surface or into the atmosphere. Its lahars can bury a town, and its ash is composed of sharp rock pieces that can irritate or induce chest pain (Mueller et al., 2020). Lastly, an earthquake is known as the movement of the ground that is caused by the rapid release of energy that has been stored in the earth's crust. This occurrence is primarily present at the fault line.

Moreover, the aftereffects of natural disasters, such as landslides, tsunamis, and collapsed structures, can cause fatalities and chaos (Bolt, 2019). Natural disasters of all kinds lead to the loss of life. These calamities disrupt property loss, physical injury and mortality, psychological distress, displacement of people and their families, and ongoing damage to a wide range of services that communities rely on (Morganstein & Ursano, 2020).

Preparing for such disasters would help prevent destruction, death, and injury. Disaster preparedness aims to provide knowledge among individuals and groups to take action to reduce their vulnerability to disasters. During the last decades, the issue of trained people being prepared for disasters and responding well has been extensively investigated (Togani et al., 2019).

While conducting this research, researchers have discovered why people know about emergency kits but never seem to have one prepared. This is a relatively simple question, but no one seems to have an answer to prove this point further; only 38 percent of individuals in the autonomous region of Muslim Mindanao, Philippines, have medical kits due to insufficient funds (Balinbin, 2019). According to Bollettino et al. (2018), only 20 percent of Filipinos have a go bag.

On an international scale, two-thirds of Americans say they are not entirely ready for future natural catastrophes, and many say they need more essential supplies. The top three items that consumers lack are radios (45%), emergency evacuation packs (68%), and generators (73%). Westerners feel least prepared overall, whereas Southerners feel the most prepared (Maggie Davis, 2022).

Moreover, the theories and models used to prepare for disasters and crises provided solid data that may direct public health experts, disaster management organizations, and other factors in focusing interventions at the readiness phase of disaster management and emergencies (Ejeta et al., 2015).

This study utilizes the social cognitive approach, which contends that a person's behavior may be explained in terms of both personal and environmental elements rather than being simply controlled by inner or external inputs (Bandura, 1978). According to a study that used social cognitive theory on the topic of disaster preparedness, people's motivation to do so depends on their cognitive and emotional responses to a natural threat (Lee & Lemyre, 2009). When people are motivated, their self-efficacy and outcome expectations serve as the foundation for their preparation intent (Espina & Teng-Calleja, 2015).

To inform students about disaster preparations, the researchers conducted this study to discover more about high school students' knowledge of disaster preparation. Internationally, there are numerous studies on high school student readiness, but just a few in the Philippines.

Adding a piece of knowledge will help improve studies of natural disaster preparedness in the Philippines. As a result, the researchers wish to determine whether high school students have knowledge of how to prepare for disasters. According to the World Risk Index (WRI), which gauges countries' disaster risk from catastrophic natural events and the consequences of climate change, the Philippines has the highest disaster risk among 193 nations worldwide as of October 2022 (Rita, 2022).

Hence, the primary objective of this study is to identify whether high school students are prepared for natural disasters, which will also support establishing plans and activities for disaster awareness.

Methodology

Research Design

This study is a non-experimental quantitative approach that uses a descriptive research design to determine high school student's knowledge of natural disasters. According to McCombes (2019), the descriptive approach thoroughly describes a

group of people, a circumstance, or a phenomenon. As a result, this will make it easier to recognize and explain the traits that affect students' level of readiness for natural disasters.

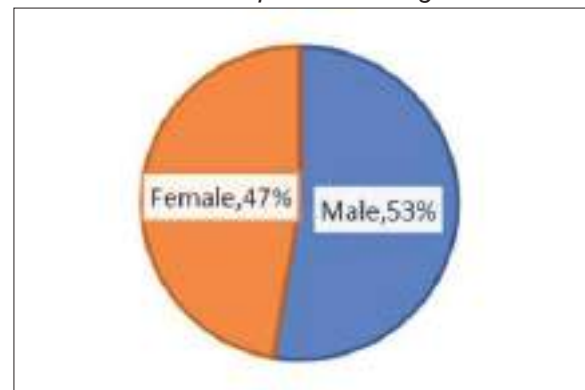
Population and Sampling Techniques

The respondents of the study are both junior and senior high school students of Adventist University of the Philippines that are enrolled in face-to-face classes during the school year 2022-2023. This gives a total population of 647 high school students from grades 7 to 12, including the online students. The study used a combination of stratified and simple random sampling techniques. Thirty percent of respondents are selected randomly from every grade level and divided by their sex. It is said that populations less than 1,000 recommend a minimum of 30 percent. Therefore, 203 students are the total participants in this study. This is to guarantee the typical sample size. The use of this sampling will improve the likelihood of representativeness and ensure that the sample contains the same proportions of the population's major features (Fraenkel et al., 2012).

Figure 1 presents a detailed breakdown of participant distribution according to their gender. It is apparent that the study has a greater representation of female participants, accounting for 47%, or 95, of the total, with the remaining 53%, or 108, being male participants.

Figure 1

Distribution of Participant according to their Sex



Instrumentation

The researchers prepared a self-constructed questionnaire guided by the readings of different publications related to the study. The questionnaire is composed of evaluation questions that can be answered correctly or incorrectly to identify the level of knowledge of the respondents on natural disaster preparedness. To know the extent of their preparation, questions answerable by yes or no are also prepared by the researchers. To enhance the result of the study, three open-ended questions were prepared by the researchers. The questionnaire has gone through validity and reliability testing with the help of experts in different fields of study.

Ethical Considerations

The prepared consent form was submitted to the AUP Ethical Research Board (ERB) and was approved to conduct the study's procedures. Ethical concerns were observed, including the intent of the study, its objectives, and the non-disclosure of the responses of the participants. A cover letter was attached to the online survey, explaining the purpose of the study and giving participants the discretion to withdraw from it at any time they wanted. This study ensured anonymity and confidentiality.

Analysis of Data

The data obtained was used to identify and classify the respondents' profiles and level of preparedness for natural disasters using

descriptive statistics of frequency, mean, and standard deviation. Furthermore, a t-test was applied to determine whether there was a significant difference in students' preparedness when their sex was considered.

Results and Discussion

Students' Natural Disaster Preparedness

Table 1 shows the results of the overall level of preparedness for natural disasters among the respondents. The largest percentage of students, 42.40% (86), got a score of 12 to 15 in evaluation questions on knowledge about natural disaster preparedness and were categorized as *highly prepared*, followed by 26.60% (54) who were *moderately prepared* with a score of 8 to 11 in evaluation questions, and 18.20% (37) got the top scores of 16 to 19 in evaluation questions, who were *extremely prepared*. This suggests that people tend to become more prepared for disasters after experiencing them. This finding is consistent with the responses of the students, who expressed a willingness to gain personal knowledge about disasters.

Having experienced and survived a disaster may raise awareness of its potential for destruction, highlight the advantages of planning ahead and leaving early, and improve knowledge of how to recover in its aftermath and prepare for future disaster threats (Sattler et al., 2000). This then promotes a similar increase in preparatory behavior.

Table 1

Students' Level of Preparedness

Rating Scale (Score)	Frequency (N =203)	Percentage	Verbal Interpretation
16 - 19	37	18.20	Extremely Prepared
12 -15	86	42.40	Highly Prepared
8 - 11	54	26.60	Moderately Prepared
4 -7	22	10.80	Poorly Prepared
1 - 3	4	2.00	Not Prepared

Furthermore, people are likely to be more prepared for disasters if they have suffered greater losses in earlier disasters. This supports the findings of Takao et al. (2004) that preparedness is determined by the level of damage incurred in prior disasters. This might be because traumatic experiences like being hurt personally or by a family member, losing a loved one, or suffering material losses create a lasting impression on people's thoughts. These incidents appear to serve as reminders of the dangers of inadequate catastrophe preparedness (Espina & Teng-Calleja, 2015).

Meanwhile, Figure 2 shows every answer of the respondents to follow-up questions regarding the extent of their preparedness for a natural disaster, which is answerable by yes or no. The majority of

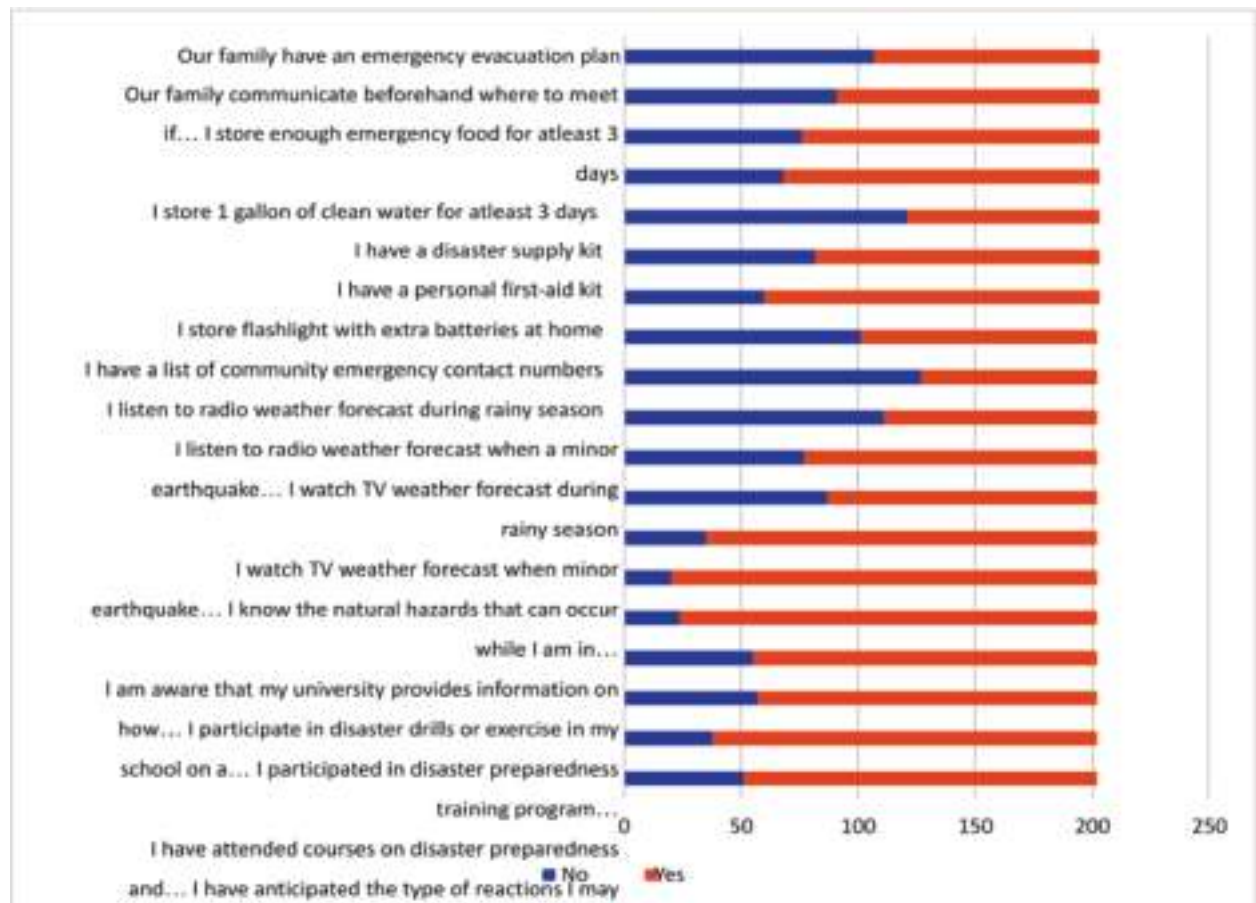
the respondents do not have a disaster supply kit and do not use radio as their medium to be informed and updated when a natural disaster strikes. This is because most of the students use social media and gadgets as a way of being informed.

Students are aware that the school provides information on how to be prepared for natural disasters and other calamities. The students also participate in natural disaster drills and exercises.

However, Hugelius et al. (2019) state that these tools require an active internet service. Natural catastrophes frequently create severe outages in mobile and internet coverage, sometimes for an extended period. Furthermore, respondents also lack a family evacuation plan.

Figure 2

Participants' Natural Disaster Preparedness



Below are the answers of the respondents to the open-ended question. The first question asked was: *Are you interested in gaining more knowledge about disaster preparedness? Why?*

The findings resulted in two themes where the majority (176) of the students are interested in gaining more knowledge. The two themes are for them to include the application of knowledge and reducing the danger to human lives.

Theme 1: Application of knowledge. Respondents 130 and 143 both stated that it is important to become familiar with what to do in case of a natural disaster. Having a realistic awareness of natural disasters and their preparedness is another response from Respondent 31. They are willing to be better prepared and informed during natural disasters, which are the determining variables. Additionally, they want to learn more so that they will be prepared for similar disasters.

Respondent 130: "It helps me know more about the risks involved during a disaster." *Respondent 143:* "To help me be more prepared and learn some ways to prevent or if that disaster ever happens, I can know how to help others that are stranded or need help."

Respondent 31: "... to know what to do when this happens"?

Theme 2: Reducing danger to human lives. The need to defend oneself and one's family is another factor in their motivation to learn more. Protection of oneself and one's family is the main theme of respondents 24 and 34's responses. The responses of Respondents 64 and 138, which focus on preventing the loss of lives while Respondent 157 has an initiative to save lives, are connected.

Respondent 24: "Because I will know more about natural disasters and how to evacuate properly, so me and my family will be safe."

Respondent 34: "I am afraid of natural disasters, so I'll carefully learn it to save me and my family."

Respondent 64: "Because it can save myself or others."

Respondent 157: "To keep me safe and to be able to help others in case of emergencies."

Respondent 138: "This will contribute to my overall capabilities and increase the chance of my survivability."

Torani et al. (2019) suggest that educating vulnerable individuals about disasters is crucial based on available evidence. Various educational methods exist, but there is no consensus on which is superior. However, individuals who receive training are better equipped to protect themselves and others during disasters. To this end, designing comprehensive educational programs is necessary to prepare individuals to face disasters effectively. Additionally, another medical study shows that despite their lack of expertise in disaster preparedness, student nurses in a medical study were willing to offer their time and use their limited skills in the event of a disaster (Grimes et al., 2020).

The second question is: *Aside from the given evaluation survey above, can you give more suggestions on what to do just in case your home or school is prone to any of the natural disasters?* The different themes are developed in three parts. First, there are things to do when a natural disaster happens. The second is to enhance preparation. Lastly, gain enough knowledge.

Theme 1: Things to Do When a Natural Disaster Strikes. Respondents offered a variety of simple remedies for when disaster strikes at home or at school. Respondents 104 and 146 mention remaining calm and attentive in the face of a tragedy.

Respondent 104: "When a natural disaster is present in the area, we must remain calm."

Respondent 146: "Just always be alert and careful."

Any type of disaster can be incredibly stressful, and each person will react differently. Calamities can be difficult to handle. Support during the pre- and during-activity stages may be crucial to preventing and reducing the adverse impacts of stress and anxiety connected to disaster response.

For psychosocial assistance, promoting self-care while monitoring your stress levels may be essential (Umeda et al., 2020).

Theme 2: Enhance Preparedness. Respondent 132 asserted that it is preferable to inspect the building structures. Knowing which areas of the structure, home, or school are at risk for threats during a natural catastrophe (such as leaks and weak walls, etc.) will be beneficial. Respondent 110 makes the additional recommendation that placing an emergency kit in each classroom would increase the school's level of preparedness.

Respondent 132: "Look for any damages in the building."

Respondent 110: "It can be an advantage if each classroom could have an emergency kit and first aid."

According to Oklahoma State University (2023), home, building, and other structural damage may or may not be evident after an earthquake. Another piece of research from Hub (2017) shows that in hazard-prone locations, investments in climate-resilient buildings can save lives and money by preventing enough damage to pay for themselves in as little as two years. It is crucial to do a comprehensive inspection of your property, both inside and out, as soon as it is safe to do so. Students may sustain injuries as they leave the building or campus because of hazardous debris. Comprehensive emergency first aid kits that are simple to mobilize must be provided in schools.

Theme 3: Gaining Enough Knowledge Personally. Respondents 49 and 169 recommend doing their individual studies on natural catastrophes. Other respondents who gave similar answers stated that participating in other preparedness-related activities is one method to gain ignorance regarding preparing for future natural disasters.

Respondent 49: "Research things and information on what to do and apply them to myself."

Respondent 169: "Perhaps doing research on past events/disasters that have occurred in these areas would help solve my lack of preparedness."

According to Federal Emergency Management Agency, if a calamity should occur, every individual should be eager to take a preventive approach. This entails being aware of the calamities that are most likely to strike the neighborhood. It is crucial to have knowledge of the necessary steps to take before, during, and after a disaster to minimize its impact on one's life and property.

Lastly, the third question states: Can you suggest some programs that could help students enhance their awareness of natural disasters?

Drills and disaster preparedness programs may be improved, as several respondents noted, to maximize their effectiveness and students' motivation to take part. Respondents 78 and 92 ask that the presentation be made more entertaining and engaging. Three themes emerged from this: personal experience-building programs, using social media platforms, and additional programs and activities.

Theme 1: Programs that develop personal experiences. Other respondents solutions to this question where respondents 104, 188, and 145 stated to have a program with more engagement than discussion, while respondents 126 discussed having more hands-on practical activities. Meanwhile, the answers of respondents 26 and 13 show a more engaging program as learners learn some training skills that can be used in natural disasters.

Respondent 26: "My suggested programs will be preparing students for what to do if they get injured and how to use a first aid-kit."

Respondent 13: "I recommend on how they can survive floods, volcanic... if you are drowning in water because I know that the majority of the academy can't swim." Respondent 104: "Programs where there is a room assigned whenever we go there, there are activities or information that is about disaster preparedness/awareness."

Hoffmann and Muttarak (2017) propose that experience with disasters may have a similar effect on preparedness behavior as education.

For instance, awareness of hazards and perceptions of risks are closely linked to previous disaster experience. The same is true of having experience with drills and programs about disaster preparedness.

Illinois State University (n.d.) stated that the best way to develop skills related to emergency preparedness and response is through emergency drills and exercises. Exercise and drills are practical exercises that help people actively participate in learning while developing muscle memory.

Theme 2: Use of Social Media Platforms. Respondent 184 recommends that the program about disaster preparedness be advertised on social media as well. This can be yet another means of raising public awareness of natural disasters.

Respondent 184: "Programs to promote awareness through social media, as most youths are using those."

As per the Pew Research Center, 70% of Americans use social media to communicate with others, obtain news, and share information. Social media will keep expanding in popularity as a resource for the public for information during disasters as a result of its incorporation into people's daily lives (Mitcham et al., 2021).

Theme 3: Additional Programs and Activities. Respondent 157 mentioned including disaster awareness exercises or even drills as part of games in any extracurricular activity. In addition, respondent 72 says to include a poster about it. Respondent 90 also recommended including the students' families in the awareness programs and not just the students themselves. While respondents 157, 72, and 90 suggested adding a new hobby, respondent 30 suggested having a program that helps to lessen their anxiety or tension during a natural disaster.

Respondent 157: "Drill as part of the games (intrams)"

Respondent 72: "Posters made for natural disasters..."

Respondent 90: "A program that would educate

not only the students but their families as well regarding preparedness during natural disasters/calamities."

Respondent 33: "I want to suggest a program that can make or help students overcome their anxiety during a natural disaster."

DRR (Disaster Risk Reduction) is aimed at minimizing the impact of disasters on schools, as they play an important role in the safety of students. By preparing teachers and students for potential disasters, the impact of such disasters can be reduced. Moreover, when students pass on their knowledge to family members, it becomes widespread, and the community can prepare accordingly. For instance, a school activity can involve students listening to the disaster experiences of family members and neighbors. Such informal discussions can motivate students and parents to adopt risk adjustment behaviors (Ronan & Johnston, 2001).

The school program mentioned earlier also facilitates the transfer of knowledge from one generation to another. Karancı et al. (2005) conducted research and found that brief disaster preparedness training sessions can enhance individuals' motivation but do not lead to a lasting change in behavior. The study also indicated that education can reduce anxiety about potential disasters, and higher education levels are associated with lower levels of anxiety (Karancı et al., 2005).

Difference in Natural Disaster Preparedness when Sex is Considered

Table 1 shows that there is *no significant difference* in natural disaster preparedness [χ^2 ($n = 203$, $df = 4$) = 5.72, $p > .05$] when the sex of the respondents is considered. The result indicates that male and female students are both very highly prepared for natural disasters, with a count of 20 and 17, respectively.

Table 1*Difference in Natural Disaster Preparedness when Sex of the Respondents is Considered*

	Not Prepared	Poorly Prepared	Moderately Prepared	Highly Prepared	Very Highly Prepared	df	x ²	p	Verbal Interpretation
Male	0	14	27	46	20	4	5.72	0.21	Not Significant
Female	4	8	27	40	17				
Total	4	22	54	86	37				

Studies show that when respondents were divided into groups based on their level of awareness of disasters, there was a substantial difference. In comparison to men, women are far more vulnerable to disasters (Taghizaadeh & Ardalan, 2016; Tschakert et al., n.d.; Padernal & Borja, 2016). According to a 2013 Asian Development Bank report, women died at higher rates than men in Asia's worst disasters (Neupane, 2020). However, men and women are neither more nor less vulnerable to disasters based on sex or biological differences; rather, it is because of the social roles they play and how they should act (Padernal & Borja, 2016; Neupane, 2020).

Conclusions and Recommendations

The majority of the respondents have experienced a natural disaster, which concludes that they are more likely to be prepared for future disasters. For implementing disaster preparedness programs, it is preferable to make the lessons more interesting by having more engagement than discussions. Activities should help students increase their awareness, which will also boost their confidence in handling such disasters. Programs should also include learning to use first aid kits and teaching various tips on surviving floods, volcanic eruptions, and earthquakes. Earthquake drills should still be implemented on a regular basis or once every semester. By the end of the program, objectives and targets should be attained so that students gain more confidence in what to do during natural disasters and have more engagement than discussion.

To ensure the student's safety during a natural disaster, they must remain constantly vigilant and

well-prepared for potential disasters. This requires them to always maintain a state of readiness by staying informed about potential hazards, creating an emergency plan, and stocking up on essential supplies. By taking these proactive steps, students can better protect themselves and those around them in the event of a natural disaster.

Educational institutions must actively encourage students to be prepared for disasters. One effective approach to doing this is to include exercises in disaster preparedness, the creation of posters for natural disasters, and programs that teach students how to use emergency supplies and first aid kits. These exercises may help students gain knowledge and abilities that are useful in the event of a natural disaster. Different activities can be incorporated into the academic programs of educational institutions. Disaster drills replicate emergency situations, and creating posters increases awareness and encourages readiness. Programs that teach students how to use emergency and first aid kits give them valuable information. These programs ensure the protection of students during disasters.

More studies should investigate how prepared students are for disasters at various educational levels, from elementary to college. Such research would provide insight into levels of preparedness and how they change over time. Given their wide reach, social media platforms should be investigated as useful resources for promoting disaster readiness. Researchers can find effective ways to spread knowledge and encourage preparedness by looking at social media platforms for disaster preparedness.

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Presidential Search Process in Adventist Higher Education Institutions: An Appreciative Inquiry

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The presidential search process is a careful process for choosing the next college or university president. Unfortunately, limited research attention is given to understanding the formal selection process of leaders among Adventist HEIs. Grounded in the transformational leadership, learning organization, and person-organization fit theories, this study aimed to initiate transformational change in selecting, screening, and appointing a new president. The 4D model of appreciative inquiry of Cooperrider, Whitney, and Stavros (2008) was adopted to discover current practices, co-create a desired future, identify different social architectures, and develop plans to implement and sustain the ideal presidential search process. The study was participated in by four Adventist HEIs in the Southern Asia Pacific Division. Specifically, it was attended by eight education experts, nine governing board members, seven present and previous college presidents, and four groups of teachers and students. The data were gathered through appreciative interviews and focus group discussions. The data analysis framework of Swansi and Siguake (2022) was adopted. The findings revealed that the current presidential search process among Adventist HEIs is characterized by a persevering organization, optimizing the potential of the people, and developing knowledge. On the other hand, an ideal presidential search process includes nurturing a God-centered culture, establishing well-defined strategies, and adopting a definite structure. Three core factors that make the current and ideal presidential search process successful are Christ-centered people, mission-driven organizations, and growing knowledge. Sixteen social architectures with equivalent provocative propositions were identified. Conducting quantitative research on the person-organization fit among Adventist presidents is recommended.

Keywords: *presidential search process, Adventist HEIs, appreciative inquiry*

The presidential search process is a careful process for choosing the next president of a college or university. It is an important process that provides the constituents with a sense of social involvement in a crucial decision for the institution (Birnbaum, 1988). The process offers a dual opportunity for the college or university to evaluate the functions of the president and appoint the most fit person to achieve the organizational goals and objectives (Marchese, 1989). Adversely, the process may also lead to a potential pitfall if not adequately handled. Thus, Kaplowitz (1986) reinforced the substantial impact of the presidential search process on the organization and considered it “at the very heart of the future of the academic enterprise” (p. iii).

In the United States, around three to four hundred presidential search processes were conducted annually among colleges and universities (McLaughlin & Reisman, 1990). This number reflects the turnover of presidents in a year, which can be explained by the decline in tenure in the presidency. Based on the 2011 survey conducted by the Council of Independent Colleges, there was a decline in the tenure of the presidents from 8.5 years in 2006 to 7.1 years in 2011. In the recent study of the American College President Study in 2017, it was found that the tenure of the president was further reduced to 6.5 years; additionally, 54 percent of the incumbent presidents will leave their post within the next five years (American Council on Education, 2017). This result is attributed to an increase in the average age of the president, which is getting closer to retirement age.

On the other hand, the Philippine national government, through the Commission on Higher Education (CHED), has promulgated Memorandum Order No. 03, series of 2009, otherwise known as the “Rules and Regulations Governing the Search for Presidents of State Universities and Colleges.” The memorandum sets the minimum qualifications for the position, such as a doctorate holder, an excellent track record as an administrator, and no conviction of any administrative offense or crime.

The application for the chief executive position is evaluated primarily based on the applicant's professional competence and academic background. The process involves a tedious process of profile appraisal, panel interview, and public forum. The presidential search process is advised to be performed at least six months before the end of the incumbent president's term.

The Seventh-day Adventist Church (SDAC) is one of the religious groups that owns and manages the largest system of colleges and universities worldwide (Office of the Archives, Statistics, and Research, 2017). Based on the 2017 statistical report of the General Conference (GC) of the SDAC, 115 colleges and universities are accommodating 124,373 students. However, Adventist colleges and universities are also experiencing a high percentage of turnover among presidents. In the 2017 State of Adventist Education Report, 20 percent of the incumbent presidents were new to their positions (Beardsley-Hardy, 2017).

Finally, the study intends to understand and initiate change in the current practices among Adventist higher education institutions in searching for, selecting, and appointing a new president. Espousing the appreciative inquiry approach, the study will determine the dream of the governing board members, the incumbent and past presidents, and the education experts on the ideal presidential search process based on its setting and leadership structure. Ultimately, the study intends to develop a framework and mechanism to implement and sustain an effective presidential search process.

Methodology

Research Design

This study adopted appreciative inquiry (AI) as its research design. Cooperrider and Srivastva (1987), pioneers of AI, defined it as a theory of organizing and a method for changing social systems. This definition was further developed by Cooperrider, Whitney, and Stavros (2008), stating that AI is a “cooperative co-evolutionary search for the best

in people and their organizations... it involves the discovery of what gives "life" to a living system when it is most effective, alive, and constructively capable" (p. 3). Whitney and Bloom (2010) made a similar definition, stating that AI is a study of what gives life to human systems when they function at their best. As a methodological process, Berkessel (2010) described AI as a positive, strength-based, participatory methodology that seeks to discover the best in people and their organizations.

Phases of AI

This study adopted the 4D cycle of Cooperrider, Whitney, and Stavros (2008). The 4D cycle represents the definition, discovery, dream, design, and destiny phases. Each phase is a prerequisite for the next.

Discovery. The primary task in the discovery phase is identifying and determining the best of "what is" (Cooperrider et al., 2008). This phase can be done by reminiscing about the high-point experiences of individuals during a presidential search process and seeking to understand the positive core and unique factors that led to these experiences. During this phase, the participants were engaged in a dialogue centered on stories about exceptional accomplishments and the core life-giving factors that led to these accomplishments. The participants shared stories on the aspects of a successful presidential search that they most value and want to bring forward in the future.

Dream. At this phase, the participants envision a more valued and vital future grounded in the capacity of the group based on past successes, current strengths, and future possibilities (Cooperrider et al., 2008). During this phase, the participants engaged in co-creating a more vital and life-giving image of the future. Furthermore, this phase is intended to expand the sense of possibility among participants. Through the heightened creativity, innovativeness, and ingenuity of the participants, this phase reverberated a clear voice of hope and possibilities.

Design. During the design phase, the participants were involved in the co-construction of the social architecture that will help build the dream and the significant potential of the organization (Cooperrider et al., 2008). These social architectures include structure, systems, policies, processes, roles, relationships, leadership, and reputation that help initialize the dreams of the organization. An outcome of this phase involved the development of a provocative and inspiring statement of intention grounded in the realities of what has worked in the past, combined with new ideas to envision the future. These provocative propositions will serve as leverage for the discovery and dreams of the destiny of the organization.

Destiny. The destiny phase aims to deliver new images of the future, sustained by a collective sense of purpose and movement (Cooperrider et al., 2008). During this phase, members of the organization were invited to align their interactions to co-create the future. Also, the stakeholders were invited for an open-space discussion on how they can contribute to realizing the organizational dream as articulated in the provocative propositions. The objective of this phase is that the organization must sustain and commit to an iterative exploration of learning, adaptation, discovery, dreaming, and design.

Participants

This study was conducted among the four colleges in the Philippines. These higher educational institutions are spread across the country, representing the three union conferences: the North Philippine Union Conference (NPUC), the Central Philippine Union Conference (CPUC), and the South Philippine Union Conference (SPUC). These institutions were chosen based on the following criteria: (a) being governed and managed by the SDAC; (b) having a high institutional accreditation level, at least three years for the Adventist Accrediting Agency (AAA) and level two for the Association of Christian Schools, Colleges, and Universities-Accrediting Agency Institute (ACSCU-AAI); and (c) a willingness to participate in the study.

The study considers all the stakeholders in an Adventist educational system. It elicited participation from education experts, governing boards, presidents, teachers, and students. Table 1 below shows the distribution of the participants.

Table 1

Distribution of Participants

Group of Participants	Frequency	Percentage
Education Experts	8	25.00%
Governing Board (Past and Present)	9	28.13%
College Presidents (Past and Present)	7	21.88%
Teachers (in FGDs)	4	12.50%
Students (in FGDs)	4	12.50%
Total	32	100%

Data Collection Methods

This study took advantage of the use of online platforms. Online interviews and focus group discussions were done through computer-mediated communication tools such as Zoom Conference and Google Meet. All appreciated interviews and FGDs were videotaped to ensure no information was missed or lost.

Appreciative Interview

The appreciative interview is a one-on-one dialogue among organization members and stakeholders using questions about high-point experiences, valuing, and what gives life to the organization at its best (Cooperrider & Whitney, 2005). The appreciative interview intends to identify, illuminate, and understand the positive core that led the organization to life and vitality (Cooperrider et al., 2008). Furthermore, an appreciative interview aims to stimulate the excitement and delight of participants as they share their experiences and dreams for the future. In this study, the appreciative interview was conducted by eight members of the governing board, eight education experts, and the seven past and incumbent college presidents. The appreciative interview with the participants lasted an average of one hour for each session.

Focus Group Discussion

The process of conducting the FGD was primarily the same as the appreciative interview. However, instead of one-on-one, it was facilitated by a group that had the knowledge (Merriam & Tisdell, 2016). One distinct advantage of this strategy is the social interaction of participants, where they can share and hear the views of other participants.

The process of conducting FGD included purposeful sampling in the selection of members. Merriam and Tisdell (2016) mentioned that there are no specific rules on the size of participants in an FGD, and it is preferred that the participants are strangers to each other. In this study, the FGD sessions among teachers and students were conducted separately; on average, each session was attended by 5 to 6 teachers and students. Two FGD sessions were conducted face-to-face, while six FGD sessions were conducted online.

Documents as Data

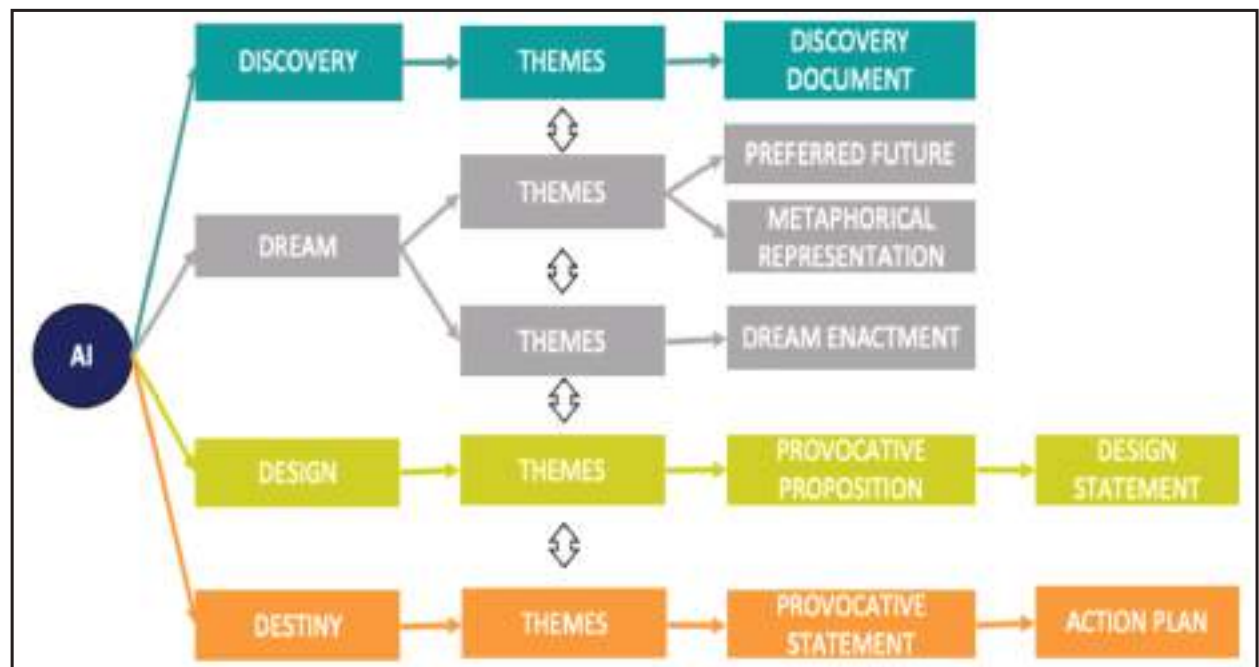
Merriam and Tisdell (2016) define documents as an overarching term for a wide range of written, visual, digital, and physical materials relevant to the study. This data source is considered the most desired in a natural part of the research setting because it does not intrude on or alter the setting. Furthermore, documents are ready-made sources of data easily accessible to the researcher. This study considered various documents, such as the constitution and by-laws of the colleges and administrative minutes related to the presidential search process.

Data Analysis

The research adopted the data analysis framework of Swansi and Sigauke (2022). This framework was specially crafted and designed for appreciative inquiry. This framework reflects the processes and expected outputs in each phase. Some features of this framework include the iterative process of doing qualitative research, which is reflected by the interacting arrows between themes in each phase. Also, formulating provocative propositions in the design and destiny phases was integrated to turn dreams into practicable action programs (Swansi & Sigauke, 2022). Figure 1 depicts the 4D model, indicating the additional definition phase at the start of the inquiry.

Figure 1

Data Analysis Framework of Swansi and Sigauke



Trustworthiness

Building trustworthiness results from infusing an “attitude” throughout the research and design work (Yin, 2016). The primary issue of trustworthiness is the persuasion of the researchers to their audience that the findings of the study are worth paying attention to and worth considering (Lincoln & Guba, 1985). In establishing trustworthiness, Lincoln and Guba (1985) enumerated some criteria, such as credibility, dependability, transferability, and confirmability.

Credibility. According to Lincoln and Guba (1985), credibility refers to the extent to which the results of a study are believable from the standpoint of the participants. Various activities have established the rigor of credibility, such as prolonged engagement, persistent observation, triangulation, peer debriefing, negative case analysis, referential adequacy, member checking, and frequent debriefing sessions. This study has employed member checking, triangulation, and frequent debriefing sessions to establish credibility.

Dependability. Dependability refers to the extent to which independent researchers can obtain the same results (Lincoln & Guba, 1985). Various ways to ensure dependability include member checks, a thick description of the phenomenon under scrutiny, and an examination of previous research findings (Shenton, 2004). In this study, dependability was ensured through a thorough description of the methodology and an examination of previous research findings.

Transferability. Transferability refers to the degree to which the results can be transferred to other contexts and settings or how they can be viewed to establish external validity in a study (Anney, 2014; Lincoln & Guba, 1985; Shenton, 2004). Various activities are conducted to facilitate the transferability of the inquiry. These activities included a detailed description of the study and the use of purposive sampling in selecting the participants. In this study, the researcher ensured transferability by elucidating all the research processes, including the setting of the study, from data collection to the production of the final report.

Confirmability. Confirmability refers to how well the data collected in the study can be supported, confirmed, and corroborated by others (Lincoln & Guba, 1985). The concern with confirmability is to ensure the data and the interpretations of the findings are results of the experiences and ideas of the participants and not of the researcher's preferences (Shenton, 2004). Lincoln and Guba (1985) suggested various ways to establish the

study's confirmability, including an audit trail, analysis notes, reconstruction and synthesis products, process notes, personal notes, and preliminary development information. This study adopted an audit trail to ensure the confirmability of the study.

Ethical Considerations

The study adopted the framework of Creswell and Poth (2018) to adhere to ethical considerations in conducting a study. Prior to conducting the study, the researcher secured a permit from the research committee and the Ethics Review Board (ERB). Also, approval from the Education Director of the SSD and the gatekeepers of the HEIs was secured. At the start of the study, participants were informed of the general purpose of the study, assured of purely voluntary participation, and asked to sign the informed consent form. During the data collection, participants were allowed to choose a convenient time and place for the interview. Member checking was practiced while observing transparency. During data analysis, pseudonyms were used to cover the identities of the participants. No identifiable elements or features of the participants were presented. During the reporting of data, the results of the study were reported honestly. No information was disclosed that would harm the participants. Finally, the study was submitted for a plagiarism check.

Results and Discussion

Discovery Phase: Appreciating What Gives Life

In the discovery phase, participants expressed more about the challenges they have experienced in conducting a presidential search. It implies that there is still a lot of room for change in this process. Negative experiences and emotions were considered but treated affirmatively. Themes were generated based on organization, people, and knowledge. According to the system learning organization model of Marquardt (2002), these are some of the distinct subsystems of

the process. Specifically, three themes were generated: persevering organization, the potential of the people, and developing knowledge on the presidential search.

Persevering Organization

Organizations are made up of people; it is a human phenomenon (Lewis, Passmore, & Cantore, 2008). Organizations have their values, but they also have their limitations. For Mohr (2001), organizations are manifestations of the human imagination. Similarly, Adventist HEIs are made of people with their own values, beliefs, and visions for the organization. In the context of the presidential search process, Adventist HEIs have some challenges as an organization but remain resilient and perseverant.

High-context culture. High-context culture refers to “societies or groups where people have close connections over a long period” (Beer, 2003). In this environment, cultural behavior is implicit because community members know what to do and think because of their long interactions. In this culture, the relationship is built on trust and builds up slowly. High-context culture, in general, affects organizational processes. The influence of high context culture is very evident in the experiences of participants in the conduct of the presidential search process; however, this is a good starting point for change and improvement. Some experiences include breaking the boundaries of regionality, suppressing stereotyping, nominating based on qualifications, restricting the influence of politics, and allowing God to take the lead.

Developing strategy. A learning organization is characterized by a “culture that promotes openness, creativity, and experimentation among members (Social Care Institute for Excellence, 2008, para. 3). Members nurture knowledge through innovation and exploration of new things. One of the key elements of learning and development is establishing a strategy (Childers, 2017, para. 5). Strategy refers to the action plans, methodologies,

tactics, and steps employed to achieve the desired outcome (Marquardt, 2002). Current presidential search strategies include recruiting actively, appreciating positive comments, and planning.

Evolving structure. The structure includes the different departments, levels, and configurations. Adventist HEIs are part of the global structure of the SDAC with the following layers of organizations: a local church, local conference or local mission, the union conference or union mission, and the GC and its division (GC of Seventh-day Adventists, 2019). In a learning organization, the structure is described as a “streamlined, unbounded, flat structure that maximizes contact, information flow, local responsibility, and collaboration within and outside the organization” (Marquardt, 2002, p. 28). In the presidential search process, important structures include strong support from the governing board and merging education and ministerial plans.

Potentials of the People

People are “pivotal to a learning organization because only people have the capacity to learn” (Marquardt, 2002, p. 111). Consequently, utilizing human capital is considered the heart, growth, innovation, and distinctiveness of learning organizations. In a presidential search, the people involved are the aspiring president, the search committee, the governing board, and the college community. They have limitations and potential; if they are empowered and enabled, they can contribute to an efficient and effective search process.

Potentials of Aspiring Presidents. Aspiring candidates are individuals who submit themselves for the search process. They can be a vice president, dean, or professor who wishes to serve the institution. The presidential selection may include nontraditional candidates such as businessmen, pastors, engineers, and medical doctors. Current features of aspiring candidates include quality over quantity of candidates, responsiveness to the call, and submissiveness to the process.

Potentials of the Search Committee. The search committee plays an indispensable role during the presidential search. They are charged with recommending three to five names to the board for final selection. Search committees are strong factors in the outcome of the recruitment process. Current practices of the search committee include being equipped with experience, overcoming partiality, dealing with risky ground, and performing due diligence.

Potentials of the Governing Board. The governing board is the steward of higher education (Osborn, 2000). One of the most important responsibilities of the board is the selection and appointment of a president (AGB, 2012). During the presidential search process, it is considered the best opportunity for the board to help guide the institution to its desired future. Some of the current practices of the governing board include prioritizing the search process, collaborating with others, empowering the search committee, and getting involved in the operation and decision-making.

Potentials of the Academic Community. The starting point of any search process is the needs of the organization (Birnbaum, 1988; Kaplowitz, 1986; Marchese, 1989). According to Birnbaum (1988), the search process should be an opportunity to rationalize and articulate institutional goals. Thus, college and university communities play an important role in making the process authentic and ensuring its success. Some practices include supporting the process, unifying in purpose, and representing the college.

Developing Knowledge

Knowledge has become the primary resource for performing work in the organization. The increase in products and services can be associated with growing knowledge. According to Marquardt (2002), knowledge is the “food of the learning organization; its nutrient enables the organization to grow” (p. 139). He further mentioned that people

might come and go, but if valued knowledge is lost, the company will starve to death. Similarly, knowledge is necessary to develop a well-defined process and systematic implementation for the presidential search process.

Defining Process. The presidential search should be well-defined. Before launching the search, one important concern is to check for any available guidelines. According to Johnston and Ferrare (2018), “it makes sense to establish broad procedures for presidential candidates so that they are in place before an actual search. Any plan will likely require changes when the moments come, but the institution will be in a better position for having thought through its options in advance” (p. 20). Current practices to ensure a well-defined process include a clear provision of the protocol and written guidelines.

Systematic Implementation. The search for the next president is considered one of the most critical processes the college and university undertake (Bensimon & Associates, 2022). It is the search for someone who will be the next face of the institution, the person who will be the lead architect of its future (Johnston & Ferrare, 2018). With its high importance, Thornburgh (2019) urges us to “consider serious process improvement steps that take much of the guesswork out of the presidential selection” (p. 9). Some current practices for implementing the search process include careful conduct and good preparation.

Core Factors. The positive core is the one that gives meaning to the process (Cooperrider et al., 2008). It is a “set of positive values and beliefs that are the key to enabling the person, group, or organization to achieve goals, do things, and generally make a difference” (Lewis, 2016, p. 123). This study identified three positive cores, representing the three main areas: organization, people, and knowledge. These positive cores are a mission-driven organization, God-centered people, and growing knowledge.

Dream Phase: Envisioning the Future

The dream phase is the second phase of the 4D appreciative inquiry model. This phase involves challenging the status quo by envisioning a preferred future for the presidential search process (Watkins et al., 2011). Likewise, Whitney and Bloom (2010) considered this phase the visions and voices of the future because participants are engaged in envisioning the future. The primary purpose of the dream phase is to “expand or extend people’s sense of what is possible” (Cooperrider et al., 2008, p. 44). It is considered practical and generative as it seeks to expand the potential of the organization (Cooperrider et al., 2008; Watkins, Mohr, & Kelly, 2011). The results showed that the dreams of the participants were still based on the areas of organization, people, and knowledge. Specifically, the themes generated were transformed organizations, empowered people, and enhanced knowledge.

Transformed Organization

An organization can be viewed as living because it comprises people, and the joint creation of the people involved is alive (Lewis et al., 2008). The idea that the organization is living suggests its innate potential for growth and renewal. When an organization is viewed this way, adaptation and change are expected. Transformation is part of its growth, and organizations should continue to grow from better to greater. In effect, Adventist HEIs should continue to improve and develop the processes involved in the presidential search. The participants dreamed of a transformed organization characterized by a God-centered culture, a well-defined strategy, and a well-established structure.

God-centered Culture. Adventist education believes that God is the Creator and Sustainer of the Universe (GC Working Policy, 2019). He is the source of all that is true, good, and beautiful. Furthermore, Adventist education believes that God’s character is the “ultimate norm for human

conduct” (GC Working Policy, 2019, p. 318). Culture, as an organizational pattern of behavior (Lewis, 2011), should center on God, His will, and purpose. According to these beliefs and practices, Adventist HEIs should nurture a God-centered culture, and the presidential search process should be conducted with full dependence on Him.

Well-developed Strategy. The search for presidents among HEIs contributes to shaping the future of the institution (Dowdall, 2007). It means that the results of the process will influence the institution for generations. Therefore, the search process should be conducted with the utmost attention and planning. Strategies related to its conduct need to be well developed. Participants dreamed of well-developed strategies for the presidential search characterized by rigorous and thorough, collaborative, smooth transition, and effective succession plans.

Well-established Structure. The structure imposes a powerful directive on the life and people of the organization. It determines the work organization, performance monitoring, lines of communication, and decision-making processes. According to Marquardt (2002), the “structural characteristics of learning organizations exhibit flexibility, openness, freedom, and opportunity” (p. 92). It also highlights the freedom, support, and resources of those who need them. Participants dreamed of a definite structure with good representation in the presidential search process.

Empowered and Enabled People

In organizational learning, people need to be empowered and enabled (Marquardt, 2002). Empowered and enabled people mean they have the necessary resources at their disposal and the necessary knowledge to apply in a given situation. Empowered and enabled people are provided with the right information, the right tools and equipment, the right amount of support, and the ability to have control and make decisions (Green, n.d.).

In a presidential search process, the dream of the participants includes an excellent pool of qualified candidates, a competent search committee, a well-equipped governing board, and a highly engaged campus community.

Excellent Pool of qualified candidates. Any presidential search desires to have an excellent pool of qualified candidates. However, some factors influence the interest of the candidates for the position. The quality of the pool of candidates may depend on the position, the institution, the institutional history, the compensation package, the location, and the time of year when the search occurs (Dowdall, 2007; Dowdall, 2014). However, it advised avoiding focusing on the number of candidates. Instead, it shifts its focus to the quality of the candidates (Dowdall, 2007; Johnston, 2018; Johnstone & Ferrare, 2018). The results of the study showed that the participants dreamed of candidates who are willing to respond to the call regardless of the financial condition of the institution, the compensation, and the convenience the hiring institution can offer.

Competent Search Committee. Another powerful factor shaping the strength of the candidate pool is the quality of the search committee (Dowdall, 2014). The members and composition of the search committee speak to the values and aspirations of the institution. The search committee is willing and able to work hard, is disciplined and well-organized, prioritizes the interests of the institution, is able to maintain confidentiality, and presents the institution to candidates in a manner that is both engaging and candid (Dowdall, 2007). It is also important that all committee members are actively involved in reaching a broader base of applicants and conducting more thorough evaluations (Fine & Handelman, 2012). In this study, participants indicated some preferences of the search committee, such as a good understanding of the needs of the institution, diverse composition, and possessing desirable qualities.

Well-equipped Governing Board. During the presidential search process, the governing board will make the most critical decision: the appointment of the new president (Johnston & Ferrare, 2018). In their governance, they led the process from the preliminary activities until the appointment of the new president. However, the function of the board is not simply to find and appoint a successor to a departing president. It is within the fiduciary responsibility to “bring the institution through a period of change by strengthening it and securing new leadership that has the best possible chance of success” (p. 18). Participants shared their desired governing board, such as impartial, collaborative, and inclusive. They also cited the importance of the governing board's trust in and empowerment of the search committee.

Highly Engaged Campus Community. Another important entity in the search process is the campus community. Honest and open campus participation in the early stage of the search is integral (AGB, 2012). At this stage, the basic groundwork is laid by carefully reviewing the institutional needs and identifying essential leadership attributes that best fit the organization. Throughout the presidential search process, campus constituencies are expected to be united, supportive, and committed to renewing their institutions with new leadership and updated agendas.

Enhanced Knowledge

Knowledge has now become the primary resource for performing work in an organization. According to Marquardt (2002), “the traditions, culture, technology, operations, systems, and procedures of an organization are all based on knowledge and expertise” (p. 139). Knowledge is necessary to increase the ability to improve products and services. Similarly, participants dreamed of enhanced knowledge of the presidential search. Knowledge is necessary for a well-developed process and effective implementation of the search process.

Well-developed Process. A well-developed search process starts with a deep knowledge of the institution and its inspiration (Johnston & Ferrare, 2018). The knowledge and shared concepts will design the search process and make the search committee and governing board better informed and more influential in moving the institutional agenda forward (AGB, 2012). Participants characterized a well-developed process by practicing confidentiality, observing transparency, practicing open communication, articulating expectations, focusing on the needs of the organization, documenting the process, and allowing God to take the lead.

Effective Implementation. The presidential search should not end with acquiring and accumulating knowledge; instead, knowledge is translated into action through effective implementation. Application of knowledge covers the use and assessment of knowledge through continuous recycling and creative utilization of the rich knowledge and experience of the organization (Marquardt, 2002). On the other hand, the governing board is responsible for ensuring that institutional policies and processes are current and properly implemented (Trachtenberg, Kauvar, and Bogue, 2018). In the Adventist HEIs context, effective implementation of a search process is done through strict adherence to the constitution and by-laws, investing ample time in the process, and seeking God's enlightenment through prayer.

Design Phase: Con-constructing The Future

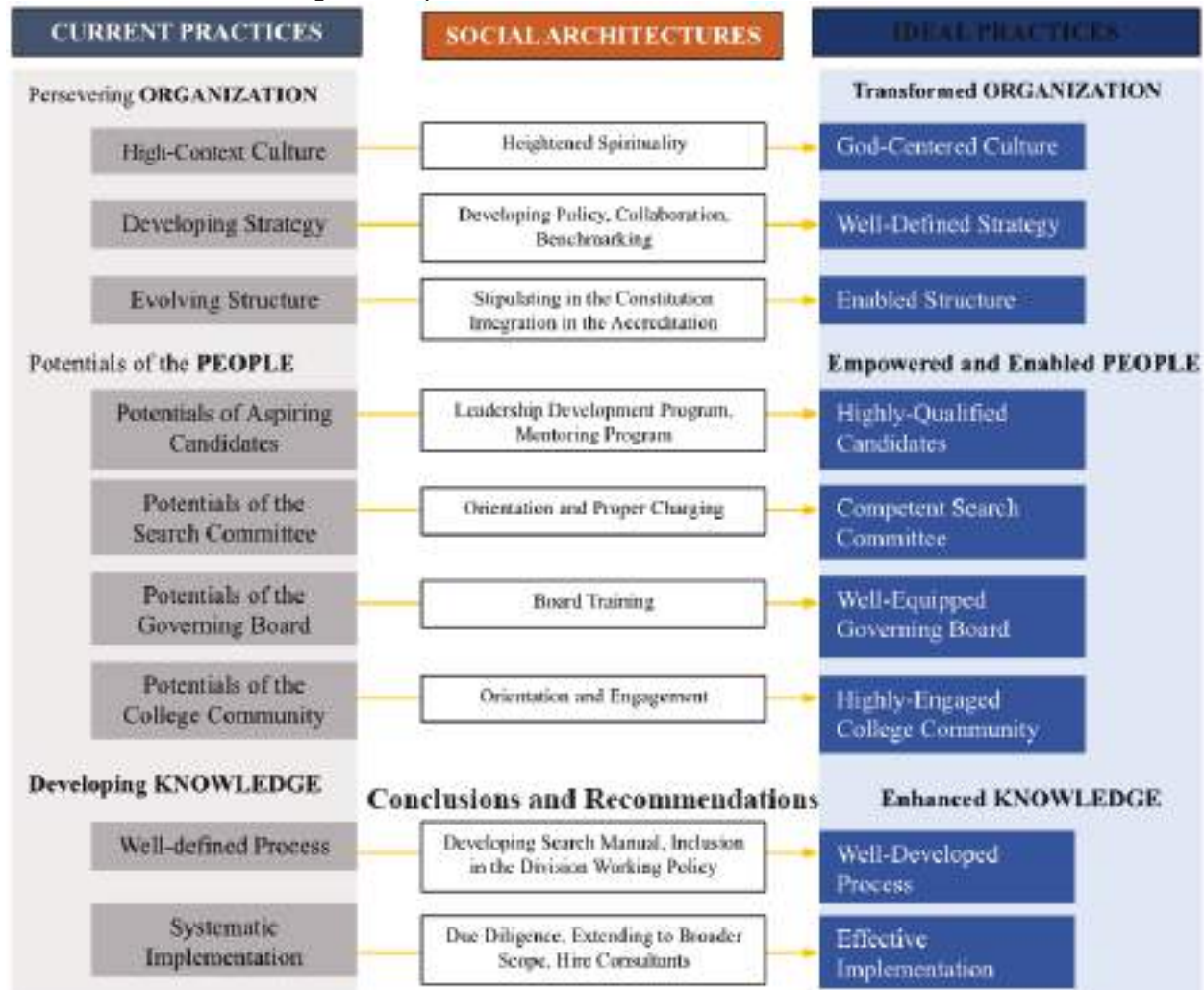
Sixteen social architectures were identified to bridge the gap from current practices to an ideal presidential search practice (see Figure 2). Under the elements of the organization, six plans were identified, including heightening spirituality, developing policies on the presidential search process, establishing collaboration among Adventist HEIs, conducting benchmarking, stipulating the search process in the constitution and by-laws, and

integrating the search process into the accreditation. Under the element of people, five plans were identified, including a leadership development program, mentoring program, orientation and proper charging, board training, and orientation and engagement of the campus community. Under the element of knowledge, five plans were determined, including developing a presidential search manual, including the provision in the working policy manual, practicing due diligence, extending the search to a broader scope, and hiring search consultants.

Destiny Phase: Sustaining Change

The final phase of the 4D appreciative inquiry model is the destiny phase, sometimes called the delivery phase. This phase intends to "deliver on the new images of the future and is sustained by nurturing a collective sense of purpose and movement" (Cooperrider et al., 2008, p. 46). It can also be described as "bringing to life on a daily and local basis the new images of the future, both the overall visions of the dream stage and the specific provocative propositions of the design stage" (Watkins, Mohr, & Kelly, 2011, p. 238).

The destiny phase serves as the culmination of the appreciative inquiry. At the start of the phase, there is a celebration and recognition of what has been accomplished. There is a review of what has been identified in terms of the themes, categories, and social architectures across the initial four phases of appreciative inquiry. These themes, categories, social architectures, and provocative propositions are translated into action plans through innovative configuration. The destiny phase concluded with the commitment of the governing board to implement and sustain the ideal presidential search, commitment to support change, and commitment to learning. These commitments are necessary to implement change and make an ideal presidential search process a reality among Adventist HEIs.

Figure 2*Social Architectures to Bridge the Gap*

The current presidential search process among Adventist HEIs is anchored on its culture. The experiences of the governing board and search committee include breaking the boundaries of regionality, suppressing stereotyping, nominating candidates based on qualifications, restricting the influence of politics, and allowing God to take the lead. In terms of strategies, current presidential search practices include recruiting actively, appreciating positive comments, and planning. Important structures necessary for an effective presidential search process involve strong support from the church and merging education and ministerial plans. In conducting a presidential search process, it acknowledged the potential of the people involved, such as the governing board, search committee members, aspiring candidates, and the academic community. Providing the protocol, written guidelines, and good preparation are also vital.

An ideal presidential search process includes nurturing a God-centered culture where there is dependence on God and seeking the right discernment. The strategies employed are well-defined and characterized by being rigorous and thorough in their processes, securing smooth transitions, devising a succession plan, and being culturally sensitive. An ideal presidential search process has a definite structure and is well-represented. For its people, there is an excellent pool of qualified candidates, competent search committee

members, a well-equipped governing board, and a highly engaged campus community. Also, there is enhanced knowledge of the process with a well-developed process and effective implementation.

Education leaders from the Division (e.g., SSD) and the GC of the SDAC are entrusted with the overall coordination of the church's educational program (GC Working Policy Manual, 2019). It is within their responsibility to establish general guidelines and maintain the direction of the church's education program. These educational leaders are in the right position to initiate change and create activities establishing the ideal presidential search process in the Adventist HEIs context. Thus, it is recommended to include a provision on the presidential search process in the GC Working Policy Manual. A similar provision can be reflected in the working policy in each division worldwide. This provision will guide how every Adventist academic institution selects, screens, and appoints leaders.

Like any other research, appreciative inquiry does not stop with formulating conclusions and recommendations. Instead, it presents another cycle of an interesting research adventure to expand the frontier of knowledge. For future research, it is recommended to conduct an appreciative inquiry by selecting other administrative offices such as vice presidents, deans, and other key positions in the academic institutions. A similar study can be conducted on selecting church officers in the mission, conference, union, division, and GC.

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Lived Experiences of Teachers Under Flexible Inclusive Education: A Phenomenological Study

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This study describes the lived experiences of private and public-school elementary education teachers who handle students with special needs under flexible, inclusive education. A total of ten (10) participants using online and face-to-face interviews were included in the study. This study was carried out using a hermeneutic phenomenology research design. Utilizing the Van Manen Hermeneutics framework, the researchers discovered that teachers in inclusive education programs who handle students with special needs in the flexible learning modality became colleagues, supporters, collaborators, teachers as surmounters, resilient teachers, adaptive experts, and lastly, teachers as agents of change. Therefore, the researchers concluded that inclusive education remains to be evolving in online and modular learning in terms of delivering instructions, planning, and curriculum implementation with the proper direction of the school administration and support from parents and other academic experts. This is to recommend that future researchers conduct an empirical study on the best practices for handling students with special needs under flexible learning modalities.

Keywords: *students with special needs, flexible inclusive education, inclusion program, flexible learning modality*

The pandemic heightens the stage for inequalities (Bešić et al., 2020). In response to these circumstances, the Department of Education (DepEd (2020) states that they created the Basic Education Learning Continuity Plan (BE-LCP) to ensure that learning opportunities are safely provided to our learners through different learning delivery methods in the new normal of education.

Flexible learning is the design and delivery of programs, courses, and learning interventions that address learners' unique needs in terms of place, pace, process, and learning products. It assures the continuation of inclusive education when the use of traditional modes of teaching is not attainable, as in the occurrence of national emergencies. Teachers promote active learning in a flexible learning environment by creating engaging and practical situations (UNESCO, 2005).

The word "flexible learning" pertains to the practice of teaching students using a variety of different pedagogical approaches, some of which encompass the utilization of online platforms as well as digital or printed modules. This is an alternative way to keep teaching and learning despite the widespread Covid-19 pandemic that has been going on. Flexible learning was used as an emergent solution not only in the Philippines but in most of the world's education departments to ensure that learning continues regardless of the challenges that are faced around the world (UNICEF, 2020). It is using a variety of learning tools for dependent learning under the supervision of the teacher (Wilson, 2008; Peña-López, 2010). The objective of inclusive education is to provide educational attention to all students that gives assistance to all the children who are in need. The possible outcome is to develop the students' development and to provide the unity of all members of the community (Ebersold & Watkins, 2011). Inclusion is an acceptable response to all education professional's that must continue to pursue, with special consideration given to children with special needs who are vulnerable and at risk of

exclusion (Booth, Ainscow 2015). This perspective is of particular interest to be able to understand what aspects may lead to a better inclusion of people with special needs inside the classroom. However, despite the inclusive education system, people with special needs are still facing barriers to accessing universities and being recognized as holders of rights (Gale & Mills 2013). Moreover, the percentage of students with disabilities who managed to finish their studies at the university is lower compared to the rest (Barkas et. al. 2020).

Inclusive Education is a process that addresses and responds to the diversity of needs of all learners by improving engagement in the learning process, cultures, and communities and eliminating exclusion within and from education. It entails changes and modifications in content, methods, structures, and strategies, with a shared vision that encompasses all children of the suitable age range and the conviction that it is the state's responsibility to educate all children. It also emphasizes high-quality education for all students and the development of more inclusive societies, rather than only marginal concerns (UNESCO, 2005).

Based on the review of the prior research, there is a population gap. Some of these sub-populations have been unexplored and under-researched. Flexible learning in the inclusive classroom appears essential and worthy of investigation. This group is essential because this would be the means of providing an appropriate program for students with special needs, either in a public or private school in general, during this pandemic crisis. Furthermore, previous research has focused primarily on the populations of Bangladesh, Australia, Austria, India, New Zealand, Italy, Canada, and Spain (Umesh & Fiona, 2020). Very little research has been done on Public school teachers in the Philippines. Also, the researcher identified a methodological gap in the prior research.

There need to be more Phenomenological research designs for inclusive education in the Philippines during the Covid-19 pandemic.

However, most recent studies have investigated the lived experiences of teachers, not the inclusivity of education. Moreover, there are available research studies considering inclusion, but they only focus on those students who are vulnerable or have special needs.

This study aimed to describe and discover the lived experiences of both public and private elementary school inclusive teachers on how they handle or accommodate students with special needs in the regular classroom when using Flexible Learning such as modular or online platforms:

1. What are the experiences of teachers in flexible, inclusive education during the pandemic?
2. What meanings do teachers, specifically under flexible, inclusive education, ascribe to their experiences?

In this study, there are two theoretical models that highlight the concept of the lived experiences of a teacher in an inclusive classroom, which are Loden's Diversity Wheel and Bronfenbrenner's Ecological System Theory. Loden (1996) identified the consistent aspect of the model, which is diversity. Diversity is the practice or quality of including someone. Many organizations are pursuing diversity initiatives in order to promote interaction within the group. The goal of the design is to be more inclusive; thus, the practice of valuing diversity in many organizations is often more exclusive - concentrating on the particular needs and experiences of employees and people with special needs. Loden gives advice to people who will be using her model to open up the diversity conversation so everyone in the group can identify some dimensions. Loden defines *respect* as treating others as they wish to be treated; *inclusions* make everyone in the team truly part of it; *cooperation* as being actively helpful to others to succeed rather than to compete or attempt one; and the last one is to be responsible in managing personal behavior to maintain a diversified positive environment and by questioning inappropriate behavior when it occurs. Bronfenbrenner's ecological system theory

views child development as a complex system of relationships affected by multiple levels of the surrounding environment, from the settings of family and school to broad cultural values, laws, and customs (Özdoğan, A. A. (2011).

Methodology

Research Design

This study was carried out using qualitative research that employs a hermeneutic phenomenology design that describes and interprets the lived experiences of participants, providing internal meanings of their experiences (Sloan & Bowe, 2013). It described the meaning from the perspective of the individuals who had experienced the event. Data gathering happens until the data has become saturated; this is when no new information is obtained and repetition happens all around (Martens, 2022).

This study aimed to discover and describe how teachers deal with students who have special needs in an inclusive, flexible learning environment. Further, researchers sought information exclusively from students with first-hand experiences through virtual and in-person interviews.

Participants of the Study and Sampling Technique

Purposive sampling was utilized in the study. According to Ayiro (2012), this type of sampling involves the selection of subjects to take part in the study to reflect "typical samples.". Homogeneous sampling is the specific type of purposive sampling that was used. It is performed when the intention of the study is to discover and comprehend a certain group in depth (Elmusharaf et al., 2016).

The participants are general education teachers from public and private schools in the area of Luzon, Philippines, who have been teaching for at least five years in an inclusive learning environment. Additionally, they have had at least one student diagnosed with special needs in their class during the pandemic.

Data Gathering Instrument

The researchers adopted and modified a framework questionnaire from Seidman (1998, pp. 11–15) that served as a guide for the virtual interviews of the research participants. Seidman's model of in-depth, phenomenological interview method involves three semi-structured. Using a semi-structured interview as a data-collection method, a “repertoire of possibilities” (Wishkoski, 2020), gives flexibility to the researchers within a guiding framework to ask the informants a series of predetermined yet open-ended questions. Then, the purpose of in-depth semi-structured interviewing by the researchers could, as stated by Seidman (1998), be to explore the experience of the participants and the meaning they make of that experience.

Data Analysis

The transcribed interviews were subsequently organized according to the essential elements of a lifeworld relationality, corporeality, spatiality, temporality, and materiality (Van Manen, 2014), a concept aligned with hermeneutics phenomenon. Wherein the researchers look for the following lifeworld elements, such as: First, relationality is the relationship that individuals establish in their shared space. It leads to reflection on how relationships influence perceptions of phenomena, discovering shared qualities with others, and the social component that gives life purpose. Second is corporeality, which refers to the effect of corporeal form with respect to the phenomenon—how the body experiences, feels, perceives, and handles the phenomenon. Third, spatiality refers to how space is experienced and gives meaning to the phenomenon. Third, temporarily, is how time is experienced and gives meaning to it. Fourth, materiality is how things are experienced with respect to a phenomenon. These existential lifeworld elements were cautiously looked at in the participants' narratives, and they conceptualized different themes for each element. The themes generated for each element were then supported with relevant related literature and discussions.

The hermeneutics framework was used to analyze the participants' narratives. Elida & Guillen (2019) stated that this method is aimed at the description and understanding of the underlying structures of the lived experience, as well as the discovery of the instructional value of this experience. This method is a consistent and rigorous approach to analyzing the ethical, relational, and practical components of everyday education that are difficult to reach through traditional research methods.

Martinez (2014) claims that this represents a person's physical features. By carefully reading each phrase or group of phrases, we analyze each one using the detailed reading approach, asking: “What does this phrase or group of phrases reveal about the issue or experience being described? (Van Manen, 2014).” Next, the question of what each phrase or group of phrases seems to reveal about the nature of the event is framed, and then the thematic units are chosen, where an experience may have a few or many thematic units. All of the primary themes of each thematic unit should be incorporated into a central theme that identifies the subject in relation to the essence of the life experience (Martínez, 2014).

Data Credibility and Validity

Primarily, the researchers conducted a formal consultation with their respective research advisers to discuss and make amendments to the said study in order to secure a quality and fruitful research proposal. Secondly, the researchers rigorously checked the related literature that is valid for the said study by checking its dates and publications. Lastly, the researchers presented the findings through a detailed description of the participants' individual experiences of teaching in flexible, inclusive education.

Triangulation is a method for enhancing the credibility and validity of the research findings. It helps to explain the results of the study (Noble & Heale 2019). This study underwent triangulation to validate the responses of the participants through an in-depth interview, observation, and member checking.

First, the researchers went to the school, where they requested to have a face-to-face interview with the administrator. On the same day, the researchers were able to observe teachers teaching in face-to-face classes. In addition, researchers also observed the teachers while teaching in the online class after the interview. To gather information on how teachers teach and handle the class in instruction and manage behaviors of the students. Next is member checking, The researchers send the transcribed data to the participants through their Gmail accounts.

Ethical Consideration

The researchers guaranteed the research participants that ethical procedures were strictly followed throughout the study and aimed to utilize the gathered data for educational purposes only. Prior to that, the researchers sought approval from the Ethics Review Board (ERB) of the Adventist University of the Philippines, and informed consent from the research participants was secured before the collection of data, ensuring the confidentiality of participants' names and privacy. The identities of the participants remained confidential using pseudonyms. Moreover, participants were informed

about the study's purpose and data collection procedures and had the right to withdraw at any point.

Results and Discussion

The data were collected and then processed in response to the research problems. Each figure consists of the emerging themes and some chosen answers among the participants for each sub-problem, with corresponding specific verbatim for the questions.

Lived Experience of Teachers Under Flexible, Inclusive Education

Figure 1 shows the themes generated that answered research question 1: "What is the experience of teachers under flexible inclusive education during the pandemic?". The researchers organize the themes according to the essential elements of lifeworld relationality, corporeality, spatiality, temporality, and materiality (Van Manen, 2014), a model of analysis, and a concept aligned with hermeneutics phenomenology. Subsequently, they came up with different sub-themes from the participants' interviews.

Figure 1

Relationality as A Model of Analysis Based on the Themes Generated in the Lived Experiences of Teachers Under Flexible Inclusive Education



Table 1*Themes Generated Under Relationality*

Model Analysis	Description	Themes Generated	Participants Narrative
Relationality	Relationality is getting support and being connected with the colleagues of the participants	Colleague Support	"I don't know what to do, but with the support and help from my colleagues, I gained the confidence that "I can do it" and "it was easy". - T1
		Parent and Teacher Partnership	"I feel supported with the constant communication with the parents" - T10

According to Clark & Adams (2020), mutual comprehension between the teacher and the parent can facilitate regular, organized, and stable conditions for learning at home and at school. The pursuit of common objectives by all partners is the foundation of effective collaboration. Cooperation is essential for knowledge exchange and practice reflection (Adam et al., 2016).

Table 2*Themes Generated Under Corporeality*

Model Analysis	Description	Themes Generated	Participants Narrative
Corporeality	Corporeality is the psychological challenges experienced by the participants with respect to the phenomenon	Encountered Challenges	"Mentally challenging. My personal experience during the pandemic was that I had an anxiety attack." - T3
		Positive Effects of the Pandemic	"We're very grateful that, despite carrying a lot of stress, it helped us grow."

It was clearly stated how the pandemic opened new grounds for the teachers to upskill themselves while adopting the current learning environment to make the content and knowledge delivery more appropriate (Chaudhuri, 2020). The COVID-19 epidemic significantly changed K–12 education and is probably going to have an impact on instructors' and kids' futures. For both regular and special education, this is accurate. At all educational levels, lingering, long-term problems will impact educators and learners alike. The pandemic's "silver linings" could, however, encourage improved educational methods (Kauffman et al., 2022).

Table 3*Themes Generated Under Spatiality*

Model Analysis	Description	Themes Generated	Participants Narrative
Spatiality	Spatiality is how flexible learning feels and gives meaning to the phenomenon.	Roller-coaster wandering	"Maybe it's a roller coaster because we're going up and down. We conquer to go inside the bubble even though there are barrier that we cannot see" - T2

The rapid shift caused teachers to take the risk of stepping into indistinct COVID-19 phenomena. The educational approach teachers adopt is affected by the kind of metaphors they use, whether they give an active or passive role to the teacher, Akkaya (2021).

Table 4*Themes Generated Under Temporality*

Model Analysis	Description	Themes Generated	Participants Narrative
Temporality	Temporarily is how sudden transition is experienced with respect to the phenomenon.	Trial-and-error	"It was difficult because nobody was ready at that time. It's like a trial-and-error basis." - T1
		Set-aside priorities	"I also have work in our house, and I am a mom. So it's like juggling my priorities." - T2

In line with their experience, teaching during a pandemic is a season of inquiry and an abrupt change in accommodating learners. Consequently, Merrill (2020) perceived the need to look forward to trials and plenty of errors as learning shifted to remote teaching. This local experience is also congruent with an international teaching experience, as surveyed by Ziebell et al. (2020), who found that remote teaching juggled the increasing demands of their job, and some teachers reported working 20 hours more per week.

Table 5*Themes Generated Under Materiality*

Model Analysis	Description	Themes Generated	Participants Narrative
Materiality	Materiality is the lack of technological devices and strict health protocols experienced by the participants.	Material restriction	"We cannot assist, teach, or monitor them every day due to the health protocol. Either in social media or the unavailability of gadgets to our students, we cannot reach them." - TA

As stated by Li and Li (2021), teachers added extra exercises, modified the provided lesson, shortened task requirements, and removed materials as adoption became visible in the classroom conversation. When teachers unexpectedly changed or adjusted the materials, they improvised by adding additional information or assignments.

Meanings Ascribed to Teachers' Experiences

Figure 2 shows the relationship between the meaning of being a teacher under flexible inclusive education and their experiences. The researchers centered the analysis on existential lifeworld relationality, corporeality, spatiality, temporality, and materiality (Van Manen, 2014).

Figure 2*Meaning Ascribed to Teachers' Experiences*

Table 6*Themes Generated Under Relationality*

Model Analysis	Description	Themes Generated	Participants Narrative
Relationality	Relationality is getting support and being connected with the colleagues of the participants	Teachers as Collaborators	"I need to talk to my peers, especially the experts of inclusive education, I also ask questions." -TB

The initiative attitude bridged inclusive teachers to other academic experts for the opportunity to advance their profession, which is useful to the current educational issue. According to Paulsen (2021), collaboration between parents and educators can result in a more thorough understanding of the student and their challenges.

Table 7*Themes Generated Under Corporeality*

Model Analysis	Description	Themes Generated	Participants Narrative
Corporeality	Corporeality is the psychological challenge encountered by the participants	Teachers as Surmounter	"I was able to cope with the stress it brought" - T2

Mental and emotional issues had been present during pandemic teaching, as the studies have shown that during the COVID-19 pandemic, teachers experienced stress, anxiety, and depression (Bartosh et al., 2022). The situation is real; nevertheless, teachers were able to surmount the impact of challenges brought by the pandemic in the academic field.

Table 8*Themes Generated Under Spatiality*

Model Based on the Theme generated	Description	Themes Generated	Participants Narrative
Spatiality	Spatiality is how flexible learning affects participants	Resilient Educator	"..like walking up the stairs. Walking in such a way that the stairs are steep, however, we need to build a healthy environment where our students can feel that they are one of them." - T4

Despite it testing their abilities, inclusive teachers acknowledged their students' needs with regard to their unique condition. As stated by Li et al. (2021), teacher resilience influences student engagement, motivation, and academic success.

Table 9*Themes Generated Under Temporality*

Model Based on the Theme generated	Description	Themes Generated	Participants Narrative
Temporarily	Temporarily is how sudden transition and time management are experienced with respect to the phenomenon	Adaptive Experts	"I had allotted time and had a one-on-one to her and to her mother." - T5
		Time wise	"For me, my time is not affected because I'm just staying at home, especially because it's locked down." -T8
		Dedicated teachers	"There were times when I needed to stay until 12 am. My weekends are involved. Let's say, 100x, although we worked from home, the job tasks were doubled." - T10

For adaptive experts, as the pandemic inverted the dynamics of the education sector, teachers adopted a new teaching-learning environment in which Dayagbil et al. (2021) believed that this existing period was a battle for the teachers. In terms of handling time wisely, the state of teacher's well-being differs from each other; however, due to broadening professional networks (Ziebell, 2020) and collaborating with academia and industry, improving the content and application knowledge (Chaudhuri, 2020) makes the work more effective and efficient. As for dedicated teachers, a survey by the union, reported by Robinson et al. (2022), found that six in 10 of 61% of teachers with special needs students in the class have a workload level that has escalated significantly. In the Philippines, both public and private teachers juggled workloads (Magalong & Torreón, 2021) and worked beyond eight hours a day (Lavarro, 2021).

Table 10*Themes Generated Under Materiality*

Model Analysis	Description	Themes Generated	Participants Narrative
Materiality	Materiality is reconstructing the learning materials and coming up with relevant learning instructions.	Agents of change	"I have edited the learning activities; modules from the DepEd were highfalutin." - T10

As the teachers were alarmed by adjustments faced by their students, they passionately took action to address them. Ewing (2020) revealed that teachers spent immense amounts of time and effort constructing new formats of materials to come up with more responsive and relevant instruction.

Conclusions and Recommendation

The researchers concluded from the results of the study that the effect of COVID-19 pandemic teaching experiences of inclusive educators varies based on the level of support received, the amount of relevant resource accessibility that affects the teaching-learning process according to their chosen mode of learning, and management skills in terms of personal and professional concern. Below further describes the outcome discoveries that, although the same themes arose, the quantity and quality of performance differed between

public and private inclusive educators. Therefore, the researchers concluded that inclusive education remains to be evolving in online and modular learning in terms of delivering instructions, planning, and curriculum implementation with the proper direction of the school administration and support from parents and other academic experts. Teachers from both public and private schools remained dedicated to their professions in meeting their students' diverse needs, even in online learning and modular learning.

Based on the results of the study, the researchers come up with the following recommendations: First, school administration may avail of paid educational learning software's and advance teachers' technical skills by conducting workshops, particularly on educational video editing, digital visual aids, and interactive teaching tools. Second, the teachers could undergo practical workshops in regards to accommodation and modification, both for distance and traditional learning, particularly in utilizing lesson materials and teaching instructions. Third, our future researchers may seek and prove suitable teaching practices in the 21st century by comparing during and after the pandemic. At this point, researchers appeal to future researchers to conduct an empirical study for practical based results.

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Surprises to Every Perfect Score (STEPS): Increasing Reading Skills of Grade 1 Pupils

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Reading literacy plays an important role in education. However, pretest results of the Comprehensive Rapid Literacy Assessment (CRLA) among the 34 pupils that are enrolled in the Libang Elementary School during the school year 2022–2023 showed that 14 are considered “full refreshers” and only five are categorized as “grade ready.”. Thus, in this experimental research, the researcher aimed to determine whether STEPS can be used as a learning tool to increase the reading skills of the Grade 1 pupils. In this intervention, the learners were given chances to perform independently and collaboratively with the teacher as the facilitator and an assistant to perform the learning tasks. Activities for each week include “see and say,” “spell reading,” “air writing,” and “table writing” to insure the mastery level of pupils in reading. Surprises in the form of candies or lollipops, school supplies, bonus points, and exemptions were given as rewards for every perfect score in the given task. Post-test results showed that 31 of the 34 pupils were already categorized as “grade ready”. The researcher also conducted a survey among the pupils regarding their perceptions of the surprises they get for every perfect score. Accordingly, the pupils consider it entertainment, communication, academic aid, and an opportunity to boost subsequent learning, promote active listening, practice pronunciation and diction, and engage in exploration. It can be seen from the results of this study that giving surprises can be used as a positive reinforcement in learning that leads to an increase in skills such as reading.

Keywords: *surprises, reading literacy, learning tool*

Reading literacy, as the need for every individual to develop, plays an important role in education. It is essential for individuals to function effectively and efficiently in whatever career they choose in order to survive. To achieve this ability, there should be an intervention to be implemented, especially for those pupils who lack interest in learning. Since the DepEd mantra states: "No learners should be left behind," this study about Surprises to Every Perfect Score (STEPS) comes out. There are studies that show or indicate that surprises are an effective learning medium due to their influencing factors and are sometimes used as a platform among teachers in the classroom setting. According to Rousell (2022), surprise can increase learning and change the lives of our pupils in positive ways. In the article, John Hopkin's points to surprise as a phenomenon that impacts all ages. In his example, "If you've played peekaboo with a baby, you know the surprise is what makes them laugh. Interestingly, researchers found that once babies saw something that surprised them, their engagement with the object peaked their learning behavior, which improved significantly compared to a baby who was not surprised. So, they found that babies who were shown surprising events were able to learn faster and more efficiently afterward than those who were not." Davis (2022) says, So we, as teachers, should look for those moments of truth that could surprise kids." The potential benefits and possible drawbacks to using surprises in the learning tool context will be explored. Exchanging ideas on various platforms makes learning very easy. Whether the pupils are from kindergarten, repeaters, or incoming Grade 1 for the first time, it is the best idea to make them unite on a common topic. When you decide to go to Surprises for learning, there are many ways to fulfil this task.

According to Adler (2008), he explores the ways in which surprise positively affects us and serves as a valuable tool for motivating learning. Adler considers how students' attention is aroused and focused self-critically when their subject matter-

related expectations are not borne out. These "surprises" point pupils towards discoveries about gaps, weaknesses, or false assumptions within their subject matter understanding. As a result, students become internally motivated to correct their errors and seek better understanding rather than merely responding to external mandates imposed by a teacher, institution, or other authority. In this essay, Adler argues persuasively that the use of surprise in teaching, both as a pedagogical tool and a topic of study, offers many educational advantages and benefits for learning.

The current study is anchored on the school Strategic Improvement Plan (SIP), which belongs under Pillar No. 3 Quality. The school aims to achieve at least 80% of learners attaining a nearly proficient level or better in stage 1 learning standards of English by 2028.

It is also in line with Project "MATATAG," in which Vice President and Secretary of Education Sara Z. Duterte noted that the Department will revitalize its Reading, Science and Technology, and Math programs as part of the MATATAG: Bansang Makabata, Batang Mabansa Agenda.

Furthermore, it is also anchored with the Basic Education Research Agenda (BERA) under teaching and learning category as stated in the theme, "As the national institution mandated to provide quality basic education to all Filipinos, DepEd seeks to ensure that learning outcomes are achieved by maximizing the competencies of teachers and potentials of all types of learners. This theme thus covers the actors, activities, and fundamental aspects of teaching and learning in various contexts. Specifically, the Research Agenda investigates the strategies, best practices, and facilitating and hindering factors relative to five sub-themes, namely: instruction, curriculum, learners, assessment, and learning outcomes".

Libang Elementary School Grade 1 learners are affected by the pandemic. Some did not want to go to school without a companion, and they started to cry if they were left alone. Others enjoyed roaming

around, were very hyper-active, and were attention seekers. Both are the result of the crisis brought on by the pandemic, where many Grade 1 learners experienced school for the first time. Results of the Comprehensive Rapid Literacy Assessment (CRLA) conducted in September 2022 show that only 13% of the learners are literate. These results observed by the teacher raised a question as to why and how the problems arose and how they should be addressed.

The researcher of this study aims to determine the experiences of learners and teacher-researchers in using STEPS (Surprises to Every Perfect Scores) as a learning tool to increase the reading literacy of Grade 2 pupils at Libang Elementary School for the school year 2023-2024.

The general intent of this study was to determine the use of surprises as a learning tool for improving reading literacy among Grade 1 pupils at Libang Elementary School. This study specifically answered the following questions: (1) How was the reading literacy of Grade 1 pupils before and after the implementation of STEPS? (2) What are the preferences of the participants in the utilization of STEPS?

Methodology

Research Design

The researcher utilized the one-group pretest-posttest pre-experimental research design to determine if STEPS is a suitable tool to develop the reading literacy of the pupils. The researcher employed a survey-questionnaire tool to gather the responses of the respondents and organized, analysed, and interpreted the rudiments of descriptive research.

Participants

The participants of this study were 34 Grade 1 pupils at Libang Elementary School for the school year 2022-2023. There are two (2) sections in Grade 1: 18 pupils under Section A-Daisy, of which 10 were male and 8 were female, and 16 pupils in Section B-Rose, of which 8 were male and 8 were female.

Demographic Profile of the Respondent

Table 1 shows the distribution of respondents in terms of sex. From the data gathered, most of the respondents are female, with 18 frequencies and a percentage of 53. On the other hand, the least number of respondents is male, with 16 frequencies and a percentage of 47. In Grade 1, pupils' females are more dominant compared to males.

Table 1

Profile of the Respondents in Terms of Sex

Sex	Frequency	Percent (%)
Female	18	53
Male	16	47
Total	34	100

Table 2 shows the distribution of respondents in terms of age. It can be gleaned from the table that the majority of the Grade 1 pupils are 6 years old (28%) and that there are only six (18%) pupils aged 7 years old.

Table 2

Profile of the Respondents in Terms of Age

Age	Frequency	Percent (%)
6 years old	28	82
7 years old	6	18
Total	34	100

Materials

The school reading literacy assessment results and the consolidated report on the end-of-school year comprehensive rapid literacy assessment (EoS CRLA) were used as assessment tools to describe the reading literacy of the participants. The participant scores are used as determinants of whether they are "full refreshers," "moderate refreshers," "light refreshers," or "grade-ready." Another survey questionnaire was administered to determine the preference of the pupils for the surprises they want to receive and how they perceive the utilization of STEPS.

Intervention Plan

The objectives of this study will be achieved according to the following categories: schedule of activities, target outputs, timelines, duration, and person responsible for the activity. The researchers will religiously follow the schedule presented in Table 3.

The activities for each week, such as see and say, spell reading, air writing, and table writing, are completed properly using Pre-test (Monday), Teach (Tuesday), Re-test (Wednesday), Reteach (Thursday), and Post-test (Friday) to ensure students' mastery of reading skills. This activity is recommended for Grade 1 pupils to increase their reading literacy not only by introducing simple words but also by using them in sentences.

Table 3

Action Work Plan and Timelines in the Conduct of Surprises to Every Perfect Scores (STEPS)

	Activities	Target Output	Timeline	Duration	Person Responsible
A. Preparation Phase					
1.	Preparation of Action Research Proposal	Action Research Proposal	July 20–22, 2022	3 days	Researchers
2.	Proofreading and Editing of Proposal	Action Research Proposal	July 23, 2022	1 day	Researchers
3.	Presentation and Consultation of Proposal to the District Committee	Finished Action Research Proposal	August 1, 2022	1 day	Researchers and District Research Committee
4.	Finalization of Action Research Proposal	Finalized Action Research Proposal	August 11, 2022	3 days	Researchers
B. Implementation Phase					
1.	Permission from the School Head	Approved Permission Letter	Sept. 7, 2022	1 day	Researchers and School Head
2.	Development of Questionnaires	Developed questionnaires	Sept. 8–12, 2022	5 days	Researchers
3.	Formulation of interview protocol questionnaire	Formulated interview protocol questionnaire	Sept. 14–15, 2022	2 days	Researchers
4.	Establishment of rapport and familiarization with students	Teacher-Pupil's Relationship	First Quarter of the School Year 2022-2023	1 week	Researchers/ Learners
5.	Implementation of STEPS	Implemented Intervention	End of Second-Fourth Quarter of the School Year 2022-2023	1 week	Researchers/ Learners
6.	Conduction of observation checklist	Learners' responses on observation checklist	End of Second Quarter of the School Year 2022-2023	1 day	Researchers/ Learners

[table continues on the next page]

7.	Monitoring and Evaluation of the conduct of STEPS	Researchers' observation checklist tool	End of Second-Fourth Quarter of the School Year 2022-2023	1 day	Researchers
8.	Conduction of Interview Protocol for Teachers	Teachers' responses to interview protocol	Last week of the Fourth Quarter of the School Year 2022-2023	1 day	Researchers/ Teachers
10.	Gathering of data and other information	Learners' Responses to the Interview Protocol	Last week of the Fourth Quarter of the School Year 2022-2023	1 day	Researchers/ Learners
11.	Analysis and interpretation of data gathered	Analyzed and Interpreted Data	Last week of the Fourth Quarter of the School Year 2022-2023	2 days	Researchers

Ethical Considerations

Permission from the school principal was solicited before the research was conducted. Teacher personnel were informed, and their consent to be part of the study will be sought. Participants were informed of the purpose of the study, the expected duration, and procedures to be taken during the study. Participants were also informed regarding their rights to decline to participate and to withdraw from the research once it has started, as well as the likely consequences or benefits of doing so. Participants were given information about how their data will be used and what will be done with the results discovered after the study.

Data Analysis

The statistical tools used in this study are frequency and percentage. For the demographic profile, like age, sex, kinds, and purposes of using STEPS, frequency and percentage were used to determine the occurrence of the profiles as well as their corresponding percentage.

Results and Discussion

Reading Literacy of the Participants Before and After the Intervention

Table 4 shows the assessment of the respondents' before and after the implementation of STEPS. The school reading literacy assessment results described the pre-reading literacy of the participants. On the other hand, the consolidated report on the end-of-school year comprehensive rapid literacy assessment (EoS Y CRLA) described the post-reading literacy of the participants.

Table 4

Reading Literacy of the Participants Before and After the Intervention

	No. of learners assessed	Full Refresher	Reading proficiency level		
			Moderate Refresher	Light Refresher	Grade Ready
Pre-reading literacy score	34	10	4	2	2
Post-reading literacy score	34	0	1	2	31

Table 4 shows that before the implementation of STEPS. The total number of learners is 10; 10 were categorized as “full refreshers,” four were considered “moderate refreshers,” two were “light refreshers,” and only two were “grade-ready.”. This means that less than 6% of students in Grade 1 are ready for the grade level. Further, this implies that the respondents’ need for intervention to enhance their reading literacy.

Table 4 also shows that the assessment of the respondents’ reading literacy increased after the implementation of STEPS. The number of learners who are ready for the grade level is 31, or 91%. This means that many of the participants’ reading skills improved after the intervention program.

Interestingly, surprises have a role to play in teaching, but how and why? The answer is straightforward. Surprise upends what learners believe and helps them make discoveries, giving strong opportunities for independent learning. Socrates and Aristotle thought that “surprise combined with astonishment is the beginning of knowledge.” This effect brings about questioning and reappraisal, both of which give fresh momentum to curiosity and therefore learner engagement. It will also enable greater memorization; with the surprise effect, learners will have to use all their senses and all their concentration to analyse the surprise component. Remember, surprise opposes the concepts of comfort and security. Yet, it is essential for gaining learner’s trust for them to calmly absorb new information (Teach on Mars 2023).

On top of it all, the researcher can say that Grade 1 pupils need more interventions, especially at this time when classes are back in their regular settings. They should be equipped with enough knowledge and literacy to perform well in school and in their chosen career in life.

Further, pupils should be given tasks that they can understand well to avoid confusion and frustration. The questionnaires conducted by the researcher among the Grade 1 pupils of Libang Elementary

School are of great help in educating learners and guiding them to increase their reading literacy.

Preference of the Participants in the Utilization of STEPS

Kinds of Surprises Used

Table Number 5 shows the preferences of participants in terms of the kinds of surprises being used. It can be gleaned from the table that most of the respondents like lollipops or candies (19 or 56%).

Table 5

Preference of the Participants in Terms of Kinds of Surprises Used

Kinds	Frequency	Percentage (%)
Lollipops/candies	19	56
Bonus points	4	12
Selected school supplies	8	24
Exemption	3	8
Total	34	100

Meanwhile, it can be gleaned from the table that some of the respondents like selected school supplies (8 or 24%). In another related study conducted by Teach on Mars (2023), surprise is a wonderful way of improving knowledge retention. To consolidate learning, it is important to keep learners in suspense and to keep them active. By creating surprises, you encourage them to be active and to embrace the concept(s).

Purposes in Using STEPS

Table 5 shows the distribution of participants’ preferences in terms of purposes using STEPS. It can be gleaned from the table that the majority of the respondents use STEPS for entertainment (14, or 41%). Stahl and Feigenson (2017) state that surprising events have been shown to increase learning, particularly during development.

Table 5

*Preference of the Participants
in Terms of Purposes in Using STEPS*

Purposes in Using STEPS	Frequency	Percentage (%)
Entertainment	14	41
Communication	10	29
Academic	6	18
Opportunities	4	12
Total	34	100%

Meanwhile, it can be seen from the table that the respondents utilized surprises for communication purposes (10 or 2%). Surprises were developed to communicate with other kids who are timid and very shy to show off. However, without ideas or knowledge, they are incapable of communicating inside the classroom. Comparatively to the goal of this study, academic purposes got 18%. Most of the respondents used surprises mainly to enjoy themselves and not as a tool for educational purposes.

Learning Tool

Table 6 shows the distribution of participants' preferences in terms of the usage of STEPS as a learning tool. It can be gleaned from the table that the majority of the respondents use STEPS as a tool for boosting subsequent learning (13, or 38%).

Table 6

Preference of the Participants in Terms of Learning Tool

Usage of STEPS as Learning Tool	Frequency	Percentage (%)
Boosting subsequent learning	13	38
Promoting active listening	8	24
Practicing of pronunciation and diction	6	18
Inducing exploration	5	14
For communication	2	6

It indicates that most of the respondents used STEPS as a learning tool by means of boosting learning to help them with their academic performance. According to the study, there are several mechanisms by which surprise might serve to boost subsequent learning, and these are not mutually exclusive. For one, it could be the case that seeing something surprising merely serves to increase attention to the event (Fazio and Marsh 2009), and attending the event more provides more of an opportunity to learn from it (Stahl and Feigenson 2015). Comparatively, practicing pronunciation got 6 frequencies and ranked in the top 3. The respondents main focus is to read the words in their course contents. It indicates that STEPS can be used for oral reading to help pupils practice their pronunciation too.

Based on the results, it can be inferred that the use of STEPS as a learning tool enhanced pupils' reading literacy. The demographic profile, particularly the kinds of STEPS used, reveals that pupils are engaged in lollipops and candies, and they use them for entertainment purposes.

Reading skills activities can be presented through entertainment using STEPS, but the contents are purely academic. Aside from entertainment purposes, STEPS can also be a platform for communication and academic purposes. STEPS as a platform for enhancing pupil's reading literacy through subsequent learning, active listening, gaining learning trust, giving strong opportunities, and practicing pronunciation and diction.

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Interdisciplinary Collaboration in Learners' English Language Enhancement: A Narrative Inquiry on Teachers' Challenges and Strategies

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Experiencing challenges in teaching and implementing strategies for better teaching and learning is part of the profession of teachers, especially when learners come from different walks of life. This narrative inquiry, a qualitative approach based on interviews, stories, and observation, explores interdisciplinary collaboration in learners' English language acquisition from a new perspective by gathering the reflections of four university teachers from two schools (the School of Theology and the School of Education) at a private university in West Indonesia. The study documents teachers' challenges, strategies, and key success factors in meeting the needs of English language learners through interdisciplinary collaboration. Findings revealed that teachers need sufficient training, skills, and digital literacy for effective teaching, learners' English language acquisition, and accommodation for learners' feedback to meet the diverse demands of learners. This study implies that interdisciplinary collaboration enhances language learners' development. Therefore, the study recommends interdisciplinary collaboration between schools.

Keywords: *English language learners, teachers, challenges, strategies, narrative inquiry, West Indonesia*

No matter how diverse and decentralized different schools in a university are, the concept of interdisciplinary collaboration (IC) still stands out as a good contribution to learning, as reflected in various studies (Christensen, Ekelund, Melin, & Widén, 2021; Johnston, Burleigh, & Wilson, 2020). As a result of interdisciplinary collaboration, opportunities are created that may not have been discovered if the collaboration had not taken place (Bird, 2020), has a role to play in learners' successful learning in different disciplines. It is because of the positive contributions IC brings (Johnston et al., 2020).

Interdisciplinary collaboration, conducted between colleagues within or across institutions in research and teaching (Lee, 2008), has shared attributes of successful collaborative skills and pedagogies that contribute to academic development. IC has caused discussion for comprehension of collaborative forms (Porac et al., 2004). Collaboration between different school disciplines enhances pedagogies that cater to improved teaching and learning (Eddy & Garza Mitchell, 2012), including English language learning enhancement.

People worldwide rely on the English language (Crystal, 2003), which has been considered the global lingua franca. The English language globally serves. Since the English language has a growing influence and has infiltrated many disciplines, such as education, there has been a call for teachers to find ways for learners to enhance their English language learning through interdisciplinary collaboration. Teachers in Indonesia also address this concern.

Teachers have some challenges in teaching the English language in Indonesia. It is because learning English as a foreign language in Indonesia seems to cause learners struggles since users still widely use Bahasa Indonesia in their daily conversations (Turmudi & Hajan, 2020). Besides, English is considered the most difficult subject at school (Panggabean, 2015).

This interdisciplinary collaboration was conducted to address this concern about how Indonesians' English language may be enhanced. The following research questions helped guide the exploration of in-depth understanding using the narrative inquiry approach:

1. How did the participants interdisciplinarily collaborate for English learners' language enhancement?
2. What were their challenges?
3. What were their strategies for overcoming their challenges?
4. What attributes and organizational frameworks do successful collaborative research teams demonstrate?
5. How did their experiences inspire them to practice interdisciplinary collaborative research in the future?

Methodology

This section discusses the research design, the research setting, and the participants of the study. It also discusses instrumentation and data procedures. This section closes with ethical considerations.

Research Design

This study is qualitative, using a narrative inquiry. This narrative inquiry is intended to record the participants' experiences as occurrences under study (Connelly & Clandinin, 2006) for in-depth results of the phenomenon regarding the challenges and strategies of the participants in the interdisciplinary collaboration research. Narrative inquiry enables researchers to "enter into lives in the midst of each participant's and each inquirer's life" (Clandinin & Huber, in press p. 10).

Sampling Techniques

This study was conducted in West Indonesia. It involves four participants who were recruited through purposive sampling. The study employed purposive sampling because it is "widely used

in qualitative research for the identification and selection of information-rich cases related to the phenomenon of interest” (Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015, Abstract). The criteria had to be (a) university teachers, (b) teaching in the Theology and Education departments, and (c) having taught at the university for three years. The four participants agreed to voluntarily participate in the study.

Instrumentation

The researcher discussed with the participants what the study was all about before the interviews. The spoken interview encouraged participants to share their challenges and experiences during the interdisciplinary collaboration in English language learning enhancement. Conversations during the interviews were recorded aside from taking notes. Researchers asked further questions to get the gist of the experiences.

Data Analysis

This narrative inquiry enables the researcher to comprehend and inquire into experience through collaboration between the researcher and participants over time, in a place or series of places, and in social interaction with milieus. It follows the steps of the data gathering procedures and analysis, which followed the major phases outlined by Braun and Clarke (2006) in conducting a narrative inquiry. These major phases are: 1) familiarizing oneself with the data; 2) generating codes; 3) constructing themes; 4) reviewing potential themes; 5) defining and naming themes; and 6) producing the report.

Ethical Considerations

The researcher considered ethical concerns before conducting the research. The researchers explained to the participants the purpose of the research. Any questions and clarifications were settled. Participants signed informed consent. It is significant that research participants need to have complete information about the study, were

not forced but were willing to participate in the study, and that their identity was kept for privacy, confidentiality, and anonymity (Miles, 2014).

Results and Discussion

The participants came up with an overarching theme to summarize their challenges and experiences. It is termed *bersama-sama*, which means teachers can achieve more if they work together. It implies that despite the challenges teaching students from different walks of life may bring, IC promotes learners' achievement. Though IC requires critical thinking and creativity, it can be rewarding.

Recurring Themes

Themes have emerged from the narratives of the participants. These themes include planning, collaboration, teamwork, and support.

Planning

Faculty members have significant roles in any educational transformation (Boyer, 1996; Christensen, Ekelund, Melin, Widén, 2021). The creation of IC from this group of human resources assisted in the advancement of the institution's functions. Thus, after the participants met to have interdisciplinary collaboration, they started planning for what was best for the activity. Everybody contributed to the betterment of the two disciplines.

Collaboration

“Our jobs and responsibilities between two faculties were shared and collaborated” (P2). Participants realized the significance of the collaboration. Collaborative teaching enhances English language teaching because it employs teachers from other disciplines to decide on how to share their expertise as they enhance their lesson delivery in varied ways (Taşdemir & Yildirim, 2017). A study (Pauley & McKim, 2019) showed the need for interdisciplinary communities to develop chances for strength through purposeful interactions.

Interdisciplinary collaboration needs to be pursued in the future (McMurtry, 2013) and even now. "Diverse experiences laid a rich foundation for greater collaboration among researchers" (Johnston, Burleigh, & Wilson, 2020, p. 71). Collaborating with other faculty members "eases] workload demands and [reinvigorates] faculty members in the conduct of their teaching and research" (Eddy & Garza Mitchell, 2012, p. 283)

Though the group found challenges in this IC due to "students' lack of interest" (Participant 1) and "*issues in pronunciation, grammar, and listening*" (Participant 2), they believed that their collaboration would enhance learners' English language. As Participant 1 stressed out,

Students come from different walks of life. Some come from places where English is not used, making them less knowledgeable of the language. These students are less interested since they cannot see the importance of the English language. Not to mention that these students may not be motivated.

Given the different challenges the participants encountered, they tried to motivate students to love English and learn more about it by offering different activities within and without the school premises. They had collaborative worship "*where all the program participants from the two faculties were encouraged to speak English*" (Participant 2). They introduced "*sermons in English, prayer sessions, Monday class interactions in English between students-students and students-teachers, speech contests, and chapel programs*" (Participant 1). Furthermore, "we plan for programs wherein the students are actively involved in using the English language (Participant 1).

The above concepts in learning seemed beneficial because English language learners in Indonesia spend less time learning the language (Panggabean, 2015). Learners attested that English learning activities carried out beyond the

four walls of the classroom made them interested in learning the language (Shanthi & Jaafar, 2020), as in the Sabbath School discussion that challenges leaders to read. It is because reading English is not a habit (Panggabean, 2015). A study (Shanthi & Jaafar, 2020) showed that learners opted for group activities over individual activities because they could refer to other English materials beyond classroom references.

The success of English activities carried out beyond classrooms can be assessed by students' ability to complete the task assigned (the end product) rather than the processes involved in completing the task (Shanthi & Jaafar, 2020). A study (Cirocki et al., 2019) attests that students are dependent on their teachers, who instruct them on what to do to complete their class activities. Learners must have benefited from activities outside the classroom because for them,

"Life in the classroom resembles the hierarchical society outside school, where subservience to those in authority or of higher status is required. As a result, students strictly follow whatever their teachers say, convinced there is only one best solution to a given problem—the teacher's option" (Cirocki & Retnaning, 2019, p. X)

Teamwork

In the process of achieving goals for a common cause—the enhancement of English language learners—the participants had teamwork. They motivated students to be participatory in this program. They believe that motivation plays a role. Thus, they provided English programs even outside the classroom walls. "*We opened the English Sabbath School and Divine Service program*" (P3). "*Students were asked to lead and contribute to the Sabbath School discussion in English*" (P3).

A study (Mauludin, 2021) attests that students prefer activities in a comfortable and enjoyable environment because these motivate them. Motivation

plays a significant role in learners' achievement of goals (Marufet et al., 2022). Motivation enhances learning achievement (Dja'far & Bakstomii, 2016). High motivation may enhance the learning curve significantly" (Ordem, 2017, p. 339).

Furthermore, motivation "maneuvers human beings toward attaining a goal" (Ginsberg, 2015, p. 2). It directs students toward learning attainment (Dörnyei et al., 2006).

Motivation plays a significant role in successful foreign learning (Setiyadi et al., 2019). Motivation prompts learning for the acquisition of a foreign language (Cheng & Dörnyei, 2007).

Though the study of Lena, Trisno, and Khairat (2022) suggests that motivation and interest did not influence learners; that is, motivation and interest were not factors for students' success in learning English, the study of Hendrawijaya (2021) argues that motivation contributes to a significant positive effect on learners' learning interest and that learners' interest was a mediator for learners' learning achievement.

Support

"With the support that has been extended to us by the institution and the support we extended to our students, we observed positive changes. Students were more engaged" (P3). "The support that we received from the other discipline has encouraged us to move forward and plan to collaborate with other or more disciplines in the future" (P2). "It seems that the English department does all the teaching of English to our students. With this interdisciplinary collaboration, I felt our department has a significant role to play in assisting English language enhancement" (P2).

One of the supports that we receive from the institution is technology. Technology enhances teachers' communication abilities (Christensen, Ekelund, Melin, Widén, 2021). Technology assists

faculty members to "distribute knowledge that will transform for the better the existing structures within and around universities" (Kosmützky, 2018, cited in Christensen, 2021).

Conclusion and Recommendation

Though there are challenges in doing IC, the conclusion points out a reflection of the necessity of interdisciplinary collaboration between institutional disciplines. For them, IC offers a wide range of benefits, including the enhancement of learners' English language.

IC research has become an increasing point as a multipurpose response to a range of academic problems, which includes the teaching of English and opportunities for teaching learners through varied strategies and ways. IC is needed to understand not only the challenges but also the strategies for potential success. Given the themes—planning, collaboration, teamwork, and support—that emerged, IC is deemed to be reconducted, but with other disciplines to find more chances of offering better service for the students. Through IC, teachers learn to be more sharing.

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Engagement in Science Investigatory Projects and the Learning Interest of Science, Technology, Engineering, and Mathematics Students

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It is important to explore how scientific experiments increase students' interest in learning about this subject. Science investigatory projects require students to plan, test theories, document the findings, and analyze them to solve problems. Thus, this research aimed to determine the influence of engagement in science investigatory projects on the learning interests of Science, Technology, Engineering, and Mathematics (STEM) students. This study employed a descriptive-correlational research design and purposely included 50 students who performed investigatory projects in their science classes. Findings show that students were highly engaged with their investigatory projects in terms of cognitive and social aspects. They also rated their learning interests as high. The researchers found that cognitive engagement influenced the interest of students in scientific topics. The relationship between cognitive engagement and learning interest is moderately positive, which implies that if students are attentive, thinking, or making mental efforts in investigatory projects, they are also interested in learning about those topics. Using multiple regression analysis with learning interest as the dependent variable, results show that the total variance is explained by only one predictor ($F(3, 50) = 7.33, p < .001$). Of this total variance, 54.90% of students' interest is attributed to the cognitive dimension. Furthermore, there is no significant difference between male and female interest in learning science lessons. This study concludes that teachers should encourage students to participate in science investigations to boost their interest in science subjects. Also, students need to be provided with lessons and activities that are engaging. Finally, this study recommends further exploration to determine if engaging in science investigatory projects predicts the career choice of the students.

Keywords: *investigatory project, learning interest, engagement, STEM*

Building and maintaining students' learning interest in science has been a persistent goal in scientific education and a significant study topic since interest is a key factor in students' perseverance in school and motivation in pursuing science professions.

According to Gargarita (2021), educators sought a way for students to actively build relevant science knowledge, therefore promoting the completion of Science Investigatory Projects (SIP).

A science investigatory project, according to reference.com, is a project that uses the scientific method to look for a solution to a problem. The SIP is also defined as real-world assignments when teaching science (Sanchez & Rosaroso, 2019). It includes doing research, developing a testable theory, planning the experiment, carrying it out, and documenting and summarizing the findings (Comia, 2017). It is also providing students with the chance to investigate issues that interest them. Students can broaden their understanding of science, technology, math, engineering, and daily living by completing projects of this nature (Dotson, 2018). Given these benefits, competent scientific research can benefit society, and such goals are crucial (Gomez, 2013).

Furthermore, Cuartero (2016) stated that SIP helps students develop scientific abilities that they can utilize throughout their lives. Lastly, SIP involves students in the research process. Students are allowed to go through the procedure, and teachers allow them to examine the results of each phase. For example, students participate in brainstorming exercises to determine their science research question and viable hypotheses. Students are then immersed in a demanding process as they carefully follow the steps of the research process and go through multiple revisions. Students will comprehend and appreciate the relevance of science when science training is well-designed to concretize the goals of science. This will encourage them to engage in more SIPs that benefit their communities. A culture of invention and problem-

solving is anticipated once this has occurred. SIP culture is created as a result (Sanchez, 2022).

Applying scientific inquiry while learning science is experiential. It entails more than just defining ideas, listing information, and picking up vocabulary. Its main goal is to apply academic knowledge to practical situations to enhance people's lives, protect the environment, learn new things, develop new goods and services, and advance technology. Science research is critical to unlocking these potentials (Manalo, 2020). Additionally, students can use process skills, conduct research, and solve community problems by working on a SIP as part of a project-based learning approach. According to Aparecio (2018), high school students benefit from participating in research. It helps promote knowledge of the scientific method and process, nurtures interest in pursuing careers in science, and helps students gain confidence in their understanding of scientific material.

Science investigatory projects allowed students to identify the steps to take in solving a scientific problem, formulate a provisional response to a problem, predict a solution to a problem, and construct or formulate their own generalization and conclusion of the experiments. Therefore, it was concluded that SIPs develop students' process skills. Additionally, SIP help students handle scientific investigations, develop a student into a young scientist with scientific attitudes and habits, and give them actual experiences to correct misconceptions in science. Students learn knowledge and skills as part of the SIP implementation process, but they also develop values and learning interests that are crucial for understanding and appreciating the advancements made possible by science (Sanchez & Rosaroso, 2019).

Reforms and initiatives have centered on increasing the number of students who study STEM courses and ensuring that they are educated and qualified to pursue STEM occupations. Global projects aiming to increase economic profitability through a highly educated workforce place a lot

of focus on STEM. As a result, numerous nations have made considerable investments in STEM educational projects, primarily concerned about potential future shortages of individuals with a background in STEM. Many efforts in school education (K–12) have two main goals in mind: to increase the number of students who pursue STEM topics and to make sure students are adequately equipped and qualified to work in STEM fields (Mcdonald, 2016).

STEM is a major concern for policymakers all around the world. It also highlights the similarities between the silences on sociopolitical issues identified in government policies and STEM-related curricula, including nanoscience, and those discovered about environmental education and links them to the rise of a scientific rationalist approach to curriculum (Gough, 2015). The way that students feel about learning science will have a big impact on how their learning interest about science grow, but there are other factors that matter as well. It is crucial to consider how to carry out the lesson on science learning that is based on experimental science subjects (Susanti et al., 2018).

Few studies have explored the impact of investigatory science projects on students. There are studies that have thoroughly investigated the effects of science investigative projects on the process skills and interests of elementary and high school students. However, there are no studies about the influence of science investigatory projects on the learning interests of STEM senior high school students, which the researchers would like to investigate. This quantitative study sought to investigate how science investigatory projects influence STEM students' interests in learning science.

This study is anchored on Butler's theory of action and Krapp's Person-Object approach to interest theory. Science-related activities are crucial since they can improve students' academic success and have an impact on their behavior and interest in learning the subject.

Butler (1999) observed a substantial correlation between students' behavioral interest in participating in science learning activities and. Butler theorized that factors in the classroom, such as the subject matter, peer pressure, and instructor influence, affect students' attitudes toward learning science. Interest, as defined by Krapp (2002) in his Person-Object Approach to Interest Theory, is a relational construct made up of a sustained bond between a person and an object. The definition of interest can also vary, from a singular, situation-specific person-object relationship such as reading an engaging text to the formation of persistent value beliefs regarding specific areas like interest in physics (Schiefele 2009). With this method, concepts relating to interests are clarified through an individual's interactions with their environment (Krapp, 2002). Specific activities that may include both concrete or hands-on actions and abstract mental operations serve to establish this relationship (Wong et al., 2020).

Students with a strong scientific perspective profit more from science than students without such a mindset (Rotgans et al., 2019). Studies have shown that having a good learning interest in science and applying students' learning to scientific investigation are beneficial for advancement; however, only a few studies have explored this topic (Cuartero, 2016; Aparecio, 2018; Manalo, 2020).

Thus, this study was conducted with the desire to explore if SIP influences the learning interests of STEM senior high school students. The researchers investigated how engagement in science investigatory projects influences the students learning interests. Moreover, this research responded to the following questions:

1. What is the extent of engagement of STEM students in doing science investigatory projects in terms of:
 - a. cognitive
 - b. emotional and
 - c. social engagement?

2. How is the learning interest of the respondents in science?
3. Is there a significant relationship between the respondent's engagement in SIP and their learning interest?
4. Does engagement in science investigatory projects predict the learning interests of students?
5. Does learning interest differ when the sex of the respondents is considered?

Methodology

Research Design

This study is quantitative and used a descriptive-correlational research design to obtain data and information to determine the influence of science investigatory projects on STEM students' learning interests. A descriptive design was applied to describe, analyze, and interpret the participants' extent of engagement in SIP and level of learning interest. A correlational design was used to find the relationship between SIP and the learning interests of the STEM senior high school students.

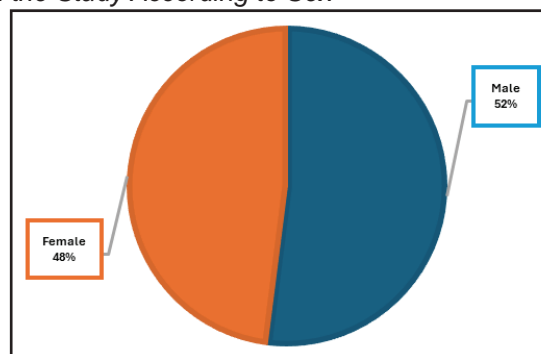
Population and Sampling Techniques

Participants in this study were STEM students enrolled in senior high school at Adventist University of the Philippines Academy (AUPA), which is in Barangay Puting Kahoy, Silang, Cavite, during the second semester of the academic year 2022-2023. The total population of senior high school students enrolled in the STEM strand is currently 176. A sample of 75 students was drawn to be the participants of the study. The purposeful-quota sampling technique was used in the study, wherein the researchers identified the students who are currently doing SIP.

Figure 1 shows the distribution of the participants in the study by sex. Male participants in the study are more than 39 (52%), compared to females 36 (48%).

Figure1

Distribution of the Participants in the Study According to Sex



Instrumentation

The researchers prepared an adapted but modified questionnaire that was guided by related literature and studies.

1. Profile of the Respondents Scale [PRS].

This instrument was used to identify and classify the sex of the respondents. Sex is used as the moderator variable in the study.

2. **Science Investigatory Scale [SIS].** This instrument was created by Wang et al. (2016), was validated, and has gone through a reliability test using Cronbach's alpha. This tool has four dimensions, such as cognitive engagement, behavioral engagement, emotional engagement, and social engagement. The instrument contains 10 statements per dimension. The instrument was modified and adapted to examine students' engagement in SIP, specifically their cognitive, social, and emotional engagement. The self-assessment questionnaire used a 5-point Likert scale ranging from strongly agree (SA) to strongly disagree (SD). The positive items' maximum rating is five (5). A score of five (5) means students are very highly engaged in science investigation projects. A rating of one (1) means they are not engaged.

3. **Learning Interest Scale [LIS].** The learning interests about science were formulated and validated by Said et al. al. (2018). The instrument has 22 items of questions using 5-Point Likert scale, but the researchers adapted and modified 9

items of questions. The responses range from strongly agree (SA) to strongly disagree (SD). A rating of one (1) means they are not interested in learning science subject, while a rating of five means the participants are highly interested in learning the subject. All negative statements were recoded when the data were statistically measured.

Table 1 presents the reliability test result using Cronbach's alpha for each subscale of the instruments used. Cognitive, emotional, and social engagement scales in SIP are good, with Cronbach Alphas of 0.889, 0.874, and 0.903, respectively. The learning interest scale is excellent.

Table 1

Reliability Test Results of Engagement in Science Investigatory Projects and Learning Interest

Variables	Number of Items	Cronbach Alpha	Verbal Interpretation
Engagement in SIP			
1. Cognitive	10	0.889	Good
2. Emotional	10	0.874	Good
3. Social	10	0.903	Good
Learning Interest	9	0.927	Excellent

Analysis of Data

The data that has been collected was analyzed and tabulated using the Jamovi application to obtain the necessary statistical treatments for interpretation. The descriptive data, such as the profile of the respondents, extent of engagement in SIP, and level of learning interest of the participants, were determined using the statistics of frequency, percentage, mean, and standard deviation. The correlation method of analysis was used to find the relationship between engagement in SIP and learning interest among STEM students. Lastly, the t-test method of analysis was used to find a significant difference in the learning interests of senior high school students when their sex was considered.

Ethical Considerations

The researchers prepared a consent form that was submitted to the AUP Ethical Research Board (ERB) and was approved to conduct the study's procedures. Ethical concerns were observed, including the intent of the study, its objectives, and the non-disclosure of the responses of the participants. A cover letter was attached to the online survey, explaining the purpose of the study and giving participants the discretion to withdraw from it at any time they wanted. This study ensured anonymity and confidentiality.

Results and Discussion

Students' Engagement in Science Investigatory Projects

Table 2 presents the respondents' overall extent of engagement in science investigatory projects and its subdimensions in terms of cognitive, emotional, and social. The respondents are *highly engaged* (grand mean of 3.51, $SD = 0.53$) with their SIP. Both cognitive and social engagement were also rated as *high*, with a mean of 3.87 ($SD = 0.61$) and 3.60 ($SD = 0.83$), respectively. This result implies that students were cooperating to apply theories or concepts to practical problems, collaborating with their classmates, asking questions in class, and demonstrating an interest in the course material. Furthermore, students are actively participating in their learning course, both physically and mentally. Moreover, the students

are *moderately engaged* (mean = 3.04; SD = 0.74) emotionally. This result implies that some students' responses and feelings, both positive and negative, toward the curriculum, the teacher, and their peers include curiosity, boredom, happiness, sadness, anxiety, likeness, dislike, and a sense of belonging. Lastly, students' involvement in and enthusiasm for a particular project are partially demonstrated.

Table 2*STEM Students' Engagement in Science Investigatory Projects*

	M	SD	Scaled Response	Verbal Interpretation
Cognitive	3.87	0.61	Agree	Highly Engaged
Emotional	3.04	0.74	Moderately Agree	Moderately Engaged
Social	3.60	0.83	Agree	Highly Engaged
Engagement (Overall)	3.51	0.53	Agree	Highly Engaged

Legend: 1-1.49 = SD; 1.50-2.49 = D; 2.50-3.49 = MA; 3.50-4.49 = A; 4.50-5 = SA

Baranova et al. (2019) found that students preferred working on project activities over preparing for courses via an online platform, and that they had high cognitive engagement with the subjects presented in lectures and spent a lot of time working on and executing assignments. Students who are highly engaged are more likely to attribute the task's importance to internal factors, leading to increased positive emotions, while those with low engagement may view critical tasks as externally driven or under pressure.

The study by Delfino (2019) also revealed a high level of cognitive engagement in terms of the respondents' ability to complete papers or projects that call for integrating thoughts or information from previous sources, applying course material to their lives, and reviewing class notes in between classes to ensure they comprehend the material.

According to Johnson and Johnson (2009), this has been well supported by the substantial amount of research that has been published, making it one of the most important principles in organizational and social psychology. In fact, Johnson et al. (2014) contend that organizations would be wise to structure positive dependency among individuals while reducing negative or no independence if they want to enhance the motivation and achievement of their members. Opportunities for students to work in environments where they feel a sense of positive interdependence would seem to be preferable to those based on a lack of or negative independence.

Students' Learning Interest in Science

Table 3 presents the STEM students' learning interest with an overall mean of 3.78 (SD = 0.64), respondents assessed their level of interest as high. They agreed that they want to study more science in the future (mean = 3.95; SD = 0.78) and that they are eager to understand science topics (mean = 3.93; SD = 0.88). The results show that students' belief in their ability to understand science has the lowest mean score (mean = 3.58; SD = 0.90). These findings indicate that students are highly interested in science and are eager to learn more about it in their future pursuits.

Table 3
STEM Students' Learning Interest

	M	SD	Scaled Response	Verbal Interpretation
1. I would like to study more science in the future.	3.95	0.78	Agree	Highly Interested
2. I am excited to learn scientific concepts.	3.93	0.88	Agree	Highly Interested
3. I have fun when I am learning science topics.	3.91	0.73	Agree	Highly Interested
4. I am excited to do science activities.	3.84	0.83	Agree	Highly Interested
5. I enjoy learning about new scientific developments.	3.82	0.77	Agree	Highly Interested
6. I study science because it is fascinating.	3.80	0.93	Agree	Highly Interested
7. I will still be interested in science even when I finish school.	3.75	0.97	Agree	Highly Interested
8. I am getting my mood improved by participating in science classes	3.62	0.85	Agree	Highly Interested
9. I trust my ability to understand science.	3.58	0.90	Agree	Highly Interested
Interest (Overall)	3.78	0.64	Agree	Highly Interested

Legend: 1-1.49 = SD; 1.50-2.49 = D; 2.50-3.49 = MA; 3.50-4.49 = A; 4.50-5 = SA

A study done by Todd (2019) stated that students are more likely to value science when they can relate to the subject matter. When students engage in hands-on activities to investigate scientific phenomena and their teachers are enthusiastic about the subject matter, they are more interested in science. Thus, expressing an interest in science and illustrating how it can have a direct impact on students' lives and futures will heighten their curiosity and thus boost their engagement with the subject matter. Students show more interest and a positive attitude when they have a supportive environment where their instructor has their best interests at heart and when they have a variety of opportunities to engage with the curriculum, such as hands-on engineering projects and labs.

Based on a study by Hazari et al. (2017), students who studied in classes with other students who also had a strong interest in science had statistically greater intentions for a STEM profession than other student groups who had a lower interest in science.

Relationship of Engagement in SIP towards Students' Learning Interest

Table 4 presents the results of the study on the relationship of cognitive, emotional, and social engagement to students learning interests. Among the three dimensions of engagement, only cognitive is *significantly related* to interest, with correlation coefficients of 0.548 ($p = .001$). The relationship is *moderately positive*, which indicates that if the STEM students are cognitively engaged in their science investigative projects, they are also interested in what they are doing. This suggests that a higher degree of cognitive engagement will result in a higher level of students' interest.

Table 4
Relationship of Engagement in SIP towards Students' Learning Interest

	Cognitive	Emotional	Social	Engagement
Pearson Correlation	.548**	-.084	.045	.194
Sig.(2-tailed)	.001	.540	.774	.155
Verbal Interpretation	Significant	Not Significant	Not Significant	Not Significant

**Correlation is significant at the 0.01 level (2-tailed)

Research-Based Learning (RBL) is an effective strategy for enhancing students' learning by doing. It was found that students strongly agreed that research-based instruction has a positive impact on their scientific learning. It was because most of the learning assignments piqued their interest, demonstrating that RBL is a fun way for learners to understand science subjects (Lubas, 2022).

Moreover, Zen et al. (2022) discovered that project-based online learning (PBOL) improves student cognitive engagement because, through the utilization of digital material such as text, photos, and video, students can better understand the lecturer's topic.

Lastly, cognitive engagement during learning increases with excellent service and real-time feedback, although a tiny part remains low. When students engage in STEM project-based learning, their thinking skills improve, most notably at the level of understanding (Rahmawati, 2021).

Predictors of Students' Learning Interest

Table 5 presents the multiple regression analysis with interest as a dependent variable. Results show that the total variance is explained by only one predictor ($F(3, 51) = 7.33, p < .001$). This total variance accounts for 54.90% of students interest and is attributed to the cognitive dimension. This implies that students' autonomy and choice boost their engagement with the subject at hand. It is anticipated that students' experiences of autonomy and power in the classroom will motivate them and help them focus on the work at hand. Additionally, when students' situational interests are constantly reinforced by brand-new educational events developed specifically for this goal, individual interest increases.

Table 5

Multiple Regression off Students' Learning Interest

Model	R	R ²	R ² Change	df	F	t	Sig.
Cognitive	0.549	0.301	0.260	3	7.33	4.5134	.001

Engagement and knowledge follow interest, which then returns to more interest and motivation (Muenks et al., 2017). Students' interest and process skills, such as observing, comparing, classifying, measuring, gathering, organizing, predicting, inferring, assessing, synthesizing, and interpreting data in science learning, are developed through science investigatory projects (SIP).

Additionally, science investigatory projects have positive impacts on students' interest in learning science and their ability to observe, measure, and compare, which enables them to work more effectively with their comprehension of scientific ideas and concepts. According to the analysis of Muenks et al. (2017), interest motivates students and increases cognitive engagement. Students were more motivated to attend and participate in class and devote more time and effort to assessments when they were interested in their courses.

Moreover, when the students were interested, their cognitive engagement increased. Equally as important, students who were disengaged due to a lack of interest, for whatever reason, put in less effort, had a harder time comprehending the material, cared less about their marks, and ultimately performed worse. It is reasonable to suggest that young students' lack of interest not only jeopardizes the development of the next generation of scientists but also prevents them from becoming scientifically literate citizens because they are less likely or even unable to engage with significant societal issues related to science (Swarat et al., 2012).

Lastly, for students to actively participate, engage in activities, and learn effectively, interest is vital. According to Toli and Kallery (2021), studies carried out over several decades have indicated that one of

the most useful solutions is to trigger students' interest and optimize their active involvement and, therefore, their engagement in the learning process. A student's potential for success in the sciences might be gauged by their interest in the science field. The higher a student's interest in science, the greater the commitment and effort to excel.

Students' interest in science is a significant predictor of their decision to enroll in science-related courses and careers (Alhadabi, 2021). The amount of learning and the level of students' present and future participation are both influenced by their interest in learning science (Boukayoua et al., 2021).

Difference of STEM Students' Learning Interest when Grouped by Sex

Table 6 shows that there is no significant difference in participants' learning interest when grouped according to sex. Male participants (39) had a mean of 3.83 and a standard deviation of 0.70, while female participants (36) had a mean of 3.72 and a standard deviation of 0.59, with a t-value of 0.650 and an associated probability of 0.519.

Table 6

Difference of STEM Students' Learning Interest when Grouped by Sex

	Sex	N	Mean	SD	t	Sig	Verbal Interpretation
Interest	Male	39	3.83	0.70	0.650	0.519	Not Significant
	Female	36	3.72	0.59			

Unfortunately, Stewart et al. (2019) found that gender differences in interest and preferences for science disciplines were evident. Women chose biology, while men preferred physics and chemistry. Female students' interest in science was positively connected to their own time and innovation-focused career perspectives, while it was negatively correlated with an outcome-focused job expectation.

However, the study of Almasri (2022) found that female students performed better than male students in the e-learning modality in collaborative and traditional single-gender settings, with a medium and high influence, respectively, on measures of attention, relevance, confidence, and satisfaction. The sociocultural backdrop of the study predicts that female students will feel more at ease and happy when learning in environments with only one other gender. These findings showed that in these types of learning environments, female students paid more attention and felt more confident than their male counterparts.

Conclusion and Recommendation

The STEM senior high school students are *highly engaged* in doing their science investigatory projects in terms of cognitive and social. However, the students were *moderately engaged* emotionally. They have a *high* learning interest in science. The students who are interested in learning science are also enthusiastic about it.

There is a significant relationship between the cognitive dimension of engagement and the learning interests of STEM senior high school students. This suggests that students are interested in what they are doing whenever they cognitively participate in their science investigation projects. In addition, students' enthusiasm for an investigative science project will increase if they are cognitively engaged in it. The cognitive dimension of engagement also accounts for 54.90% of students' interest.

Lastly, there is no significant difference in participant's learning interest when their sex is considered. This study recommends that the students continuously cultivate their' interest in their studies and be actively involved in their projects and activities if they want to pursue a science-related career. Science-

related projects and activities should not be a barrier to learning because they will help students expand their knowledge and understand the value of innovation. Also, students need to be provided with lessons and activities that are engaging. Finally, this study recommends further exploration to determine if engaging in science investigatory projects predicts the career choice of the students.

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Note-Taking Strategy and Students English Achievement at Selective Private Senior High School

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Note-taking is an essential skill that plays a significant role in academic success. Effective note-taking techniques have been shown to be very helpful while learning a language, such as English. This study sought to determine the relationship between note-taking strategy and student English proficiency at a private senior high school. The questionnaires used in this quantitative investigation were modified versions of those used in the two previous studies. Descriptive and correlation analyses were utilized on the gathered data. The researchers recruited 75 respondents using non-probability sampling techniques in a selected private senior high school's grade 11 science class to participate in the study. According to the results, students' mean note-taking scores were 3.16, which were evaluated as moderate, and the mean English achievement score was 72.14, which was regarded as low. The correlation analysis revealed a significant positive association between note-taking and English achievement. Results are useful to foster effective note-taking strategies, which can contribute to English or academic achievement. A similar study can be done by exploring different variables, respondents, and methodologies.

Keywords: *English achievement, note-taking strategy, English proficiency*

Note-taking is a valuable tool for language learners as it helps to consolidate and reinforce learning. By actively engaging in the process of note-taking, students are more likely to understand and internalize the material being presented. It enables them to filter out irrelevant information and focus on the main ideas and concepts. Furthermore, note-taking promotes active listening, critical thinking, and analytical skills, all of which are essential for mastering English. Although note-taking is a traditional method, it is still important nowadays in the age of technological development. Note-taking habits have arisen since the 1970s (Morehead et al., 2019), but nowadays note-taking still has its role as an important tool (Haghverdi, Biria, & Karimi, 2010) and continues to be an "important skill" for students (Savitri, Asrori, & Chakim, 2019, p. 142).

Non-native English speakers must put in more effort to learn the language. Humans have a propensity to forget things easily, especially lessons. Besma (2016) asserts that humans' capacity for memory plays a significant role in our ability to forget information we have learned in the past. There are memories, but they are inaccessible (Cherry, 2021). Note-taking is necessary since the human brain is incapable of recalling everything that has been taught in the past. Taking notes was necessary for efficient learning, according to Morehead et al. (2019). Making a summary of the lesson in your notes will make it simpler for you to comprehend and recall the lecture's information. Students who take notes are better able to recall the information and comprehend it more thoroughly (Salame & Thompson, 2020). As a result of technological advancements, students now record their notes on video rather of writing them down. However, when revisiting the lesson, rather than going over their notes again from beginning to end, this results in time wastage. This is consistent with what Liles et al. (as mentioned in Morehead et al., 2019) state: a student's later memory will be impacted if they don't take notes. The majority of earlier investigations discovered the same issue with taking notes.

Even though people write to gather information for a variety of reasons or situations (Ipek, 2018), many students lack the knowledge of how to take notes since they are not taught how to do so and have little practice doing so (Haghverdi, Biria, & Karimi, 2010). Because of this, students may copy verbatim from lecturers or may even write nothing at all. According to Al-Ashkar (2014), "their inability to decide what to record" (p. 85) is the main reason why students have trouble taking notes.

Students will learn more if they take notes while studying. Taking notes was necessary for efficient learning, according to Morehead et al. (2019). Making a summary of the lesson in their notes will make it simpler for them to comprehend and recall the lecture's information. Students who take notes are better able to recall the information and comprehend it more thoroughly (Salame & Thompson, 2020).

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The students had to pay closer attention when taking notes during lectures, especially the non-native pupils. Students who take notes as the teacher lectures improve their listening skills, note-taking skills in general, and their capacity to identify pertinent material (Ipek, 2018). Al-Ashkar (2014) said that the findings significantly supported the large number of students who take notes in class. Haghverdi, Biria, and Karimi (2010) contend that taking notes is a crucial academic ability since it increases students' attention spans and concentration. The ability to recall and comprehend the professor will help students better prepare for exams. According to the Salame and Thompson (2020) poll, "note-taking is an important strategy for ensuring success in classes, beneficial to studying,

and beneficial to gaining knowledge” (p. 7) among students. Students who are not proficient note-takers cannot profit from the notes. Five techniques are therefore provided to aid pupils in honing their note-taking abilities.

There are few practices in the note-taking strategies. The first is the Cornell method, which was invented by Walter Pauk, an educational professor at Cornell University in the 1950s. The Cornell method calls for creating three columns in your notes: a summary column at the bottom of the two main columns, and columns on the left and right for the important points’ descriptions. The Cornell approach enhances students’ learning, writing abilities, grammatical knowledge, and critical thinking, according to Alzu’bi (2019). Due to the fact that the bottom of the paragraph represents the ideas of the students (Bouguesba, 2019), they are able to explain what they believe they have learned from the class. This concept of “transfer of new material into existing cognitive structures” is supported by Evans and Shively (2019) as well (p. 14). Their research revealed that Cornell note-taking enhances participant comprehension of the instruction because it facilitates brain processing. Second is outlining method. When note-takers choose the format in which to record information, this occurs. Note-takers use the outline to decide on each point; it is the underlying highlight, just like when giving a presentation. The phrase “paraphrased note-taking style” is another name for this technique (Akintunde, 2013). Because just the major aspects are highlighted during outlining, the material is more organized. Roman numerals, numbers, and indentation are all used. The results of Akintunde (2013) show that those who take notes on an outline are “able to utilize their cognitive process in transforming information received into meaningful codes” (p. 71). The major points are all that are included in the outline, which is concise and appears to be easier (Okafor, 2016). Because the information is presented in a way that makes sense, folks who become overwhelmed by

notes’ abundance of words may find it helpful. The third method is mapping; this method is called the patterning method. It was created by Buzan to be used as a visual tool that “incorporates pictures and different colours to bring ideas to life” (Tee et al., 2014, p. 28). This type of strategy is simple and engaging because it has a visual element that aids in students’ memory of the material. This method was also endorsed by Basri and Syamsia (2020), who described it as “a creative note-taking method that makes it easy to memorize a lot of information” (p. 38). By using a mind-mapping technique, students can naturally develop their left and right brains. And the last method was the charting method. Through this method, note-takers “set up a paper by drawing columns and labelling appropriate headings in a table” (p. 39), according to Susanti (2020), while using this charting technique. According to Bouguesba (2019), this strategy involves grouping or charting the information according to its categories. In order to save time while still receiving the information they wanted, this required note-takers to enter the information in the proper category. John Henry Wigmore, a legal professor who developed the charting technique, utilizes it to support the facts in court. According to Gilman (2012), this technique is excellent for studying for tests and for keeping track of dialogues and conversations.

There are significant contributions of note-taking strategies for the students. The potential of note-taking to encourage active participation in language learning sessions is one of its main advantages. By taking notes, students are compelled to listen intently, digest information, and decide what is crucial. This active participation not only aids in comprehending consolidation but also improves memory retention, ensuring that the knowledge is easily available when required. Additionally, taking notes encourages structure and organization in the learning process. As language learners gain more knowledge, keeping track of grammar conventions, vocabulary, and cultural nuances can become

daunting. Learners can organize and systematically review material by making a thorough collection of notes. This design makes it easier to find information, enabling students to confirm their understanding. Taking notes helps students retain the material from the lecture. Students are better equipped for college studies when they know how to take notes efficiently (Salame & Thompson, 2020). Taking notes facilitates knowledge gathering. When they compare their notes with those of their friends, they can also learn information from those notes. Effective note-taking allows students to organize each key piece of information into points, which makes it simple for them to recall the lecture (Al-Ashkar, 2014), especially after they go over their notes. It is simple to recall the previous lesson (Morehead et al., 2019). In order to help students improve their recall and understanding of the material, note-taking is essential for student learning.

Studies have shown that taking notes has a beneficial effect on language learning. For instance, research by Mueller and Oppenheimer (2014) discovered that students who made handwritten notes outperformed those who used laptops in comprehension examinations. This shows that writing down knowledge really facilitates its processing and retention. Furthermore, a 2013 study by Peverly, Sumowski, and Gallagher showed that taking notes helps information move from short-term to long-term memory. The study's findings, which demonstrate the long-term advantages of this tactic, showed that students who took notes regularly performed better on memory and application tests than their classmates.

Another benefit of taking notes during lectures is that it aids in student comprehension. Students' attention spans are increased when they take notes during lectures (Haghverdi, Biria, & Karimi, 2010), allowing them to focus on their studies without being distracted. To "plan, evaluate, and regulate their note-taking activity" (Savitri, Asrori, & Chakim, 2019, p. 143), note-takers must also possess

metacognitive knowledge. Because they have absorbed the lesson, the note-taker occasionally has inquiries to make. All of that practice will aid pupils in better comprehending the topic. The use of effective note-taking techniques enables students to translate what they have read or learned into their own words and comprehension. Students who take notes perform better on essay questions. High order thinking abilities are needed to answer an essay since you must analyse and synthesize the concepts to express your response. Making notes teaches students how to connect their ideas to crucial facts in an indirect manner (Al-Ashkar, 2014), which makes it easier for them to respond to essay questions because they can expound more on what they have learned.

A study conducted by Haghverdi, Biria, and Karimi (2010) tried to look at how note-taking strategy training affected students' academic performance and whether it had any positive or negative effects. They also want to know if there are any major note-taking disparities between males and girls that affect students' performance. In the second semester of the academic year 2008-2009, they conducted their study with 120 undergraduate students at the Islamic Azad University of Hamedan who were majoring in translation. Unfortunately, they discovered that "the students take notes based on their own taste" (Haghverdi, Biria, & Karimi, 2010, p. 124), which contradicts their goal of determining if the students are adept note-takers. Due to a lack of prior instruction in note-taking techniques, the pupils lacked a strong background in taking notes. Because of this, their notes are inadequate, and they copy the lecturer verbatim. The students were then split up into 16 groups, and teaching on note-taking was attempted. The students were given a text to read and were instructed to take notes. After that, they were given a post-test with 40 multiple-choice questions at the end of the lesson. The tests are not just for students but also for professors. Their ages varied from 28 to 55, with experience in teaching ranging from 7 to 25 years. The respondents

(Iranian professors and students) had a positive opinion of note-taking instruction. Although “there is no meaningful difference between the males and females” in terms of improving academic achievement when taking notes, they did have a favorable impact on it (Haghverdi, Biria, & Kairmi, 2010, p. 141). They concluded from their research that note-taking strategy training and students’ academic achievement are strongly related.

Savitri, Asrori, and Chakim (2019) studied in Indonesia with English Department students who had note-taking materials for their reading class. The results of the survey and focus group discussions indicate that 91% of respondents think taking notes is crucial and important to their learning. 90% of students have good note-taking skills, and 87% are able to evaluate their own notes for learning. Due to its thoroughness, the Cornell Method is preferred by 15% of students. The study claims that the students are aware of the significance of arranging their notes and selecting the approach that “suits their needs” (p. 145). Salame and Thompson (2020) did their study to examine the impact of strategic note-taking on students’ performance, achievement, and learning by seeing their GPA (grade point average). They collected their data from 160 students at the City College of New York, including Likert-type and open-ended questions that will show how students take notes and how beneficial they believe note-taking is. They also requested the participants’ GPAs to examine if there is a correlation between note-taking and GPAs. According to the data, most participants improve their memory using note-taking strategies.

Many of the students agree that note-taking helps them improve their achievement and their performance in learning English. Based on the literature reviewed and the related study mentioned above, this study aimed to find out the level of note-taking strategies and English achievement of the selective private school and to seek to determine if there is a correlation between note-taking strategies and students’ English achievement.

Methodology

Research Design

This research is quantitative and used a questionnaire to gather data that was then statistically analysed to quantify variables (Mulyadi, 2011). To discover the description and association, statistical tools were used to evaluate and interpret the data. The first is a descriptive approach that enables researchers to “obtain cases deemed rich in information” (Lambert, 2012, p. 255), particularly when determining the degree of note-taking strategy and English proficiency of students in a private. The correlation approach is the second way to determine whether note-taking and students’ English achievement are related. Correlational research design, according to Seeram (2019), is “to measure two or more variables to examine the extent to which the variables are related” (p. 176).

Population and Sampling Technique

Students from a private school in grades 11, science 1, 2, and 3, served as the study’s respondents. They were enrolled in the 2022–2023 academic year’s second semester. The total number of respondents was very helpful to the researcher because a higher likelihood is associated with a larger number of respondents (Alwi, 2015). Twenty-six students from grade eleven science one, twenty-seven from grade eleven science two, and twenty-two from grade eleven science three made up the total responders. There were 75 respondents in all. Researchers utilized a non-probability sampling method to select the respondents. Non-probability sampling refers to the process when the researcher selects the respondents based on their preferences rather than at random (Tansey, 2007). Researchers selected accidental sampling from this non-probability sampling strategy, where only individuals who were unintentionally present in class at the time filled out the questionnaire (Hariputra, Defit, and Sumijan, 2022).

Instrumentation

The respondents to this survey were given a closed questionnaire in which they were only required to circle the response they felt best represented it. The questionnaire, which comprises 19 items and was translated into Indonesian, was modified from Hagverdi, Biri, and Karimi (2010) (15 items) and Al-Ashkar (2014) (4 items). There were three sections for these goods. The first section of the article discusses note-taking techniques (1, 3, 10, 11); the second section discusses different note-taking tactics (2, 5, 6, 9, 12, 14); and the third section discusses the advantages of taking notes (4, 7, 8, 13, 16, 17, 18). A five-point Likert frequency scale was employed in the questionnaire to collect the students' answers. There are five options: 1 for never, 2 for rarely, 3 for sometimes, 4 for often, and 5 for always. Before conducting the actual study, researchers had done a pilot study to see the reliability of the instrument. The results showed that the reliability of 19 items of the instrument was 848.

Table 1 shows the item distribution in the questionnaire. Table 2 contains the mean range and the verbal interpretation.

Tabel 1

Items Distribution of the Instrument

Construct	Item Number
Note-taking Practices	1,3, 10, 11,19
Types of Note-taking Strategies	2, 5, 6, 9, 12, 14, 15,
Benefits of Note-taking	4,7, 8, 13, 16, 17, 18

Table 2

Note-taking Verbal Interpretation of Five Likert-Scale

Quality	Scale	Response	Range	Verbal Interpretation
High	5	Often	4.50 to 5.00	Excellent
	4	Always	3.50 to 4.49	Very Satisfactory
Moderate	3	Sometimes	2.50 - 3.49	Satisfactory
Low	2	Rarely	1.50 - 2.49	Needs Improvement
	1	Never	1.0- 1.49	Poor in

Table 3 shows the interpretation of the English achievement. The grading system is set at is 74.50 points as the minimum mastery criteria.

Table 3

Table of Interpretation for English Achievement

Grade	Predicate
91.50 - 100	Very Good
84.50 - 91.49	Good
74.50 – 83.49	Fair
Less than 74.50	Poor

Analysis of Data

The researcher utilized descriptive analysis of mean scores to determine the students' degree of note-taking method and their level of English achievement at a selective private school. Based on Asuero, Sayago, and Gonzalez's (2006) theory and the p-value to support the hypothesis, the researcher employed the Pearson Product Moment Coefficient to determine the relationship between note-taking approach and students' English achievement at selective private schools. To answer research questions number one and two, a descriptive statistic was used to find the mean score of frequency level based on the level classifications of note-taking adapted by Dorand and Wijirahayu (2018) and the verbal interpretation equivalent from Portana, Fronda, Grace, et al. (2021). The researcher used the frequency level to find out how well the students did with their note-taking strategy.

Ethical Consideration

This study requires ethical consideration. The researcher explained the questions to the respondents before they responded, and this helped them feel secure in their responses. They were able to answer the questionnaire honestly because they felt comfortable doing so. Additionally, the researcher assured them that their response would not affect their grade.

Results and Discussion

Students' Level of Note-Taking Strategies

The level of note-taking approach was determined by researchers using a descriptive analysis of the mean score. According to the results, the mean note-taking score for students attending private schools is 3.16. The mean score falls between 2.5 and 3.4 on the interpretation scale, which is moderate. In other words, the note-taking method used by private schools is acceptable.

Table 4

Level of Note-taking strategies

No.	Item	M	SD	Scale Responses	Verbal Interpretation
1.	I am taking notes in my English lesson	2.33	.934	Rarely	Needs improvement in
2.	I am taking notes from the important points in my English class.	4.00	.986	Always	Very Satisfactory in
3.	I am taking note while my teacher is teaching in English class.	3.81	1.086	Always	Very Satisfactory in
4.	I am taking note to compare my English note with my friends.	3.01	1.257	Sometimes	Satisfactory in
5.	I am taking note using specific method.	2.56	1.176	Sometimes	Satisfactory in
6.	In taking notes, I separate the main point from the peripheral ones.	3.13	1.089	Sometimes	Satisfactory in
7.	While taking notes, I ask questions.	2.36	1.008	Rarely	Needs improvement in
8.	I underline the important points of my notes.	3.48	1.287	Sometimes	Satisfactory
9.	I am summarizing the concept of the notes.	2.38	1.149	Rarely	Needs improvement
10.	I review my English subject notes.	2.85	1.022	Sometimes	Satisfactory

[table continues on the next page]

11. I revise my English subject notes.	2.70	1.062	Sometimes	Satisfactory
12. I write my notes expressively in my English subject.	2.85	1.182	Sometimes	Satisfactory in
13. I take notes and write them on the white margin of the pages.	3.21	1.255	Sometimes	Satisfactory in
14. Creating enough space between notes affect English.	2.30	1.102	Rarely	Needs improvement
15. I am taking note using specific method affect my English.	2.90	1.092	Sometimes	Satisfactory in
16. Taking notes made me easier to remember the lecture information	4.08	.911	Always	Very Satisfactory
17. Taking notes help me to understand the lecturers	4.10	.980	Always	Very Satisfactory
18. Taking notes help me more to answer an essay question	4.08	.996	Always	Very Satisfactory
19. Taking notes makes me pay close attention to the information in the lecturers	3.94	1.125	Always	Very Satisfactory
Grand Mean	3.16	.556		Satisfactory

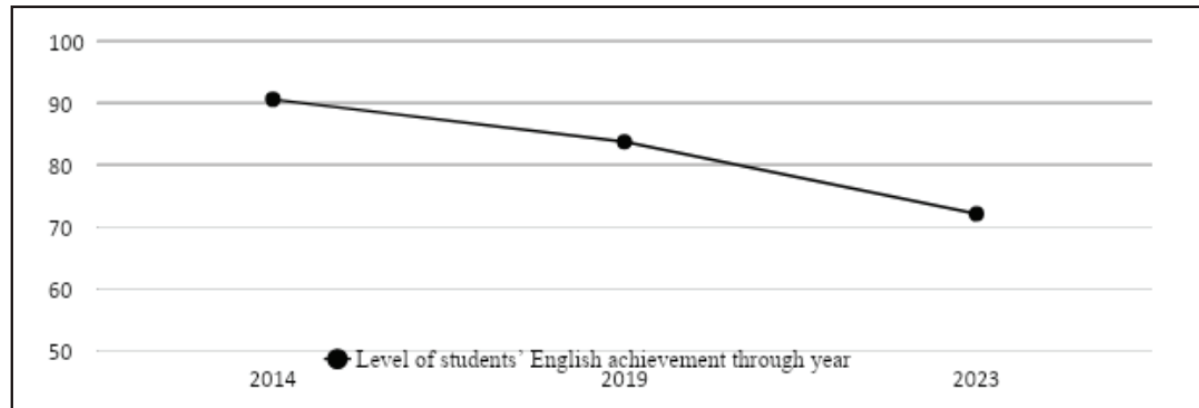
It showed that the students at a private school were accustomed to taking notes. Because of this, the outcome indicated that their note-taking method was at satisfactory level. Most of the students did not know how to use note-taking methods prior to the study being conducted at that school, which contrasts with the previous study where one was conducted to determine the students' note-taking strategy level (Haghverdi, Biria, & Karimi, 2010).

Students' Level of English Achievement

The level of English proficiency of students at selective private schools was also determined by the researchers using descriptive statistical analysis of the mean score. The findings revealed that students in private schools had an average level of English proficiency of 72.14. It suggests that the level of English success at Selective Private School might be characterized as inadequate in note-taking based on the table of predicate intervals based on minimum mastering standards. According to Pungus (2020) and Yamani (2020), who reported that the school's English performance level was

high (mean scores: 84.04 and 90.59), the results of the current study were in opposition to their findings. They assert that this is the case because students take their English classes seriously, pay attention, and already possess a sufficient command of the language to be able to acquire it independently and enjoy classroom activities. The students' proficiency in English is very strong.

The researchers saw a decline in English achievement level at this school, according to the earlier study that was carried out at the same school in 2014, Sopacua and Wayong conducted their survey, and they discovered that the mean English achievement level at the time was 90.60, which was extremely good. In addition, Arapah did a comparable study at the same school in 2019. Because the mean score was 83.78, she discovered that the students' level of English achievement at the time was at an excellent level. The level of English achievement at the same school has further decreased since this research was conducted in 2023. It's 72.14 and categorized as at a poor level. In can be seen in figure 1.

Figure 1*Comparison of the Level of Students English Achievement***Correlation between The Use of Note-Taking Strategy and Students English Achievement**

The result showed the significance value is less than 0.05, therefore there was a moderately positive correlation between the student's note-taking strategy and English achievement at an elective private school.

Table 5*Correlation Between Note-Taking Strategy and Students English Achievement at Selective Private School*

		Note-Taking Strategy	English Achievement
Note-Taking Strategy	Pearson Correlation	1	.420**
	Sig. (2-tailed)		.000
	N		75
English Achievement	Pearson Correlation	.420**	1
	Sig. (2-tailed)	.000	
	N	75	75

Taking notes is still crucial for supporting learning, particularly when learning a new language. To gauge how successfully the students took notes, the researcher used frequency to respond to the questionnaire's items. The findings led to the conclusion that the students were already familiar with the note-taking technique and frequently applied it to their daily studies. Such as writing only the most significant points occasionally the note-taking method, such as separating the most important points, underlining the ideas from the notes, doing a summary from their notes, writing their notes creatively, and placing their notes on the book's white margins. To obtain the necessary information, they also compared their notes with their friends notes. They also concurred that taking notes made it simpler for them to recall the material learned and helped them understand the teacher's instruction when writing essays. And they claimed that the way they organized their notes had an impact on how well they learned English. Even though taking notes can help students learn English more effectively, if that is all they do, it is insufficient. The descriptive outcome of note-taking, which the researcher discovered, demonstrated that maintaining notes without relearning the lecture did not result in higher accomplishment, which explained why English achievement at Selective Private School was low.

It is suggested that English teachers invite students to bring their notebooks to class to encourage them to take notes. As a result, the students can review whenever they study independently and easily remember what they have learned. It was advised that the students themselves organize their notes carefully but also practice note-taking techniques outside of class and review them at home because simply having notes from note-taking does not guarantee improved accomplishment if the students do not examine their notes. Finally, it was suggested that future researchers add additional or different factors to the study, such as relearning courses, English achievement, and college students' perceptions of note-taking procedures.

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Teachers' Teaching Styles and Students' Reading Comprehension in the New Normal Setting

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A teacher's teaching style plays a vital role in a student's reading comprehension and achieving 21st-century skills. The pandemic, however, forced English teachers to further develop this skill among students and thus compelled them to adapt their teaching practices, including their teaching styles. The study focused on the teachers' teaching styles that develop reading comprehension and have a positive influence on students in the new normal setting. The descriptive-correlational research design was used in this study to determine whether there are teaching styles correlated with the reading comprehension of 50 eighth-grade junior high school students. Descriptive results show that teaching styles in terms of expert teaching style, formal authority style, and personal model style have been moderately observed. Meanwhile, the students' showed strong reading comprehension in sentence meaning but weak comprehension when tested on word meaning and paragraph meaning. Correlation results show a significant relationship between teaching styles and reading comprehension. Specifically, the expert teaching style showed a strong positive influence on developing the reading comprehension of the students and therefore should be practiced. On the other hand, delegator's teaching style showed a negative correlation with the scores of paragraph meaning and therefore should be avoided. Further, there is also a significant relationship between sex and reading comprehension, with females scoring higher than males. The study recommends that future researchers try an experimental study to fully test the effectiveness of each teaching style on the reading comprehension of students.

Keywords: *reading comprehension, teaching styles, new normal setting*

Reading comprehension is a skill by which people understand and apply the texts they read; it is their primary purpose. It is a vital tool, especially in this modern age, since it paves the way to achieving 21st-century skills. Various teaching styles are then adapted to cater to the significant needs for developing students' reading comprehension. However, in 2019, the Covid-19 disease brought a massive change to the Philippine education system. Face-to-face classroom instructions were recalibrated into different modalities, such as online classes and modular learning, to continue the students' education amidst the pandemic. Along with this change, the teaching styles were adapted to fit the "new normal" setting.

Reading can take a single person into places never reached; this statement by Dr. Seuss gives the foundation of reading importance. It can take a single person into the fields of agriculture, politics, economics, or even business. As a student, reading is an important skill that needs to be learned and developed to reach those places. Reading is vital as it dramatically impacts students' lives in terms of developing their self-esteem, improving their concentration, developing their critical and analytical thinking, improving their memory, and expanding their vocabulary (Merrimack College, 2020); however, if there is no comprehension, reading is just a frustrating exercise of word calling (Texas Educational Agency, 2002). Reading can be a challenge; however, comprehending is always a challenge. Learners may understand each word separately, but combining them into a single meaningful idea does not always happen as it should. Although there is difficulty in learning this faculty, reading comprehension remains a necessity for students to grasp. That is why various teaching styles and strategies for reading comprehension have been developed. Effective teaching styles are essential in helping readers improve their comprehension and learning from texts (McNamara, 2007).

The pandemic, on the other hand, has caused educational institutions to close, and these disruptions will not only be temporary but also a wide-scale issue as COVID-19 is presently affecting more than 1.2 billion children among 186 nations (Burgees & Sievertsen, 2020; Li & Lalani, 2020). Face-to-face learning systems ceased to follow the social distancing protocol set by the World Health Organization. However, there is a world of learning outside of traditional college and university classrooms (Jez, 2020). Learning can take place anywhere and in different ways. Education can still pursue this pandemic, and one of the learning systems being implemented to cope with society's changes is online learning. That is why both students and teachers learn and teach through the use of technology. It is also the primary reason educators recalibrate their teaching styles to engage students' learning (Rosanes, 2020).

Knowledge and learning information are acquired in school through reading. This exceptional skill drives learning through understanding information from reading material (Castigador, 2007). Reading is the initial provider of pertinent information for other communication skills such as listening, speaking, and writing (Carrol, 2009). In improving students' reading ability, educators just met a significant challenge. Large learning innovations should be implemented wholeheartedly to sustain the needs and demands of the various learners. Reading comprehension now plays a vital role in learning, for without comprehension, a student who knows how to read, spell, or write, he/she remains a grappling reader. To see the presence of comprehension, teachers must highlight definite comprehension strategies. They need to secure reading assessments to address the demands and needs of each student.

Reading is part of a set of macro skills a student can learn and master. Most of the information people can get through reading. Nevertheless, reading without comprehension will not benefit the learners; it will be a useless human activity

(McLaughlin, 2012). Research conducted in an elementary school in Laguna, Philippines, studied the top pilot class. The focus was not on decoding or comprehension but also on the oral fluency of the reader: proper pronunciation, enunciation, and expression. Also, they found out that the school was still adapting the same reading practices as in the past decades of the Philippine classroom (Protacio & Sarroub, 2013).

Most of the knowledge and information today can be accessed through the internet, and many prefer to use it because it is a fast and easy way to get information, as well as the availability of online reading materials such as e-books and e-journals that contribute to the exposure of students to reading (Imam, O. A. et al., 2014). A study was conducted at Canitoan National High School in Cagayan de Oro City. The researchers aimed to improve the reading comprehension of the students through the use of reciprocal reading. The study concludes that the strategy they used was not sufficient because there are factors that hinder reciprocal reading effectiveness. It reveals that during the experiment, the respondents had different priorities because they were academically burned out during that time and had less interest in focusing on the experiment (Rivera & Taglucop, 2019).

Nowadays, most teachers and students are using popular online learning environments, especially pandemic as the new standard classroom setting. However, only a few studies have been conducted on the appropriate online reading strategies. In other studies, De Leon and Tarrayo (2014) researched the online reading strategies of a Philippine secondary public high school, wherein they found that the students used different reading strategies based on their purposes and corresponded to the modern view of reading comprehension that observes the new literacy framework that arises from new technologies. Through this study, pedagogical implications arise for the teachers on how they are going to handle and conduct their lessons online.

Studies investigated show few results about the improvement of the students' reading comprehension. Another gap found by the researchers is the lack of literature tackling the influence of teaching style on the reading comprehension of the students, yet the researchers are still encouraged and concerned to conduct a study on determining the influence of teaching styles for developing students' reading comprehension, especially in this new classroom setting through synchronous and asynchronous learning modes. This study aims to discover knowledge that will contribute to the existing body of knowledge.

Amidst the pandemic that changed the way the education system works, this study seeks to identify teaching styles used in the traditional face-to-face learning environment that influence students' reading comprehension in the "new normal" setting. Specifically, the study intends to answer the following questions:

1. What is the extent of the teaching style of the teacher as observed by the students?
2. What is the level of the students' reading comprehension in the new normal setting?
3. Is there a significant relationship between students' perceptions of their teacher's teaching style and students' reading comprehension?
4. Is there a significant difference in the scores of the students in reading comprehension considering the following variables:
 - A. Sex
 - B. Age

The study is limited to Grade 8 students at Adventist University of the Philippines. This research focuses only on five teaching styles, namely: expert teaching style, formal authority teaching style, personal model teaching style, facilitator teaching style, and delegator teaching style.

And this study is anchored on the theory of cognitive development by Jean Piaget, which states that students are active learners and that students or humans, in general, create their understanding of the world through past and new experiences (Kurt, 2020).

Readers and writers are described as learners who actively use knowledge and different strategies in order to solve problems. This theory creates models of the reading process. According to Tompkins (2010), models of the reading process describe what readers do as they read and emphasize the reader's focus on comprehension. The theory of Piaget states that children adjust their ways of thinking to provide a better-fit reality when they are faced with variations between their ways of viewing the world and new information (Scott, 2013).

The researchers sought to find a significant relationship between teaching styles and the reading comprehension of students in the new normal setting. The research paradigm shows that the teaching styles, which are the expert style, formal authority style, personal model style, delegator style, and facilitator style, correlate to reading comprehension through the following moderator, students: Age, Sex, and grade level.

Methodology

Research Design

The researchers used a Descriptive – Correlational design. The design examined the

variable's features or conditions to establish norms or create a clear picture and analyze the relationship between variables. It indicates whether or to what degree two or more variables are related (Boudah, 2011).

The correlation design was utilized in this study for it examines the relationship between two or more variables and determines the type and strength of the relationship (Burns & Grooves, 2005). The design determined whether there are teaching styles correlated with the reading comprehension of the Grade 8 junior high school students at a faith-based university.

Population and Sampling Technique

A validated set of questionnaires was distributed to a sample of 50 students at Adventist University of the Philippines Academy, Grade 8. Random sampling was used to select students from each section of grade 8 to answer the survey questionnaires. The distribution and retrieval of the research instruments are presented in Table 1, while the classification of respondents in terms of gender is presented in Figure 1.

Table 1

Distribution and Retrieval of Research Instruments

Respondents AUP Academy Grade 8 Students	Distributed Instrument	Retrieved Instruments	% Retrieved Instruments
Section A	21	17	81%
Section B	35	33	94%

Figure 1

Distribution of Participants by Gender

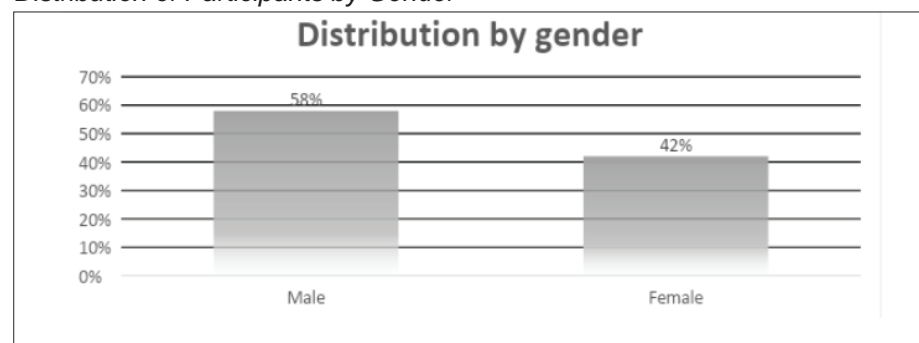
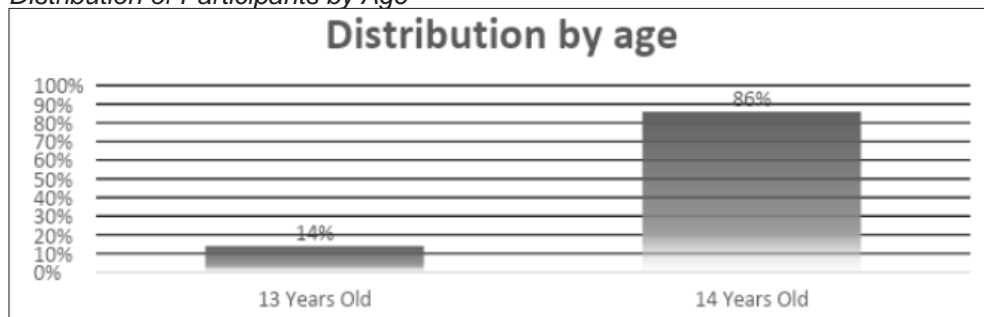


Figure 2 represents the age of all the respondents. It illustrates that 43 of the respondents are 14 years old, or 86%, whereas 7 of the respondents are 13 years old, which makes up 14% of the total population.

Figure 2

Distribution of Participants by Age



Instrumentation

The researchers utilized a 3-part questionnaire, and the responses helped answer the research questions of the study. Because the instrument was originally designed for elementary students, the researchers adjusted the questions utilized to cater to the respondents. It was subjected to the experts' approval/recommendations because it had been altered.

Then the Part-2 questionnaire adapted Abdul Gafoor and Haskar Babu's Teaching Style Inventory. There are two ways to apply the teaching style inventory that are both reliable and valid. To begin with, it assisted teachers and other stakeholders in determining a teacher's teaching style profile, allowing them to determine which style he or she prefers the most, which is moderately desired, and which is less preferred. Second, for each of the five teaching styles, the inventory provided a ranking of an individual's performance versus a reference group of teachers (Gafoor & Babu, 2016). The initial purpose of this instrument was to assess secondary school teachers' preferences for teaching styles; however, the items were changed to reflect students' perspectives toward their English teacher.

The teaching style inventory used the following 5-point Likert type scale: 5 (4.50-5.00) for always observed, 4 (3.50-4.49) for usually observed, 3 (2.50-3.49) for moderately observed, 2 (1.50-2.49) for seldom observed, and 1 (1-1.49) for the least observed teaching style.

Data Gathering Procedures

The researchers gathered the data according to a systemic procedure for securing permission, distribution, and retrieval of questionnaires from the students through an online platform. The researchers secured an endorsement letter from the Dean of the College of Education (COE) to the Principal of the Adventist University of the Philippines Academy. With an endorsement letter from the Dean of COE, the researchers arranged with the school principal, who is mostly introduced to the designated grade level teachers.

The researchers explained to the teacher the purpose and procedures of the study. Likewise, they explained the procedures for responding and gathering the questionnaires. The questionnaires were sent to the students, including the instructions, through Google Forms. A specific period was allotted for the students to answer the questionnaires. After all the students had answered the questionnaires, their responses were automatically recorded on Google Forms. The test results were tallied, recorded, and analyzed for the presentation of the mean and standard deviation.

Ethical Consideration

The researchers value the respondents' trust, thus ensuring the utmost confidentiality and protection of the respondents' identities. This paper has been submitted for the Ethical Review Board's approval, ensuring that every ethical aspect is considered. However, the respondents still have the right to remain anonymous throughout the research process and the right to withdraw their participation.

Data Analysis

To thoroughly analyze, interpret, and determine the implications of the data gathered, the following statistical treatments were used: frequency distribution and percentage were used to present the distribution of the participants in terms of demographic data; the Pearson Moment-Correlation Coefficient was utilized to identify the relationships between teaching styles and students' reading comprehension; an independent t-test was used to determine the differences in reading comprehension in terms of gender; and a Mann-Whitney U-test was used to compare the reading comprehension in terms of age.

Results and Discussion

Extent of Teaching Styles

Identifying the extent of the Teaching Style of the teacher as observed by the students is the first question of the study. To identify the extent of the teaching styles, the researchers utilized the mean and standard deviation. Legends are provided to provide the verbal interpretation of the data.

Table 2 shows the results of the students' perceptions of their teacher's teaching style. The Expert teaching style has a mean of 3.023, which can be interpreted as indicating that the style is moderately observed by the students. Formal Authority, Personal Model, and Facilitator Teaching style got a mean of 2.9, 2.919, and 2.989, respectively. Overall, the results show that all of the teaching styles are being moderately observed by the students in the new normal setting.

Table 2

Extent of Teaching Style

Teaching Style	Mean	SD	Verbal Interpretation
Expert Teaching Style	3.023	0.574	Moderately Observed
Formal Authority Teaching Style	2.900	0.449	Moderately Observed
Personal Model Teaching Style	2.919	0.527	Moderately Observed
Facilitator Teaching Style	2.989	0.385	Moderately Observed
Delegator Teaching Style	3.199	0.631	Moderately Observed

Legend: 1-1.49 – Least Observed; 1.50-2.49 – Seldomly Observed; 2.50-3.49 – Moderately Observed; 3.50-4.49 – Usually Observed; 4.50-5.00 – Always Observed

The results of the table give emphasis to the statement of Gill (2020) that, with the change in the education system, teachers are now adjusting their approach to their students' learning needs. Teachers have been utilizing different teaching styles in order to cater to the different needs of the students. Hence, the result of the study is that all teaching styles are moderately observed.

Level of Students' Reading Comprehension

Table 3 shows the results of testing the students' reading comprehension. It shows that students have the most difficulty with paragraph meaning (meaning followed meaning) (6.80) and then sentence meaning (8.28). The overall average score of the respondents is 17.38 (SD), which is the perfect score. The total score of the students still falls into the Hiinto Reading Comprehension category, meaning that the level of their reading comprehension in the new normal setting is high.

Table 3

Level of Students' Reading Comprehension

Aspects of Reading Comprehension	Mean	SD	Total Items	Interpretation
Word Meaning	6.80	2.22	10	High
Sentence Meaning	8.28	2.30	10	
Paragraph Meaning	2.30	1.20	5	
Total Score	17.38	4.66	25	

Scoring System: 1–5: Very Low; 6–10: Low; 11–15: Average; 16–20: High; 21–25: Very High

Along with the changes in the education system brought by the pandemic comes a shift in the lifestyle of students. Students now spend most of their time sitting in front of screens and attending online classes. This sedentary lifestyle can affect the reading comprehension of the students (Pedro, 2016). Taking this into consideration, the researchers seek to know the level of reading comprehension of the students.

According to Leonard et al. (2007), Hart and Carlo (2005), Landi (2010), Nation & Snowling (1999), there is a difference between reading comprehension and word reading. Word identification is necessary but will not be sufficient for comprehension. Students may be able to read the word but may not completely understand its meaning. Word comprehension is complex since there are no other clues that will give the meaning of the word, hence, students' low mean on word meaning.

A factor that affects students' scores in paragraph meaning test is that Filipino students lack study habits, social media effects also play an integral part in the development of their comprehension. Students do not have the habit of reading, hence their low comprehension when it comes to longer texts (Manaog, 2020).

According to Shanahan (2020), Sentences are the most impactful tool to develop reading comprehension. Through sentences teachers can monitor the reading comprehension of the students. This signifies that student became immersed in sentences and will have situational understanding. Hence, the high scores of the students in Sentence Meaning.

Relationship Between Teaching Style and Students' Reading Comprehension

Teachers play an integral role in the holistic development of the students. They are the one who helps students achieve greater knowledge. Five dominant teaching styles are being used by teachers in order to deliver their lessons. In line with this, the researchers aim to identify which specific teaching style helps students develop their reading comprehension in terms of word meaning, sentence meaning, and paragraph meaning. Table 4 shows the relationship between students' perception of their teacher's teaching style and their reading comprehension.

Table 4*Relationship Between Student's Perception and Reading Comprehension*

		Word meaning	Sentence meaning	Paragraphs meaning	Total Score
Expert	Pearson Correlation	.111	.377**	.158	.280*
	Sig. (2-tailed)	.441	.007	.273	.049
	N	50	50	50	50
Formal authority	Pearson Correlation	-.052	.054	.027	.009
	Sig. (2-tailed)	.721	.710	.855	.952
	N	50	50	50	50
Personal Model	Pearson Correlation	.087	-.185	.102	-.024
	Sig. (2-tailed)	.549	.199	.482	.870
	N	50	50	50	50
Facilitator	Pearson Correlation	.104	-.231	.128	-.032
	Sig. (2-tailed)	.472	.106	.376	.827
	N	50	50	50	50
Delegator	Pearson Correlations	-.185	-.114	-.364**	-.238
	Sig. (2-tailed)	.197	.431	.009	.096
	N	50	50	50	50

Pearson's correlation was used to determine the relationship between students' perception and reading comprehension. The results of the correlation analysis revealed that expert teaching style has a low degree of correlation with the scores of the students in word meaning and paragraph meaning. However, there is a relatively strong relationship between expert teaching style and the scores of the students in terms of sentence meaning ($r = 0.377$, $p = .007$). This means that students have higher scores in paragraph meaning whenever they perceive their teacher's teaching style to be expert. The result of the correlation of the expert teaching style is positively related to the overall score in reading comprehension ($r = .280$, $p = .049$) and is significant at the .05 level. This result implies that if teachers used an expert teaching style, reading comprehension would be improved.

Another notable result from Table 4 is the correlation between the delegator's teaching style and paragraph meaning. It yielded a result of -0.364 and a significant value of $.009$. This means that the teacher's actions affect the scores of the students negatively. Students have a low score in reading comprehension, specifically in paragraphs, if the delegator teaching style is used. All other teaching styles do not have any significant relationship with the scores of the students.

Expert teaching style and delegator teaching style have a significant relationship with the scores of the students. Therefore, the study rejects the hypothesis that there is no significant relationship between teaching styles and reading comprehension.

Comparison in the Scores of the Students in Reading Comprehension Considering Sex

Sex plays an integral role in the reading comprehension of students. It is one of the factors that the researchers identify as a variable that affects reading comprehension. Participants in this research have been divided into two groups based on their gender. The scores of the group have been analysed to see if there is a significant difference between the scores. Table 5 shows the results of the analysis.

Table 5*Comparison of Scores in Reading Comprehension by Sex*

4	Sex	N	Mean	SD	t	df	p	Verbal Interpretation
Total Score in Reading Comprehension	M	29	16.24	5.356	-2.286	45.3	.027	Significant
	F	21	18.95	2.958				

Table 5 presents the comparison of the reading comprehension scores between male and female participants. As shown in the table, females (18.95) scored higher in reading comprehension than males (16.24). This result is statistically significant at the 0.05 level ($t = -2.28$, $df = 45$, $p = .027$). Anantasa (2018) stated that gender does affect the reading comprehension and achievement of a student. According to the findings of his case study, males and females have their own respective reading strategies for comprehending factual texts. Female students reading skills are better than male students'.

Comparison in the Scores of the Students in Reading Comprehension Considering Age

Students in Grade 8 have different ages. They were divided into two based on their age: 13 years old and 14 years old. This division was made in order to figure out if age is a factor that affects the level of reading comprehension of the students in the new normal setting. Mann-Whitney analysis has been used to see if there is a significant difference in the scores.

Table 6*Comparison of Scores in Reading Comprehension by Age*

	Age	N	Mean and Rank	Mann-Whitney U	Asymp. Sig. (2-tailed)	Interpretation
Total Score in Reading Comprehension	13.00	7	30.29	117.000	.346	Not Significant
	14.00	43	24.72			
	Total	50				

The result in Table 6 presents the comparison of scores in reading comprehension by age. The ages considered in this study are 13 and 14 years old only. Mann-Whitney, a non-parametric statistic, is used in this comparison. The results show that there is no significant difference in the reading comprehension scores of 13 and 14-year-olds (U-test -117, $p = .346$). The null hypothesis, which states there is a significant difference in the reading comprehension of the participants' considering age, is accepted.

Conclusion and Recommendations

In conclusion, all the teaching styles have been moderately observed and perceived by the students. Students have strong reading comprehension in sentence meaning but have weak comprehension when tested on word meaning and paragraph meaning.

Expert teaching style has a strong positive influence on developing the reading comprehension of the students. Delegator teaching, however, has a negative correlation with the scores of paragraphs and should be avoided when trying to develop the comprehension of students in terms of paragraphs. Sex plays a role in identifying the differences between the scores. Females have higher scores compared to males.

When all is taken into consideration, the researchers will reject the null hypothesis for expert teaching style and will not reject the non-significant correlation between teaching styles and reading

comprehension. The hypothesis that stated that there is a significant difference in the reading comprehension of the participants considering sex is accepted, while the hypothesis that there is a significant difference in the reading comprehension of the participants considering age is rejected.

Based on the results of the study, the following recommendations are formulated: administrators should support research and training for the teachers in the new normal setting to be flexible in utilizing different teaching styles to cater to the holistic learning of students in relation to reading comprehension; teachers must practice utilizing a teaching style to develop the reading comprehension of the students; teachers must also strive to develop the word comprehension and paragraph comprehension of the students; teachers should also encourage male students to improve their reading abilities; and future researchers should try a different approach, such as an experimental approach, to fully test the effectiveness of each teaching style.

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Influence of Play-Based Learning and Instructional Teaching on Kindergarteners' Attitudes Toward Blended Learning

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This study aimed to find out the influence of play-based learning and instructional teaching on kindergarteners' attitudes toward blended learning in Seventh-Day Adventist elementary schools within the Davao Region. By bridging the gap between play-based learning and instructional teaching, this study informs educators, parents, and curriculum designers about effective methods to hone young learners in their formative years. Employing a descriptive-correlational approach, this study involved 102 kindergarteners who responded to survey questionnaires. Results showed a high level of positive perceptions toward play-based learning and instructional teaching. Likewise, respondents show a highly positive attitude towards blended learning. Perceptions of play-based learning and instructional teaching displayed a moderately high positive correlation with attitudes towards blended learning. Additionally, these variables significantly predict attitudes toward blended learning (play-based: $r = .605$; $\beta = .362$, instructional teaching: $r = .608$; $\beta = .371$). It is concluded that play-based learning and instructional teaching prove beneficial in blended learning among Seventh-Day Adventist Schools' kindergarteners. Recommendations include the following: curriculum designers integrate play-based learning into the kindergarten curriculum; teachers provide play-based activities in online teaching and modules; administrators may continue sending their teachers to webinars and seminars nationally and internationally; and teachers may innovate strategies that will fit the demand of blended learning.

Keywords: *play-based learning, instructional teaching, blended learning, kindergarteners, challenges*

Nowadays, many schools accept preschool learners as early as five years of age. Republic Act 1015, Section 2, provides that all five (5)-year-old children shall be given equal opportunities for kindergarten education to effectively promote their physical, social, emotional, and intellectual development, including value formation, so that they will be ready for school (Department of Education, 2016). With their short attention span, teachers guided instruction and hands-on activities like play can strengthen and lengthen the focus of the learner on particular tasks. The tasks should develop the following areas, namely: physical, emotional, perceptual, cognitive, and awareness, to balance their potentialities.

According to research, play is an essential aspect of the development of skills like social, behavioral, language, and cognitive. Skills developed through play as young learners will become beneficial and essential skills to be used throughout childhood and adulthood (Irvin 2017). On the other hand, instruction is essential in the teaching-learning process of the early years. Cuticelli et al. (2015) perceived that learners whose vocabulary is limited are at a greater risk for later language and reading difficulties. When providing intensive vocabulary instruction to students who are at risk for language and reading difficulties, it is important to use features of effective instruction and intervention. With these insights, we can foresee that those kindergarteners can engage in the instruction and later learn the intended competency for their level. They will be able to recognize, familiarize themselves with, and master the given skills.

Recently, due to the unprecedented time, the COVID-19 pandemic hindered the conventional mode of delivering instruction to all learners in school. Face-to-face instruction, large and small group activities, seminars and workshops, and other essential meetings are inadmissible. The educational system shifted to flexible and blended learning delivery to be employed and implemented in the various elementary schools throughout the Philippines.

Abad (2020) asserted that the blended learning approach has the following options for students: taking lessons through online classes, modular or printed materials, television, and radio. Upon enrolment, students indicate which mode they prefer for their classes. These preferences will depend upon the convenience and availability of the learners based on the media they have at home with which they can answer the given modules and lessons at the given time.

Meanwhile, play, instructional teaching, and kindergarteners' attitudes toward blended learning have significant roles in the context of early childhood education, even during the pandemic. It is where the children experience delightfully manipulative activities that encourage them to grow without compelling them to learn. Thus, they gradually learn, even if they use the blended approach at home.

Based on the initial review of the literature, the researcher found that no study has been conducted dealing with the influence of play-based learning and instructional teaching on the attitude of kindergarteners toward blended learning.

This study aims to explore the influence of two different teaching approaches, play-based learning and instructional teaching, on kindergarteners' attitudes toward blended learning in SDA Elementary Schools in Davao Region. However, its effectiveness, especially in kindergarten, remains an area of investigation. Hence, the main point of this study is to determine the extent to which play-based learning is integrated into kindergarten classrooms, to assess the level of instructional teaching methods in these kindergarten settings, to identify the level of the attitudes of kindergarteners towards blended learning, to determine the relationship between the kindergarteners' attitudes towards play-based learning and instructional teaching, and to identify the variables that play a role in influencing kindergarteners' attitudes towards blended learning.

Methodology

Research Design

This study used a research method called descriptive correlational and causal design to gather and analyze quantitative data. Descriptive correlational research is a type of research design that tries to explain the relationship between two or more variables. It includes collecting and analyzing data on at least two variables to see if there is a link between them. The researcher collects data to explain the variables of interest and figure out how they relate. The main goal is to give a full account of the variables and how they are related without changing them or assuming that one thing causes another (QuestionPro, 2024). This approach was chosen because the data was collected through a survey questionnaire that involved interactions with participants. The study looked at the relationships between the three variables: play-based learning, instructional teaching, and kindergarteners' attitudes toward blended learning. The results of the data analysis were used to draw conclusions for the study.

Population and Sampling Technique

The primary participants of this study were the 102 kindergarteners ages 5-6 in the Davao Region of Seventh-day Adventist Elementary Schools to validate the use of play-based learning and instructional learning towards blended learning. These participants are from the nine elementary schools in the said region.

The researcher randomly identified the participants of the study using the wheel of numbers (a free online app). Further, the researcher used this sampling due to the broad population of kindergarteners in the Davao Region of SDA Elementary Schools. This sampling is suitable for the study since there were many participants in the region. This study involves nine (9) schools. Moreover, out of the total population size of one hundred thirty-six (136) kindergarteners, one hundred two (102) were chosen to participate in the study derived from Yamane's formula.

Instrumentation

Based on the related literature and studies, the researcher used a modified, standardized questionnaire. The play-based learning instrument was adapted from the Play Activity Questionnaire by Finegan, et al. (1991), the instructional learning instrument was adapted from Transforming students' attitudes towards learning using successful educational actions by Díez-Palomar, García-Carrión, Hargreaves, & Vieites (2020), and the blended learning instrument was adapted from students' attitudes toward blended learning among students by Aladwan, Fakhouri, Alawamrah, & Rababah (2018).

The researcher wrote a letter of permission to the respective authors of the instrument used for the study through email. Without hesitation, the authors permitted the researcher to use their research tools with a positive response to the letter sent to them.

The questions were carefully chosen and were pilot tested with the pupils who were not respondents to the study to validate the questions being made in the context of the respondents.

The researcher divided the instrument into three categories. First, the questionnaire determines the level of play-based learning. Second, the questionnaire determines the level of instructional teaching. Third, the questionnaire determines the kindergarteners' attitudes towards blended learning.

Analysis of Data

The researcher encoded all the data in Microsoft Excel after retrieving the questionnaires. Then, the data was stored in SPSS (Statistical Package for the Social Sciences). This software is used for statistical analysis, wherein all the data encoded will be directly analyzed under descriptive statistics - mean, standard deviation, correlation, and multiple regression). study. Hence, the data gathered and analyzed by SPSS were formulated to come up with the answer to the questions and generate new ideas and insights for the study.

Ethical Considerations

The researcher observed the university research protocol to guarantee the quality, reliability, and research findings. The manuscript was submitted to the Research Ethics Board of the university for further review and approval. The researcher also asked permission from the offices of the Education Directors of Davao Mission and North Davao Mission to conduct the study in their respective areas. With the consent of the education directors, the researcher visited the school principals and handed in the letter of approval from the education offices. The principals responded to the request with affirmation through their signatures, and then the researcher sent letters

to the participants' parents for consent, privacy, and voluntary participation in the study through a Messenger account and email. The participants' answers were held in strict confidence and only used for the study. Then, the retrieval of the questionnaires followed the survey on site. The researchers tallied the answers of the participants using Microsoft Excel.

Results and Discussions

Perceptions on Play-based Learning

Table 1 below shows the indicators of play-based learning. There are thirteen (13) indicators with the corresponding Likert Scale

Table 1

Mean Score of Play-based Learning

Indicators	Mean	Descriptive Equivalent	Interpretation
I am happy if we will be in groups to play.	4.64	Strongly Agree	Very High
I am not participative in physical play.	1.95	Disagree	Low
I can tell my ideas and feelings when I am playing.	4.32	Agree	High
I can learn easily if we play online games.	4.13	Agree	High
I remember my lesson if I play with others through songs and rhymes.	4.35	Agree	High
I felt like jumping when my classmates/friends invited me to play hide and seek.	4.53	Strongly Agree	Very High
I like playing with blocks, Legos, or magnetic tiles because it is fun.	4.56	Strongly Agree	Very High
I learn many things while playing through physical play, like running, leaping, and crawling.	4.29	Agree	High
I do dramatic or pretend play.	4.39	Agree	High
I love to play outside, with or without my teacher.	4.41	Agree	High
I choose active and noisy friends when playing ball games.	4	Agree	High
I remember more when I play board games.	4.05	Agree	High
I love playing because it helps me be active and adventurous at a playground.	4.53	Strongly Agree	Very High
Overall Mean	4.17	Agree	High

Scaling: 4.50 -5.00= Strongly Agree (Very High); 3.50-4.49= Agree (High); 2.50- 3.49= Slightly Agree (Moderate); 1.50-2.49= Disagree (Low); 1.00-1.49= Strongly Disagree (Very Low)

As shown in Table 1, the first indicator, *I am happy if we will be in groups to play*, has the highest mean of 4.64, described as strongly agreeing, which means a very high level of play-based learning. It implies that children, when grouped as they socialize with one another, experience satisfaction and happiness. They need someone to share and play with their toys. According to Gray (2019) and Vygotsky, play is crucial for children to make friends, learn social skills, experience happiness, and develop cognitive abilities. Playing with peers helps children grow both socially and intellectually (Sites.google.com, 2018). The results further showed that the second indicator, *I am not participative in physical playing*, got the lowest mean of 1.95, yet it is described as disagreeing, which means a low level of play-based learning. It

entails that the statement negates the interest of the kindergarteners. They prefer to do physical play. It makes them active and energized. They love to move around and explore things. Playworld (2019) kids have lots of energy that they need to burn off, and physical play is vital for their overall physical and mental growth. The overall mean for play-based learning in kindergarteners is 4.17, being described as agreeable, which means high. Based on the result, the level of play-based learning in the context of kindergarteners is interpreted as high.

Perceptions on Instructional Teaching

Table 2 below shows the indicators of instructional teaching. There are thirteen (19) indicators with the corresponding Likert scale.

Table 2

Mean Score for Instructional Teaching

Indicators	Mean	Descriptive Equivalent	Interpretation
I learn best when the teacher guides me on what to do in our modules.	4.66	Strongly Agree	Very High
I can learn more when I can express my ideas during our virtual class.	4.49	Agree	High
I like the teacher who taught us songs and chanting in our virtual class.	4.64	Strongly Agree	Very High
I like the teacher who taught us songs and chanting in our virtual class.	4.64	Strongly Agree	Very High
I enjoy learning when my friends help me.	4.62	Strongly Agree	Very High
It is good to hear other people's ideas.	4.51	Strongly Agree	Very High
I understand my lesson better if the teacher gives us the assignment.	4.51	Strongly Agree	Very High
I am happier about learning in school than I used to be.	4.54	Strongly Agree	Very High
I like talking about the books we read with the class.	4.45	Strongly Agree	Very High
I learn more when the teacher shows images or videos while presenting a lesson in our virtual class.	4.64	Strongly Agree	Very High
I like to read the words that our teacher showed us during our virtual class.	4.57	Strongly Agree	Very High

[table continues on the next page]

I am happy to see my teacher and classmates in our virtual class.	4.66	Strongly Agree	Very High
I will be happy if the teacher says "good job" for my performance.	4.67	Strongly Agree	Very High
I feel happy when my teacher gives us activities in our modules.	4.66	Strongly Agree	Very High
I am unhappy about the activities in the modules.	2.10	Disagree	Low
I like the answering module because it is attractive and fun.	4.53	Strongly Agree	Very High
Listening to our teacher while teaching helps me understand our lesson	4.64	Strongly Agree	Very High
Learning through discussion in a virtual class is helpful.	4.55	Strongly Agree	Very High
Learning in school is better when we have other adults to work with us.	4.61	Strongly Agree	Very High
Overall Mean	4.45	Agree	High

Scaling: 4.50 -5.00= Strongly Agree (Very High); 3.50-4.49= Agree (High); 2.50- 3.49= Slightly Agree (Moderate); 1.50-2.49= Disagree (Low) ; 1.00-1.49= Strongly Disagree (Very Low)

As shown in Table 2, the thirteenth indicator, *I will be happy if the teacher will say good job to my performance*, has the highest mean of 4.67, which is described as strongly agreeing and interpreted as a very high level in the context of kindergarteners in SDA Elementary Schools of Davao Region. The indicator exhibited that when learners are appreciated by their teachers, they feel happy. The article "Positive Reinforcement in the Classroom: Tips for Teachers (2016, December 2) mentioned that positive reinforcement can boost the likelihood of both desired and undesired behaviors. This indicator exhibits that the teacher reinforces and encourages students to engage in all activities so that learning will occur without them noticing it. Results further showed that the fifteenth indicator, *I am unhappy about the activities in the modules*, got the lowest mean of 2.10, which is described as disagree, which means low level. It implies that the learners disagree with the statement because, by nature, they have

excitement and interest in the activities provided by the teachers in the modules, which they can do at home. Appropriately, children go over to explore those various activities integrated into the modules because they want to see good outcomes from their performance. Milesi & Gamoran (2006) said that instructional activities significantly boost achievement. Neuman (2014) believed that teachers present a concept planned and directed way to ensure that kids understand new knowledge thoroughly. The overall mean for instructional teaching in kindergarteners is 4.17, described as agree, which means high. Based on the result, the level of instructional teaching in the context of kindergarteners is interpreted as high.

Attitude Towards Blended Learning

Table 3 below shows the indicators of blended learning. There are seventeen indicators with the corresponding Likert scale.

Table 3*Mean Score for Blended learning*

Indicators	Mean	Descriptive Equivalent	Interpretation
I am comfortable with online classes and modular learning.	4.33	Agree	High
I am more engaged in blended learning.	4.41	Agree	High
Simple words are used in blended learning.	4.41	Agree	High
Blended learning makes me bored when studying.	2.56	Undecided	Moderate
Blended learning activities give me time to read and learn more.	4.35	Agree	High
Blended learning helps me discover new lessons by myself.	4.38	Agree	High
Blended learning improves my learning skills.	4.47	Agree	High
Blended learning makes me more active in the learning process.	4.28	Agree	High
Blended learning improves my reading skills.	4.33	Agree	High
Blended learning design is useful and interesting.	4.34	Agree	High
I find it difficult to study through blended learning.	2.83	Undecided	Moderate
Tasks in blended learning are easy to understand.	4.22	Agree	High
I enjoy learning from online resources used with blended learning.	4.25	Agree	High
I find blended learning easy because I can do my work well.	4.37	Agree	High
Blended learning gives me enough time to finish my tasks.	4.57	Strongly Agree	Very High
Blended learning sessions are more meaningful because they include discussion in an online learning environment.	4.39	Agree	High
I feel that blended learning can help you control how fast or slowly you work through lessons.	4.44	Agree	High
Overall Mean	4.17	Agree	High

Scaling: 4.50 -5.00= Strongly Agree (Very High); 3.50-4.49= Agree (High); 2.50- 3.49=Slightly Agree (Moderate); 1.50-2.49= Disagree (Low); 1.00-1.49= Strongly Disagree (Very Low)

As shown in Table 3, the fifteenth indicator, *Blended learning gives me enough time to finish my tasks*, has the highest mean of 4.57, which is described as strongly agree, which is interpreted as very high level. During the pandemic, learners are confined at home and can answer modules at their own pace. There is ample time since they

can choose when to answer their activities from their modules. As mentioned by Alvarez (2020), learners can access learning materials regardless of time and space. Results further showed that the fourth indicator, *Blended learning makes me bored when studying*, has the lowest mean of 2.56, which is described as undecided, which means moderate.

It implies that sometimes learners felt bored in the blended learning modality and at some time enjoyed the activities integrated in the modules prepared by the teachers. Mehrotra (2021) identified that boredom is brought by an overload of information at their fingertips, which causes learners to shut down and lose access to their intrinsic motivation. On the flip side, students find themselves becoming more engaged with blending technology into the classroom (Pape, 2010) and are becoming more excited about being at school (Blended Learning in Action, 2015). The overall mean for blended learning in kindergarteners is 4.17, which is described as agree, which means high.

Table 4*Overall Mean on Play-based Learning, Instructional Teaching, and Blended Learning*

Components	Overall mean	Descriptive Equivalent	Interpretation
Play-based Learning	4.17	Agree	High
Instructional Teaching	4.45	Agree	High
Blended Learning	4.17	Agree	High

As shown in Table 4, it is displayed that play-based learning has an overall mean of 4.17, and it is described as agreeable and was interpreted as high level. Instructional learning has an overall mean of 4.45 and is described as agreed. Lastly, the kindergarteners' attitude towards blended learning has an overall mean of 4.17, which is described as agreeing and being interpreted as high.

Relationship of Play-based Learning, Instructional Teaching, and Attitude towards Blended Learning

This research aimed to find out the influence of play-based learning and instructional teaching on kindergarteners' attitudes toward blended learning. Table 7 displays the results of the analysis of the data using the Pearson r Product- correlation coefficient.

Table 5

Correlation Analysis between Kindergarteners' Attitude towards Blended Learning, Play-based Learning and Instructional Teaching

Independent Variables	Pearson Correlation	Sig. (2-tailed)	Interpretation
Play-Based Learning	.605	.000*	There is a significant relationship
Instructional Teaching	.608	.000*	There is a significant relationship

**. Correlation is significant at the 0.01 level (2-tailed).

As displayed in Table 5, the Pearson product-moment correlation coefficient was analyzed through SPSS to assess the significant relationship between play-based learning and kindergarteners' attitudes toward blended learning. Based on the result, there is a significant relationship between the two variables, play-based learning and kindergarteners' attitudes toward blended learning, where $r = .605$ and $p = .000$. The decision made was that the null hypothesis is rejected. It means that the result of play-based learning has a significant relationship with kindergarteners' attitudes toward blended learning. It can be found that play-based learning significantly has a relationship to blended learning because of a positive correlation between play-based learning and kindergarteners' attitudes toward blended learning, and the degree of relationship is a moderately high positive correlation.

Further, it is evident that when play-based learning is integrated with blended learning, there is a significant impact on the acquisition of learning for kindergarteners. An article on the Child Development Institute entitled "Play is the Work of the Child" (2019) suggested that the most essential role that play can have is to help children make choices and practice actions to mastery. Therefore, if play-based learning is interwoven with diverse platforms for the learners, they may find learning a wholesome experience. Due to the significant relationship of instructional teaching to kindergarteners' attitudes toward blended learning, it is indeed noticeable to expand the instructional teaching to learners' attitudes towards blended learning with their significant relationship.

As presented in Table 5, the Pearson product-moment correlation coefficient was calculated to assess the significant relationship between the influence of instructional teaching and kindergarteners' attitudes towards blended learning. As shown in the table cited, instructional teaching significantly correlates with kindergarteners' attitudes toward blended learning. Hence, there was a moderately high positive correlation between two variables ($r = .608$ and $p = .000$), and the decision was to reject the hypothesis. It means there is a significant correlation between instructional teaching and kindergarteners' attitudes towards blended learning. More so, when instructional teaching increases, kindergarteners' attitudes toward blended learning increase. The results of the study by Howes et al. (2013) suggested that aspects of classroom instructional context influence child-teacher relationships. Hence, instructional teaching aids learners in a comprehensive study since the teachers will elaborate and expound the content of the subject well.

Predictors attitudes towards Blended Learning

This research aimed to find out which of the two independent variables, play-based learning and instructional teaching, predicts kindergarteners' attitudes toward blended learning. Below is the table displaying the results of the data analysis using multiple regression.

Table 6

Model Summary for Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.667	.445	.433	.33415

a. Predictors: constant, Instructional Teaching, Play-based Learning

b. Dependent Variable: Kindergarteners' Attitude toward Blended Learning

The standard multiple regression was employed to determine the predictive power of play-based learning and instructional teaching on the overall attitude of kindergarteners toward blended learning. This statistical tool is used to determine how much variance in a dependent variable (e.g., kindergarteners' attitude toward blended learning) can be explained by the independent variables.

Table 6 shows the model summary results. The computed R square value shows the variance in attitudes toward blended learning, which is explained by the model including instructional teaching and play-based learning. The computed value is .445, which translates to 44.5%. It means that 44.5% of the attitudes of kindergarteners toward blended learning can be explained by instructional teaching and play-based learning.

Table 7 shows the results of the computed beta standardized coefficient. These values determine which independent variables (e.g., instructional teaching and play-based learning) included in the model contributed to the prediction of the dependent variable (e.g., attitude towards blended learning). Based

on the results among the two independent variables, instructional teaching has a beta standardized value of .371 (sig. = .000) compared to play-based learning of .362 (sig. = .000). It means that instructional teaching has more significant influence than play-based learning in terms of the attitudes of kindergarteners toward blended learning. It suggests that the instructional teaching applied to kindergarteners had a significant impact during the pandemic in blended learning. The teachers elaborate, discuss, and explain the lesson during the learning and teaching process.

Table 7*Standardized coefficients*

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.056	7.662		.529	.598
Play-Based learning	.557	.153	.362	3.650	.000
Instructional Teaching	.434	.116	.371	3.735	.000

Further, Vygotsky had seen the Zone of Proximal Development as the area where the most sensitive instruction or guidance should be given - allowing the child to develop skills they will use on their own - developing higher mental functions.

Conclusion and Recommendations

It is concluded that kindergarteners have a high level in play-based learning, so it is evident that when play-based is employed, there is much fun and enjoyment. The kindergarteners have a high level in instructional teaching, so likewise, when there is a teacher who will explain, instruct, and guide the learners, they will be motivated and are eager to learn. The kindergarteners have a high level in blended learning. It is manifested those kindergarteners have adopted a blended learning style during the pandemic. Play-based learning and instructional teaching have a significant relationship, and both have been discovered as a good combination in blended learning among Seventh-day Adventist Schools kindergarteners in Region XI. Instructional teaching is most likely to influence kindergarteners' attitudes toward blended learning manifested though the participants learning gained when teachers are giving instruction on their online lessons using their modules. However, teachers are struggling with their experiences with blended learning. They felt the stress in dealing with the various preparations of instruction as they meet their kindergarteners in their class online and the deadline for the release and submission of the module.

Upon identifying and discovering the results of the study, this research recommended the following: Curriculum designers may integrate play-based learning into the kindergarten curriculum. School administrators may continue sending their teachers to webinars, seminars, or workshops nationally and internationally to upgrade their instructional skills in dealing with kindergarteners in blended learning. Kindergarten teachers could modify and innovate their activities and implement strategies and techniques that fit the demands of blended learning. Kindergarten teachers are encouraged to use play-based learning and instructional teaching as approaches to their learners. School administrators, curriculum designers, and kindergarten teachers may plan for innovative and cooperative learning that can be integrated into their instruction in a blended learning modality. School administrators may design a faculty development plan to address the teachers' challenges and concerns regarding blended learning.

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Development and Validation of Core Values Instrument of a Higher Education Institution in the South Philippines

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Higher education institutions (HEIs) play important roles in shaping a sustainable future. The workforce they produce reflects core values that are instilled and absorbed throughout students' engagement in university activities, identifying the brand for marketing and facilitating the achievement of the institution's vision, mission, and goals. While previous studies have published validated measures for core values, these measures often lacked contextual relevance. Therefore, this study aimed to establish valid and reliable measures specific to the core values of a sectarian college in the South Philippines: spiritually attuned, physically fit, academically competent, and committed to service. A total of 110 graduating students participated in the study and responded to a web-based, expert-validated 80-item questionnaire developed through an extensive review of relevant literature. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were employed to identify valid indicators and confirm their alignment with the latent constructs. This process resulted in the retention of 23 items: 5 for each dimension of spiritually attuned, academically competent, and committed to service, along with 8 for physically fit. Convergent and discriminant validity tests were conducted, demonstrating the validity and reliability of the items within each construct. Cronbach's alpha values for each category ranged from 0.854 to 0.922, and model fit indices fell within the acceptable range. Recommendations include continuing data collection to achieve a larger sample size. It is anticipated that this instrument will significantly benefit the college's evaluation of the integration and practice of core values.

Keywords: *spiritually attuned, physically fit, academically competent, committed to service, EFA, CFA, Convergent and Discriminant Analysis*

Seventh-day Adventist Christian Education has distinct goals and objectives that permeate every dimension of its mission. It is designed to cater to students from diverse backgrounds and serves as a significant influence in shaping the decision-making and outlook of young church members. The aim is to nurture each young person to become not only a responsible citizen of this world but also a citizen prepared for the world to come.

Among the higher education institutions (HEIs) in the country, sectarian institutions like ours offer a unique approach through boarding school education. Here, students not only acquire academic knowledge but also imbibe the rich culture of the institution.

In recent years, the rapid advancement of technology has facilitated the transfer of information from all corners of the globe, significantly impacting the worldview of young learners. This exposure to diverse lifestyles has sometimes led to a dilution of moral standards. To shield students from negative societal influences, it is imperative that educational leaders establish a distinct educational purpose geared towards fostering a more peaceful world. This underscores the vital role of Christian education in this context.

SPAC, or South Philippine Adventist College, is a Seventh-day Adventist higher education institution located in Barangay Camanchiles, Matanao, Davao del Sur, sixty-eight kilometers south of Davao City. Fronting the national highway that links the forward-thinking cities of Davao and Cotabato is the college (South Philippine Adventist College, 2023).

SPAC's Goals and Objectives

The goals and objectives of South Philippine Adventist College (SPAC) are outlined in the Student Handbook (Student Handbook, 2022). The following are the goals and objectives of the institution.

Spiritual Excellence. Live a Christ-like life based on an in-depth knowledge and understanding of the Scriptures. Nurture a spiritual atmosphere in

all activities and programs. Uphold the standards of the church and strongly support witnessing endeavors.

Academic Excellence. Develop critical and constructive thinking, resulting in sound judgement and wise choices. Apply appropriate knowledge to solve practical problems in life. Develop a keen sense of appreciation for what is good, beautiful, just, and true. Acquire competence in one's chosen lifework.

Social Excellence. Treat all people with dignity and honor. Be involved in community service and exhibit compassion and care toward the less privileged. Support national development goals and value Filipino heritage.

Physical Excellence. Practice a healthy lifestyle. Uphold the dignity of manual labor by joyfully engaging in productive work.

While the Student Handbook of 2022 indirectly characterizes these values, it does not offer explicit definitions. However, the handbook delineates various performance indicators aimed at achieving excellence in these core values.

SPAC's Core Values

South Philippine Adventist College's (SPAC) Core Values, represented by the acronym SPAC (Spiritually Attuned, Physically Fit, Academically Competent, and Committed to Service), are central to the institution's mission.

Spiritually Attuned

The concept of being "spiritually attuned" correlates with the pursuit of spiritual excellence. At the college level, it embodies living a Christ-like life, aligning with biblical principles, fostering a spiritually enriched environment, upholding church standards, and guiding others toward Christ. Moreover, in accordance with the core values, being spiritually attuned entails prioritizing the pursuit of Jesus Christ and His righteousness as a daily principle (Matthew 6:33), signifying the emulation of Christ's life as the foundation of Christian living (Student Handbook, 2022).

Educational institutions play a pivotal role in facilitating opportunities for students to nurture their spirituality, which significantly impacts their well-being and academic performance (Beggs, 2020; Li, 2021; Philip et al., 2019). Spiritual development is fostered through practices like prayer and engagement in cultural programs (Kuh & Gonyea, 2006). Furthermore, there is an emerging consensus on the promotion of workplace spirituality, encompassing mindfulness, compassion, meaningful living, and transcendence (Lehmann, 2019). Transcendence here denotes a sense of connection with a higher power, often associated with God (Petchsawang & Duchon, 2009), while attunement signifies harmony with a higher spiritual entity. Consequently, a spiritually attuned individual is one deeply connected with God in this context.

Solgi and Safara (2018) have attempted to conceptualize spirituality by synthesizing English and Persian literature, highlighting the recognition of a greater existence beyond humanity and the significance of an institutionalized religious milieu. Moreover, Ng and Prihadi's (2020) research underscores that mere affiliation with a religious organization does not guarantee heightened spiritual well-being. Instead, an individual's spiritual maturity hinges on their personal connectedness and relationship with God.

Physically Fit

The second dimension of SPAC's core values pertains to being "physically fit." A physically fit individual exhibits a conscious commitment to making daily choices that sustain and enhance life. Since Jesus serves as the guiding principle, the promotion of manual labor and engagement in productive work is intended to foster physical well-being (SPAC Student Handbook, 2022).

Physical fitness significantly enhances one's quality of life (Hill & Thornburg, 2016) and contributes to improved mental health, bolstered

self-confidence, and enhanced academic performance (Gultom, 2022; Janssen & LeBlanc, 2010). Key factors such as nutrition, an active lifestyle (Akdogan & Uzun, 2022; Rismayanthi et al., 2022), and adequate rest are instrumental in attaining optimal physical fitness (Gultom, 2022). Furthermore, it is crucial to strike a balance among these factors, with a particular emphasis on regular physical activity (Cordova et al., 2012).

Physical fitness is not solely confined to structured exercise; play activities also play a significant role (Kurt & Kartal, 2020; Yilmaz & Mirze, 2020). This is particularly relevant in a school setting, where cognitive activities often dominate. Additionally, research suggests that prayer can enhance physical fitness among the elderly compared to those leading sedentary lives (Yüksek, 2017). Prayer, involving actions like kneeling and bowing, constitutes a form of physical activity that contributes to improved physical fitness among the elderly. Notably, individuals who engage in daily prayer five times a day tend to exhibit superior physical fitness.

Physically fit individuals possess the capacity to engage in physical activities that utilize body muscles, exemplifying traits such as endurance, flexibility, strength, speed, physical composition, and agility (Ercis, 2018). Conversely, detrimental habits like smoking have a detrimental impact on physical fitness (Eroglu & Yüksek, 2018), underscoring the imperative of discontinuing such practices and adopting a physically active lifestyle for enhanced well-being.

The literature underscores that factors contributing to physical fitness encompass proper nutrition, adequate rest, exercise, engagement in sports or play, and regular prayer habits. SPAC places a deliberate emphasis on regular physical activities and encourages students to embrace a healthy lifestyle while engaging in productive work to maintain physical fitness.

Academically Competent

Graduates who embody academic competence exhibit the ability to make informed decisions, employ critical and constructive thinking, and effectively address real-life challenges based on foundational principles. They possess an appreciation for excellence, uniqueness, and appropriateness, consistently striving for excellence within their chosen career paths. Furthermore, academically competent individuals demonstrate proficiency, knowledge, accountability, and a steadfast commitment to their profession (Student Handbook, 2022). As an institution dedicated to nurturing professionals, SPAC aims to instill in students a sense of loyalty to their profession, irrespective of changes in leadership (Prabowo, 2022).

Academic competence hinges on an individual's belief in their capacity to perform academic tasks. Research indicates a direct correlation between academic competence and social information processing in children (Duchesne & Larose, 2018). Graduates who have been cultivated to be academically competent exhibit greater adaptability in social settings, rendering them effective collaborators within group dynamics. Furthermore, this underscores the significance of commencing proper training and education at an early stage in a child's life, thereby necessitating a holistic educational approach.

Notably, a high level of academic competence serves as a protective shield against mobile phone addiction and the fear of missing out on social media usage (Aygul & Akbay, 2019). Learners who are academically competent are better equipped to make judicious decisions, opting for actions that yield positive outcomes in their academic pursuits, and thereby distancing themselves from adverse influences.

Committed to Service

Demonstrating a commitment to service is integral to social excellence, encompassing fair treatment, respect for others, active engagement

in service-oriented causes, empathy for the less fortunate, patriotism, and the preservation of Filipino culture and heritage (Student Handbook, 2022). Biblical principles provide guidance on interactions with others, promoting values such as going the extra mile (Matthew 5:41), humility (Matthew 6:3), turning the other cheek (Matthew 5:39), adhering to the golden rule (Luke 6:31), fulfilling civic responsibilities (Matthew 22:21), and obedience (1 Samuel 15:22), among others.

From a secular perspective, commitment to service extends to the demonstration of servant leadership, compliance with authority, and active participation in Christian service. The evolution of servant leadership is marked by a shift from a focus on serving to a pursuit of opportunities to lead (Ghasemy et al., 2021). Engagement in community service activities is particularly beneficial for pre-service teachers, fostering a sense of social responsibility and providing practical exposure to interactions within society (Biçer & Alan, 2022).

Given this noble purpose, ongoing evaluation becomes indispensable. The institution's philosophy, vision, mission, goals, and objectives play a pivotal role in shaping the culture and values embraced by students as they engage in daily learning experiences. Thus, it becomes crucial to assess whether the intended values are effectively integrated into students' day-to-day practices.

To gauge the success of the program, it is imperative to develop a valid and reliable instrument. Therefore, the primary objective of this study is to create an instrument that can effectively measure the emphasis and practical application of SPAC core values.

Methodology

Constructs were conceptualized using the college's framework of the core values: spiritually attuned (S), physically fit (P), academically competent (A), and committed to service (C), in alignment with the goals and objectives for excellence. An initial questionnaire consisting of

80 items was formulated to develop an instrument aimed at assessing the assimilation of behavior and practices related to SPAC core values, with 20 items designated for each factor (see Table 1). The questionnaire underwent face and content validation by experts, resulting in some modifications to word choices and the inclusion or exclusion of certain items.

A 5-point Likert scale was employed to measure the extent of emphasis that the college should place on instilling the core values in students and the extent to which students have developed corresponding practices: 5 for always, 4 for frequently, 3 for occasionally, 2 for rarely, and 1

for never. A trial administration of the questionnaire was conducted with six third-year students to ensure the clarity of instructions and indicators for the students.

The questionnaire was administered through a web-based platform, particularly to cater to graduating students who were still engaged in on-the-job training during the data collection phase. In addition to its convenience and cost-effectiveness, web-based data collection offers a safeguard against data loss. Moreover, data collected via web-based platforms can be directly stored in spreadsheet formats, facilitating subsequent statistical analysis (Hair et al., 2017).

Table 1

Initial Researcher-made Core Values Instrument

Core Values	Definition	Indicators
Spiritually Attuned	Abiding by spiritually attuned is a graduating student's characteristic that seeks and obeys the will of God foremost, aligns thoughts, actions, and feelings to the will of God, and manifests a transformed, active, and growing faith by abiding the distinct Seventh-day Adventist beliefs in the daily life.	<p>Believing in the Bible as God's words to His people.</p> <p>Spending quality time in personal Bible study.</p> <p>Attending morning and evening worship services.</p> <p>Understanding the purpose of life.</p> <p>Attending church worship services.</p> <p>Living with the Biblical moral principles.</p> <p>Adhering to Bible-based health principles.</p> <p>Spending time in prayer.</p> <p>Sharing God's words with others.</p> <p>Acknowledging God's guidance in life.</p> <p>Involving myself in church ministries.</p> <p>Equipping oneself to face challenges from a biblical perspective.</p> <p>Understanding the role of the Holy Spirit.</p> <p>Obedying to God's laws.</p> <p>Developing the right perspective on one's life.</p> <p>Growing faith in Jesus.</p> <p>Attending other church programs (conventions, rallies, evangelism, etc.)</p> <p>Committing to live a meaningful life of service.</p> <p>Believing in God's dominion over all the world.</p> <p>Understanding the existence of the Great Controversy.</p>

[table continues on the next page]

Physically Fit	<p>Physically fit is a graduating student's quality characterize by adherence to the Biblical principles of healthy living as instructed by God in the beginning of the world and as manifested by Daniel and his three friends during the Babylonian captivity. Physically fit students maintain healthy habits, apply, and influence other of the principles governing nutrition, exercise, water, sunlight, temperance, air, rest, and trust in God (NEWSTART) as stipulated by the SDA recognized end- time prophetess, Mrs. Ellen G. White.</p>	<p>Eating healthy and nutritious food. Spending time for regular exercise. Drinking enough water. Spending time outside to get the benefits of sunlight. Maintaining temperance in all aspects of life (eating, drinking, dressing, gadget use, etc.) Spending time outdoors means breathing clean and fresh air. Getting an average of 7 hours of sleep every night. Enjoying weekly Sabbath rest in the church. Trusting God in all circumstances. Seeking to improve for better lifestyle. Spending time with family. Spending time with friends. Learning to handle crisis/trials. Managing time efficiently. Sharing healthy habits with others. Understanding human physiology (understanding the normal functions of the body). Understanding the relationship between the physical and mental aspects of life. Engaging in active sports. Playing during intramurals and sports days Participating in programs related to physical development (fun- run, sportsfest, exercise groups)</p>
Academically Competent	<p>Academically competent is a graduating student characteristic manifested by useful knowledge, appropriate skills, and the right attitudes to engage in lifelong learning and the proper disposal of professional responsibility, thereby making a meaningful contribution to the cause of God, the church, and society.</p>	<p>Communicating both orally and in writing efficiently. Expressing ideas and opinions tactfully. Equipping enough content knowledge for the chosen profession. Learning to use productivity tools (documents, spreadsheets, presentation tools, and tools). Leading collaborative groups. Improving one's skills. Planning to pursue a higher level of education. Enabling oneself to work with different kinds of people. Engaging in research activities. Attending relevant seminars and conferences. Developing skills necessary for the chosen career. Finding varied opportunities to learn. Accepting accountability during decision-making. Developing more digital skills. Getting appropriate information online. Ascertaining one's future career opportunities. Preparing for real-world problems. Learning how to handle pressure. Developing a positive learning mindset/attitude. Understanding one's learning styles.</p>

[table continues on the next page]

Committed to Service	Committed to Service is the graduating student's quality in partaking Christ-centered leadership, obedience, and Christian service.	Doing the extra mile on any given task. Seeking an opportunity to help other people. Helping without expecting something in return. Prioritizing the needs of others. Willingness to follow God's appointment for service. Volunteering for community activities. Participating in church activities relating to helping others (Donating Blood, Medical missions, Clean-up drives, etc.) Living to bless other people. Saving an amount of money to be given to those in need. Sharing food with those who are hungry. Helping the elderly. Listening to the weary souls. Understanding God's commission to save the lost. Serving God wherever He leads is self-available for someone who is in need. Serving others over personal needs. Treating other people with dignity and honor. Exhibiting compassion and care toward the less privileged. Valuing the Filipino heritage. Supporting the national development goals.
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Out of a total of 155 graduating college students, 110 responded to the questionnaire, providing insights into the college's emphasis on specific indicators and their corresponding extent of practice concerning the core values. These graduating student respondents represented various departments within the college, including AB Theology (17 students, 15%), BECED (3 students, 3%), BEED (10 students, 9%), BSA (10 students, 9%), BSBA (20 students, 18%), BSCS (1 student, 1%), BSED (30 students, 27%), and BSOA (19 students, 17%).

Regarding their duration of enrollment in the college, the breakdown was as follows: 2 years (1 student, 1%), 3 years (2 students, 2%), 4 years (44 students, 48%), 5 years (25 students, 27%), 6 years (12 students, 13%), 7 years (4 students, 4%), 8 years (3 students, 3%), and more than 8 years (11 students, 12%). Additionally, there were 40 male students (36%) and 70 female students (64%) who participated in the survey. In terms of religious affiliation, most of the respondents, 103 students (94%), were identified as Seventh-day Adventists.

Results and Discussion

A regular evaluation of outcomes is essential to assess the institution's practices and ensure the intentional implementation and emphasis on the school's core values. A total of 155 graduating students were invited to participate in responding to a Google Form survey, which aimed to develop and validate the SPAC core values instrument.

Out of the graduating students, 71% responded to the survey, with 94% identifying as Seventh-day Adventists and 64% being female. The representation of students from each department was proportionate to the total number of graduating students in each department.

Utilizing SPSS and SmartPLS efficiently, the analysis retained 23 items from the original questionnaire, which initially consisted of 80 items. A factor analysis was employed to assess the validity of the initial instrument. In this process, exploratory factor analysis (EFA) was used to determine the potential number of factor loadings present in the data, even though the questionnaire was originally designed for four factors with 20 items each. The aim was to identify items that could be

discarded based on loadings below .32 and those with cross-loadings (Schat et al., 2021). While some researchers argue that EFA should ideally involve a minimum of 300 respondents or a strong subject-to-item ratio, the researcher proceeded with EFA using 110 respondents, considering it to be a representative sample of the total population. Moreover, parameters confirmed the adequacy of the data based on a Kaiser-Meyer-Olkin (KMO) measure of .873 and Bartlett's Test of Sphericity with a significance level of $p < 0.01$.

Confirmatory factor analysis (CFA) was utilized to align the loadings with the four factors corresponding to the college's core values. Through iterative testing and refinement, items exhibiting cross-loadings equal to or exceeding 0.32 in at least one factor were identified and subsequently removed, leading to the delineation of distinct components within the factors. The results of the CFA, showcasing factor loadings exceeding 0.50, are presented in Table 2.

Table 2
SPSS Factor Loadings

	1	2	3	4
pf5	.798			
pf6	.766			
pf7	.764			
pf4	.740			
pf1	.738			
pf3	.721			
pf2	.710			
pf15	.680			
pf14	.572			
pf11	.541			
ac6		.760		
ac5		.745		
ac1		.711		
ac2		.700		
ac10		.699		
ac7		.699		
ac9		.591		
ac13		.564		

sa6	.712
sa18	.697
sa10	.666
sa16	.620
sa8	.586
pf8	.581
sa14	.560
cts15	.733
cts2	.702
cts12	.694
cts17	.687
cts10	.675
cts18	.634

pf – physically fit, *ac* – academically competent, *sa* – spiritually attuned, *cts* – committed to service

To assess the reliability of the measures, Cronbach's alpha was employed for each component. The commonly accepted threshold for alpha values is >0.70 (Rustioğlu et al., 2021). The table below presents the initial reliability results.

Table 3
SPSS Internal Consistency

Component	Cronbach Alpha
Physically Fit	.923
Academically Competent	.889
Spiritually Attuned	.862
Committed to Service	.867

The table above indicates that the measures have achieved satisfactory internal consistency. Nevertheless, it remains essential to rigorously examine the construct validity of these measures. To address this aspect, SmartPLS was employed to assess both convergent and discriminant validity. The analysis conducted in SmartPLS revealed slight variations compared to the results obtained from SPSS. Additionally, SmartPLS provided more explicit recommendations regarding the elimination of certain items, as derived from the SPSS CFA results.

Table 4*Academically Competent*

Latent Constructs	Items	Factor Loadings	Number of Items	Reliability			AVE
				Cronbach Alpha	Composite Reliability	Coefficient Rho	
Academically Competent	ac1	0.820	5	0.878	0.911	0.883	0.673
	ac2	0.862					
	ac5	0.813					
	ac6	0.840					
	ac10	0.762					

Items such as ac7 (planning to pursue a higher level of education), ac9 (engaging in research activity), and ac13 (accepting accountability during decision-making) displayed weaker internal consistency, necessitating the removal of these three items.

Table 5*Committed to Service*

Latent Constructs	Items	Factor Loadings	Number of Items	Reliability			AVE
				Cronbach Alpha	Composite Reliability	Coefficient Rho	
Committed to Service	cts2	0.742	5	0.857	0.897	0.867	0.637
	cts10	0.751					
	cts12	0.870					
	cts15	0.797					
	cts18	0.823					

Within this component, item cts17 (treating other people with dignity and honor) was excluded due to its adverse impact on the reliability of the committed to service component.

Table 6*Physically Fit*

Latent Constructs	Items	Factor Loadings	Number of Items	Reliability			AVE
				Cronbach Alpha	Composite Reliability	Coefficient Rho	
Physically Fit	pf1	0.832	8	0.922	0.936	0.928	0.648
	pf2	0.826					
	pf3	0.713					
	pf4	0.818					
	pf5	0.812					
	pf6	0.856					
	pf7	0.804					
	pf15	0.769					

Two items were removed from this component, item pf11 (spending time with family) and item pf14 (managing time efficiently), which disrupted the factor loadings. Hence, both were deleted from the proposed indicators.

Table 7*Spiritually Attuned*

Latent Constructs	Items	Factor Loadings	Number of Items	Reliability			
				Cronbach Alpha	Composite Reliability	Coefficient Rho	AVE
Spiritually Attuned	sa6	0.744	5	0.854	0.896	0.858	0.632
	sa8	0.813					
	sa14	0.791					
	sa16	0.808					
	sa18	0.817					

Items sa10 (acknowledging God's guidance in life) and pf8 (enjoying weekly sabbath rest in the church) were deleted for the same reason as the deleted indicators of the other component. With these parameters, the Fornell-Larcker criterion for discriminant validity produced a better result.

Table 8*Fornell-Larcker criterion – Inter-construct correlations and squared AVE*

	AVE	Academically Competent	Committed to Service	Physically Fit	Spiritually Attuned
Academically Competent	0.673	0.820			
Committed to Service	0.637	0.540	0.798		
Physically Fit	0.648	0.562	0.403	0.805	
Spiritually Attuned	0.632	0.529	0.637	0.629	0.795

The table above shows that with this criterion, there is no row or column value that exceeds the numbers in bold, making it pass the discriminant validity rule of thumb. AVE also exceeds 0.05, which is the threshold set for the squared AVE (Fornell & Larcker, 1981). Finally, Table 9 below shows the model fit summary of the instrument.

Table 9*Model Fit Summary*

Criteria	Achieved Values
SRMR	0.069
NFI	0.768

The Standardized Root Mean Square Residual (SRMR) serves as a metric for evaluating the goodness of fit in a model, with values below 0.05 considered well-fit according to Byrne (2013). However, Hu and Bentler (1999) suggest that values up to 0.08 can still be acceptable. Similarly, the Normed-Fit Index (NFI) is advocated to exceed 0.95 by Hu and Bentler (1999). In our effort to construct a core values instrument,

SRMR demonstrated a goodness of fit below 0.08, but NFI fell short of the recommended threshold. It can be noted that NFI's sensitivity to the number of samples, as indicated by Bentler (1990), might be the contributing factor to not meeting the desired threshold.

The development and validation of the core values instrument stand as a significant achievement for the college, providing a more precise means to assess the effectiveness of core value implementation on campus. This study represents the initial stride in the college's continuous journey, marking the commencement of refining processes and instruments intended to foster sustained success in its operations.

Given the assumption that a smaller sample size may influence the NFI value, it is recommended to conduct further data gathering, particularly from graduating students. This additional data collection is proposed to enhance the goodness of fit and bring the NFI value closer to the desirable threshold.

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Taking Research Validity a Step Further: Applying the Authenticity Criteria in a Qualitative Study

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Trustworthiness has been the accepted benchmark for ensuring rigor in qualitative research by observing certain methodological strategies that, when accomplished, bestow credibility, dependability, transferability, and confirmability on a qualitative study. Alternate criteria for quality in qualitative studies, the authenticity criteria proposed by Lincoln and Guba, fulfill the same criteria as trustworthiness and extend their scope to include community-based values such as fairness and inclusiveness. There is, however, little evidence of their application in published qualitative studies. This study demonstrates how the authenticity criteria may be successfully applied to a qualitative study. This was done by deliberately considering what each criteria of authenticity required and making provisions for their implementation from the earliest stages of the study until the last. Results confirm that the five criteria of authenticity, namely, fairness, ontological authenticity, educative authenticity, catalytic authenticity, and tactical authenticity, have been satisfied not only in the conduct but also in the outcomes of the qualitative study. Feedback from participants affirms these findings. The efforts to uphold the rights of the participants border on the critical approach, as its application also elevates the ethical awareness of everyone involved in the study. Overall, authenticity in a qualitative study is that which promotes fairness, inclusiveness, awareness, community, and opportunity for change, and this was demonstrated in this study. It is recommended that the application of the authenticity criteria be demonstrated in other approaches to qualitative research as well.

Keywords: *authenticity criteria, trustworthiness, validity, rigor*

One prominent feature of any kind of research is the research question. In quantitative research, answering these questions involves the use of a research instrument that can measure the variables for the study. For survey research, the instrument could be a questionnaire, while experimental research could use an actual scientific instrument where data may be collected. One criterion for good quantitative research is for the measures and the corresponding results to be reliable (Creswell, 2015). Reliability requires that the scores from using the instrument be stable and consistent. Procedures are undertaken to ensure that the data endures rigorous test-retest, interrater, and alternate forms of reliability measures. Quantitative research also undergoes validity tests to ensure that the results avoid internal and external validity issues such as selection bias, confounding variables, and generalizability issues (Neuman, 2014; Plano Clark & Creswell, 2015).

The requirements of reliability and validity that are generally associated with demonstrating rigor in quantitative studies are less applicable to qualitative studies, partly because they emphasize standardized techniques to analyze and present data (Harley & Cornelissen, 2020; Maher et al., 2018). Morse et al. (2002) had earlier argued that research without rigor is worthless and is a work of fiction. Qualitative research, lacking the safety of hard numbers and p-values, underwent a crisis of confidence, especially from outside the field. In their groundbreaking work in 1985, Lincoln and Guba introduced the parallel concept of *trustworthiness*, which contains the four aspects of credibility, transferability, dependability, and confirmability, to serve as counterparts for internal validity, external validity, reliability, and objectivity in quantitative study. Trustworthiness addresses the question of how the researchers persuade their readers that the findings of a qualitative inquiry are worth paying attention to or are worth taking account of (Lincoln & Guba, 1985). Although *rigor* in qualitative terms and reliability and validity in quantitative terms are

means to establish trust or confidence in the findings or results of a study, issues are still raised by the persistent concern with achieving rigor in qualitative research. Conceptually, the term “rigor” literally means stiffness, from a Latin word that implies rigidity, harshness, strict precision, unyielding, or inflexibility. When taken at its literal meaning, the term qualitative rigor then becomes an oxymoron, considering that qualitative research takes on a journey of discovery and creation of meaning and does not follow unbending boundaries (Thomas & Magilvy, 2011 as cited by Cypress, 2017). Notwithstanding, this concept of rigor remains one of the most critical aspects of qualitative research.

At its conception, Lincoln and Guba (1985) established operational techniques that can be used to establish trustworthiness. For the criterion of credibility, prolonged engagement, triangulation, peer debriefing, negative case analysis, and member checking may be implemented. A thick description regarding the context of the study contributes towards transferability. Dependability and confirmability may be satisfied through an external audit, whereby an external auditor examines an *audit trail* showing processes and records for accuracy. Lincoln and Guba's four-dimension criteria were considered fundamental to the development of standards of rigor, or the quality of qualitative research, and are currently popular in published qualitative reports (Morse et al., 2002; Creswell & Poth, 2018). Despite their popularity, however, the criteria of trustworthiness have been criticized for being based on the assumptions that are inherent in quantitative (positivist) rather than qualitative (constructivist) research. While acknowledging that these represented a substantial advance in dealing with the issue of rigor, a year after introducing *trustworthiness*, Lincoln and Guba (1986) admitted to some major deficiencies with the parallel criteria, pointing out their focus on the methodology while ignoring the influence of context. In 1986, they proposed a new, more complete naturalistic criteria they referred to

as authenticity. Authenticity includes the criteria of fairness, ontological authenticity, educative authenticity, catalytic authenticity, and tactical *authenticity*. These new criteria are seen to better regard the processes and outcomes of a qualitative inquiry rather than just the application of operational methods (Lincoln et al., 2018). However, there is a scarcity of evidence of systematic application of the authenticity criteria in published qualitative research to date. This paper shows how such an application may be demonstrated in a qualitative study.

Methodology

The study highlighted in this paper adopted a qualitative design that borrows heavily from the phenomenological approach in data analysis and interpretation (Yin, 2016). The study features the experiences of seventeen participants from various regions of the Philippines who were enrolled in fully online classes during the school lockdowns from 2020 to 2022. These college students were attending their classes under emergency remote

teaching either from home or from in-campus dormitories and were enrolled in either a public college or university. Various regions of the country offered a variety of experiences related to online classes due to the diverse economic conditions and availability of electricity and internet resources, as well as the different restrictions on mobility.

The first round of data collection was through individual Zoom interviews following a semi-structured interview guide utilizing van Manen's (2014) phenomenological interviewing technique. In this interviewing technique, the researcher asks questions to solicit participants' views, opinions, and situations related to the concepts being investigated, even without directly asking the research questions. This manner of conversation allowed participants to be at relative ease while recalling and narrating their experiences. The interviews were recorded with full consent from the participants. The video recordings lasted an average of 40 minutes. Table 1 gives an overview of the main interview and follow-up questions.

Table 1

The Interview Guide

Main question	Possible follow-up question
What can you tell me about that time when you attended your first class online after your school went on lockdown?	How did you feel back then?
What are the things you noticed after a few days of attending classes online (ERT)?	What were your initial reactions? / How did the first classes go?
You said you noticed/observed that ..., how did those affect you?	Why did you notice those? What makes those special?
How many semesters have you been attending classes under ERT? How do you describe your experience so far?	Anything else you noticed?
What difficulties or issues do you remember having, if any?	How important is (that thing observed or experienced) to you?
If you were asked for suggestions or recommendations that may be implemented to improve your experience in ERT, what would those be like?	What do you think contributed to this kind of experience?
Thank you for sharing your experiences as a student of ERT. Before we close this interview, is there anything else you would like to add?	Are there other issues that you remember? How do/did you deal with those issues? Do these issues still exist today?
	If a school dean or administrator walks up to you and asks you what they can do to improve your online class experience, what would you say to them?

Following each interview, the researcher recorded analytic memos and field notes detailing observations and insights not only of the interviewees but also of their immediate context. These thick descriptions of each interview later proved invaluable to the analysis. The audio component of the recordings was transcribed with a word processor. Saldaña's (2016) first cycle coding methods were performed on individual transcripts as soon as they became available. The organization of codes, categories, and themes was done inside QDA Miner Lite from Provalis Research.

After six months of interviewing and concurrent coding, preliminary themes emerged, showing a pattern of similarities indicating that data saturation had been reached. Interviewing ended after the 17th participant. A second cycle of coding was then performed, where codes were consolidated, re-assigned, and broadened. Themes re-emerged and were grouped according to the study's research questions. The themes were then summarized, supported by representative statements, and prepared for transmission back to the participants.

Summaries of codes and themes contributing to each research question were presented as part of an online questionnaire sent to the participants via online forms. Links to each personalized online form were sent to each participant. The form indicated how the participant responded during the interviews. It also contained the summarized responses of the other participants, who remained anonymous to each other. In each questionnaire, the researcher solicited comments and responses, which later contributed to consensus on the validity of the themes and concepts that were generated from everyone's responses.

Application of the Authenticity Criteria

The authenticity criteria address the quality of the study by looking into the process and outcome of qualitative research in its communitarian (community-building) nature. To achieve authenticity, the following strategies were

implemented at several stages of the study and are more specifically described in the following paragraphs:

Fairness and Balance. To demonstrate fairness and balance, wide inclusion criteria for participant selection were used, i.e., any college student regardless of age, sex, degree program, year level, type of institution, and who has enrolled in a fully online class for at least one semester. The use of informed consent, negotiated and renegotiated during each stage of data collection, as well as the assurance of confidentiality, also contributed towards fairness. To solicit actual statements, participants were asked to comment on the overall fairness of the study.

Ontological Authenticity. To raise their level of awareness on the topic being investigated, participants were asked to answer such questions as "After reading the summaries of the experiences of other students, was there something that you just realized for the first time?" The researcher's reflexive accounts were also made intentionally and were included in the analysis.

Educative Authenticity. To enhance the awareness of the participants about what other students experience, comments were solicited on the interview summaries presented to them as part of the second round of data collection. How each participant appreciates the experiences of others, whether they agree with them or not, is educative authenticity. The goal is for everyone to come away equipped with richer understandings of the constructions of others (Lincoln, 2007).

Catalytic Authenticity. In meeting this criterion, participants must be stimulated to take some form of action (Seale, 2003). They must signify their willingness to act on concerns raised during the interview. To facilitate this, questions such as "Having mentioned this issue, what do you think could be done to address this?" were asked during the interview.

Tactical Authenticity. The next step after participants are stimulated to act is that they are empowered to act. To achieve tactical authenticity,

participants were given opportunities to contribute input to the shaping of the focus of the study. Participants were asked to give recommendations to their administrators and teachers towards improving their experiences as students under emergency remote teaching.

Results and Discussion

This study demonstrated the application of the authenticity criteria and its five dimensions to a qualitative study. The following outcomes satisfy each criterion of fairness: ontological, educative, catalytic, and tactical authenticity.

Fairness

Fairness in the study was evident in the adoption of wide inclusion criteria in the selection of participants to avoid marginalization. Participants must only be college students who have, or are still, enrolled in fully remote classes during the three-year period from 2020–2022, regardless of sex, degree program, age, and from either a public or private college or university. As a result, 10 of the 17 participants who agreed to the interviews are female. Participants came from 13 different degree programs, a mixture of seven private and public colleges and universities.

The criterion of fairness was also satisfied, as consent to participate in the study was negotiated not only at the start of the study but at every stage of data collection and analysis, negotiated and renegotiated with each participant before any decision was made in the study. Likewise, feedback from participants was obtained before the finalization of the themes and categories. This affirmed the correctness of the interpretations of each participant's statements by the researcher. The students were also given the chance to comment on how the interviews were performed. Lastly, even the statements where participants gave divergent opinions were included in the analysis, ensuring that all viewpoints were represented in the study. The following statements were from participants describing how the interviews went:

"I did not feel like I was put at a disadvantage during the interview. My concerns were heard, and my opinions were respected" (Participant 14).

"I really love how the interview with (the researcher) went. I was able to express my thoughts well and didn't feel constrained. I also love how open-ended the questions were—giving me a chance to delve deeper into my answers" (Participant 8).

Ontological Authenticity

The criterion of ontological authenticity requires that participants achieve enhanced awareness of issues and situations based on what is being studied. This was satisfied in the study when, after participants were able to read how other students answered the same questions asked of them, they appreciated how similar or different their situations were in comparison. The following statement shows how a student demonstrated this increased awareness:

I realize that all of us students have different backgrounds, personalities, and environments, which may be good or bad. That's why I need to be more understanding and kind to others because I do not know what kind of situation they are in (Participant 9).

Ontological authenticity was also made evident when the researcher's own constructions were enriched through interaction both with the participants and with the emergent themes.

Educative Authenticity

The criterion of educational authenticity was satisfied when participants understood and appreciated what others expressed as their concerns and beliefs without necessarily agreeing with them. The summarized responses sent back to each participant facilitated this realization, as the following statement from a participant shows.

Yes, I agree with the summary mentioned because somehow I can relate to their experiences, and I have also seen some of my classmates having the same experiences. It is true that we learned to adapt to the new (online) modality over time (Participant 5).

Catalytic Authenticity

This criterion of authenticity requires that the findings of the inquiry serve as impetus for change, action, or decision-making. In the study, this was accomplished when participants agreed and reached consensus on the rightness of the summaries presented to them. The following statement expressed this thought:

My experience with the whole (remote learning) setup was full of demanding yet constructive challenges. I hope students below our grade level won't have to go through the same thing. I wish that relevant adjustments in this setup would be implemented (Participant 15).

Tactical Authenticity

Tactical authenticity encourages action by providing the means to achieve change. In this study, participants were provided with the opportunity to contribute input to the study and help shape its focus and strategies. This was achieved when participants gave recommendations on how their situation might be helped by their school administrators and teachers. These recommendations then formed part of the study's results. This recommendation from a student serves as an example:

I am really suggesting webinars and conferences regarding mental health. Unstable mental health is a really big factor in academics, especially depression and stress. If the student is depressed, there's no use for nice gadgets and internet connections, so I'm really advocating for mental health (Participant 7).

At the conclusion of the study, the themes emerging from the interviews with students showed the variety of experiences they had while attending remote classes. They expressed their attitudes and emotions and shared coping strategies to endure the inconvenience of attending classes online. They took comfort in the fact that students like themselves from other regions of the country also go through the same experience as theirs. The community-oriented posture in the conduct of the study gave voice to the participants and, for many, if not all of them, served as catharsis.

The five criteria of authenticity, as they are built into the study, i.e., considered from conception until the conclusion, show how the quality of a study may be asserted. Yin (2016) considered it the best approach to consider dealing with the study's credibility choices during the design phase rather than after data collection has taken place. In this study, careful attention to the needs and values of the participants ensured that the practice of fairness had been deliberate. The cordial interaction between the participant and the researcher, as evidenced by their statements, affirms the idea that the relationship is between equals built on mutual respect rather than objective and distanced (Lincoln & Denzin, 2003). When examined more closely, the criteria in authenticity not only fulfill all those in trustworthiness, or the parallel criteria, but surpass them in the addition of certain community-driven, or "communitarian nature" (Lincoln, 2007) aspects of the study that encouraged reciprocity and negotiated results with the researchers, as when the results were summarized and sent back to the participants. In summary, authenticity addressed the issues related to participant values, accountabilities, and consensus while honoring participants' rights by ensuring that processes are fair, inclusive, and involve the community.

There may be a tendency to see trustworthiness and authenticity as two variations in approaches to validity whose goals are to reach the same objectives or solve the same problems. They are

not. The intentions of these two sets of criteria are not the same. The application of the authenticity criteria in the conduct of the study addressed vital ethical aspects normally overlooked by researchers. This predisposition towards higher ethical awareness, albeit almost unpremeditated, and the communitarian orientation in the dealings with participants together take the validity of qualitative research a step further and align it with the constructivist paradigm.

Because of its inclusive stance and the careful attention given to giving voice to the participant community and its calls to action, it is not surprising to conclude that the authenticity criteria subtly border on the critical approach, with its strong ethical overtones. As a contribution to qualitative inquiry, authenticity is the recommended validation criteria for most, if not all, qualitative research approaches, especially those dealing with human subjects.

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Enhancing Students Vocabulary: A Comparative Study between Blended Learning through WhatsApp and TGT through Kahoot

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In an educational landscape increasingly shaped by technology, understanding which method yields better results has implications for teaching practices and curriculum development. This research addresses a significant gap in the existing literature by comparing the efficacy of blended learning and team game tournaments (TGT) in enhancing students' vocabulary. Specifically, this study examines the effectiveness of two distinct teaching methods, blended learning via WhatsApp and team games tournaments using Kahoot, on vocabulary enhancement among 10th-grade students at SMAN 1 Parongpong, Bandung Barat. The research utilized a quantitative approach with pre-tests, post-tests, and a questionnaire to assess the effectiveness of these instructional strategies. The relatively small sample size of 62 students from a single school may restrict the generalizability of the findings. The analysis results reveal that both instructional methods led to improvements in vocabulary skills, with no statistically significant difference between the two methods. Responses from the questionnaire further indicate positive feedback for both approaches, confirming their effectiveness to give a boost to students' vocabulary. Future researchers can draw upon these findings as additional resources for exploring vocabulary development within diverse educational settings, potentially incorporating the technology and methodologies applied in this study into their own research endeavors.

Keywords: *blended learning, team games, tournaments, vocabulary enhancement*

Vocabulary development is a critical component of language acquisition, particularly in the context of English language mastery among Indonesian students (Fauzi, 2018). Mastering vocabulary is foundational to English proficiency and is often considered one of the most challenging aspects for foreign learners (Virocky & Simanjuntak, 2018). Indonesian students, in particular, have been observed to struggle with English vocabulary, which hinders their reading, writing, speaking, and translation skills (Inayatul, 2015; Wakana, 2012).

In the global education landscape, information and communication technology (ICT) has emerged as a transformative force in reshaping teaching and learning experiences (Kopinska, 2013). Blended learning, a method that combines digital media with traditional classroom settings, has garnered attention for its potential to address student engagement and learning outcomes (Friesen, 2012). Additionally, innovative approaches like Team Games Tournaments (TGT) have been recognized as effective means to diversify learning experiences and capture students' interest (Setiawan, 2017).

Several studies support the use of blended learning in language education. Albiladi and Alshareef (2019) explained that blended learning involves the teaching of listening, reading, writing, and speaking skills in English. Banditvilai (2016) highlighted its positive impact on language skills, autonomy, and motivation among language learners. Vasbieva et al. (2016) observed a positive effect on ESL learners' vocabulary development. Ono and Ishihara (2012) explored a pedagogical model of blended learning and reported improved vocabulary development and learner engagement. These studies collectively demonstrate the potential of blended learning approaches for enhancing language skills, including vocabulary acquisition.

On the other hand, TGT is a learning model based on cooperative learning that shows positive interdependence, face-to-face interaction, individual responsibility, communication between members of the group, and process evaluation in

the group (Ristanto, Zubaidah, Amin, & Rohman, 2018), as cited in (Pradhita Yudhi Astri et al. (2018). The results of the study by Rihanah and Sudiyono (2020) implied that TGT increases motivation for learning and improves vocabulary as well.

This study compared the efficacy of blended learning and team game tournaments (TGT) in enhancing students' vocabulary. In this study, blended learning was delivered using WhatsApp, while TGT was facilitated in Kahoot. Specifically, this study aimed to address the following research questions: 1. How does vocabulary ability differ between students taught through blended learning via WhatsApp and those taught through team game tournaments via Kahoot? 2. Is there a statistically significant difference in vocabulary enhancement between students instructed via blended learning through WhatsApp and those taught using Team Games Tournament via Kahoot? 3. What are students' perceptions towards instruction through blended learning via WhatsApp and Team Games Tournament via Kahoot?

Methodology

Research Design

This research adopts a quantitative, comparative research design. This design involves comparing the vocabulary achievement of students before treatment, as measured by a pre-test, and after treatment, as measured by a post-test, for both Class A and Class B of Grade X students.

Population and Sampling Technique

This research focuses on students enrolled in Grade X at SMAN 1 Parongpong. The study's sample comprises two different classes in Grade X: X Mia 1, with 32 students, and X Mia 2, with 30 students. It is noteworthy that X Mia 1 received instruction through blended learning via WhatsApp, while X Mia 2 was instructed using the Team Games Tournament approach through Kahoot.

The selection of samples was accomplished through a random sampling technique. This sampling

approach ensures a balanced representation of students subjected to different teaching methods, facilitating a comparative analysis of vocabulary enhancement outcomes.

Data Gathering Tools and Procedures

The research process began with a pilot test, featuring a 50-question multiple-choice vocabulary assessment sourced from various references and student textbooks. The pre-test with the remaining 25 multiple-choice vocabulary questions was administered to establish baseline achievement levels before the implementation of the interventions.

During the intervention and treatment phase, Class X Mia 1 engaged in learning activities via

blended learning through WhatsApp, while Class X Mia 2 followed a curriculum centered around team games and tournaments through Kahoot. Comprehensive lesson plans guided researchers through the step-by-step execution of these teaching methods.

At the conclusion of the program, a post-test was administered to assess the impact of both teaching approaches on vocabulary enhancement. Similar to the pre-test, the post-test included 25 multiple-choice vocabulary questions. These research instruments collectively facilitated data collection, allowing for the evaluation of teaching effectiveness and the measurement of vocabulary achievement before and after the instructional interventions.

Table 1

Procedures of the Treatment

Class A (Blended Learning)	Class B (Team Games Tournament)
The researcher begins the class by learning the program file in accordance with the school guidebook of the 1st grade senior high school.	The researcher begins the class by learning the program file that is in accordance with the school guidebook of the 1st grade junior high school.
Pre-Activity: <ul style="list-style-type: none"> • The students will be given a certain topic to discuss. • The researcher starts the activity by presenting the material, which is in accordance with the guidebook. 	Pre-Activity <ul style="list-style-type: none"> • The students will be given • A certain topic to discuss. • The researcher starts the activity by presenting the material, which is • According to the guide book.
Whilst-Activity: <ul style="list-style-type: none"> • The students watch a video or pictures that relate to the material. • The students are asked to discuss the video or pictures given. • The students learn the meaning of the word. • The students should understand the function of words (verb, noun, and adjective) and use the word in the sentence. 	Whilst-Activity <ul style="list-style-type: none"> • The students watch a video or pictures that relate to the material. • The students are asked to discuss the video or pictures given. • The students learn the meaning of the word. • The students should understand the function of words (verb, noun, and adjective) and use the word in the sentence. • The students learn how to choose the appropriate vocabulary to complete the sentences.

[table continues on the next page]

- The students learn how to choose the appropriate vocabulary to complete the sentences.
- The students learn the antonym and synonym of the word.

- The students learn the antonym and synonym of the word.
- The researcher activates the students' vocabulary by giving them a quiz using the Kahoot application.
- The questions will be made by the researcher according to the material that was taught before in the class.
- To play Kahoot, the students should go to Kahoot.com.

Post-Activity:

- The students are evaluated by the teacher about the material.
- The researcher asked the students to join a group discussion on WhatsApp.
- The researcher provides assistance by providing the material to the students.
- All the assignments should be sent to the group.
- If there is something that the students want to ask about the material, it can be asked in the group.

Post-Activity:

- The students are being evaluated by the teacher about the material.

Modified from Wirayuda (2019)

Analysis of Data

In this study, data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), a widely recognized computer program for statistical computation. SPSS was employed to perform comprehensive data analysis, including the examination of pre-test and post-test scores to determine the significance of the results. The chosen level of significance for this analysis was set at $\alpha = 0.05$, which is a common threshold in statistical research for assessing the statistical significance of findings.

Normalized Gain Analysis

In evaluating participants' vocabulary improvement, the researcher conducted an assessment by examining the results of the pre-test and post-test. This analysis utilized the normalized gain method (Hake, 2007), a well-established approach for quantifying the extent of enhancement in a measurable variable, specifically in this context, vocabulary proficiency.

$$\% \text{ posttest} - \% \text{ pretest} = \frac{\text{posttest} - \text{pretest}}{\text{pretest}} \times 100\%$$

Where:

- g : Average normalized gain
- % pretest : Percentage of pre-test scores
- % posttest : Percentage of post-test scores

Hake (2007) figured out the criteria for normalized gain, which is shown in Table 3.8.

Table 2

The Criteria of Normalized Gain

Gain (g)	Category
$0.71 < g \leq 1.00$	High
$0.31 < g \leq 0.70$	Moderate
$0.00 \leq g \leq 0.30$	Low

Normality Assessment

To ascertain the normality of the data collected for the pre-test, post-test, and gain, the study employed the Shapiro-Wilk method, a widely accepted technique for evaluating population

normality. This method helps determine whether the data follows a normal distribution, which is essential for many statistical analyses.

The formula utilized in this assessment is as follows:

$$W = \frac{(\sum a_i x_i)^2}{\sum (x_i - \bar{x})^2}$$

(Ruseffendi, 1998)

Where,

- W : Test statistic
 X_i : statistic order $X_1, X_2, X_3, \dots, X_n$
 A_i : constant generated from the average value (mean), variance, and covariance structure of the sample distribution of and from a normal distribution.
 X : The mean of sample data

The hypothesis was the following:

- H_o : The data population is normally distributed
 H_a : The data population is not normally distributed

The criteria for the normality test if the data is analyzed with SPSS are:

- The population variances are homogeneous if sig. value $\geq \alpha$ (0.05), then H_o is not rejected.
- The population variances are homogeneous if sig. value $< \alpha$ (0.05), then H_o is rejected.

Homogeneity Test

The researcher used the homogeneity test based on the results of the normality test to determine pre, post, and gain to see whether the population variances are homogeneous or not, which means having the same basic qualities (Uyanto, 2009).

The formula:

$$F = \frac{S_1^2}{S_2^2}$$

Where,

- F : value (variance variable data)
 S_1^2 : the larger variance
 S_2^2 : the smaller variance

The hypotheses that will be used are:

- H_o : The population variances are homogeneous.
 H_a : The population variances are not homogeneous.

The criteria for the homogeneity test if the data is analyzed with SPSS are:

- The population variances are homogeneous if sig. Value $\geq \alpha$ (0.05), then H_o is not rejected.
- The population variances are not homogeneous if sig. Value $< \alpha$ (0.05), then H_o is rejected.

Mean Difference Test

To address the second statement of the problem and determine whether there is a significant difference between the pre-test, post-test, and gain scores, either a T-test or a U-test was employed, depending on the conditions of the data. This phase of the analysis focuses on assessing differences in means between the two datasets.

In situations where the two populations are found to be homogeneous, a sample T-test will be applied using the appropriate formula (Supranto, 2009). This test is instrumental in evaluating whether the observed differences in means are statistically significant.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{SD \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad SD = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Explanation:

- x_1 : Mean score (Blended Learning through WhatsApp)
 x_2 : Mean score (Team Games Tournament through Kahoot)
 n_1 : Number of students (Blended Learning through WhatsApp)

- n_2 : Number of students in the Team Games Tournament through Kahoot
- s1: Standard Deviation score (Blended Learning through WhatsApp)
- s2: Standard Deviation score (Team Games Tournament through Kahoot)

However, if the data is not homogeneous, then the two-different test average used is a non-parametric test, or Mann-Whitney, with the formula below.

$$U = n_1 n_2 + \frac{n_2(n_2+1)}{2} - \sum_{i=n_2+1}^{n_2} R_i$$

(Supranto, 2009)

Where:

U: Mann-Whitney U test

n1: sample size one

n2: sample size two

R2: Rank of the sample size

The hypothesis of a different mean was written as follows:

H₀: There is no significant difference in the improvement of vocabulary knowledge between blended learning through WhatsApp and team games tournaments through Kahoot.

H_a: There is a significant difference in the improvement of vocabulary knowledge between blended learning through WhatsApp and the team games tournament through Kahoot.

The criteria for the Different Mean Test if the data is analyzed with SPSS are:

- Ho is not rejected if the signature. value $\geq \alpha$ (0.05) means that there is no significant difference in the improvement of students' vocabulary knowledge.
- Ho is rejected if the signature. value $< \alpha$ (0.05) means that there is a significant difference in the improvement of students' vocabulary knowledge.

Ethical Considerations

Prior to participating in the study, both students and their guardians were provided with clear and

comprehensive information about the research objectives, procedures, and potential risks. Informed consent was obtained from all participants, ensuring that their involvement in the study was voluntary and based on a thorough understanding of its purpose.

The privacy and confidentiality of all participants were rigorously maintained throughout the study. Any information or data collected from students was treated with the utmost discretion, and no personally identifiable information was disclosed in the research findings.

Student participation in the study was entirely voluntary, and they were given the option to withdraw from the research at any time without facing any repercussions. It was emphasized that their academic standing and future prospects would not be affected by their decision to participate or not.

The research ensured equitable treatment for all participants. Both Class X Mia 1 and Class X Mia 2 were provided with equal opportunities and support during the study to prevent any bias or unfair advantage in the teaching interventions.

The study prioritized the well-being and interests of the students. The teaching methods were carefully designed to enhance their vocabulary skills while minimizing any potential harm or discomfort. The interventions were aimed at providing educational benefits.

All collected data, including test scores and responses, were securely stored and accessible only to authorized personnel involved in the study. Measures were taken to prevent data breaches and protect sensitive information.

The research process, including data collection, analysis, and reporting, was conducted transparently. The methodology and findings were presented accurately and objectively, without any manipulation or misrepresentation.

After the study, participants were offered the opportunity to receive feedback on their individual performance and to gain insights into their vocabulary development. Additionally, they were

debriefed about the study's overall objectives and outcomes. These ethical considerations were integral to the research process, ensuring that the study was conducted with integrity, respect for participants' rights, and a commitment to ethical research practices.

During the data analysis process, the researcher computed the pre-test, post-test, and normalized gain values for each class, as detailed in Table 1 below:

Results and Discussion

Levels of Vocabulary in the Pretest, Posttest and Normalized Gain

Table 1 presents the mean scores of the pretest, posttest, and normalized gain. The standard deviations are also shown.

Table 1

Pre-Test, Post-Test, Standard Deviation, and Normalized Gain

	Blended Learning through WhatsApp		Team Games Tournament through Kahoot	
	Mean	St. Deviation	Mean	St. Deviation
Pre-Test	78.59	15.339	58.90	19.982
Post-Test	94.88	6.042	94.87	3.598
Normalized Gain	.782396	.2401044	.862556	.1426425

According to Table 1 above, the initial knowledge of students in the group who were taught using Team Games Tournament through Kahoot is lower than that of students in the group who were taught using blended learning through WhatsApp. But after the treatment, the achievement of students in the group who were taught using Team Games Tournament through Kahoot was higher than that of students in the group who were taught using blended learning through WhatsApp.

Both standard deviations of the two classes who were taught using blended learning through WhatsApp and team games tournaments through Kahoot decreased from pretest to post-test, from 15.339 to 6.042 and from 19.982 to 3.598. The scores of both post-tests in the two classes increased. The gain scores for blended learning through WhatsApp are .782396 and for the team games tournament through Kahoot are .862556, and it can be concluded that the knowledge of both classes was enhanced in vocabulary knowledge.

Test Normality of Pre-test

The normality test was performed in order to know whether the pre-test data population was normally distributed or not. The researcher did the homogeneity test after knowing the normality in order to see whether the populations were homogenous or not. The result of normality can be seen in Table 2:

Table 2

The Normality Test Result of Pre-Test

	Group	Shapiro-Wilk		
		Statistic	df	Sig.
Pre-Test	Blended Learning through WhatsApp	.878	32	.002
	Team Games Tournament through Kahoot	.948	30	.145

Based on the data, it appears that the population of one class is not normally distributed, since the significant value of group 1 is $0.002 < \alpha (0.05)$ and the significant value of group 2 is $0.145 > \alpha (0.05)$.

Comparison of Pretest

The Mann-Whitney test was performed to determine if the difference in the pretest scores was significant. The results are presented in Table 3.

Table 3

The Mann-Whitney Test Result for Pre-Test Score

Pre-Test	Mann-Whitney U	Wilcoxon W	Z	Sig. (2-tailed)
	224.500	689.500	-3.613	.000

Based on the result of Table 3 above, the significant value is $0.00 < \alpha (0.05)$, which means H_0 is rejected. Therefore, there is a significant difference in the results of the pretest score between students who were taught using blended learning through WhatsApp and students who were taught using team games and tournaments through Kahoot.

Test Normality of Post-Test

The researcher conducted the normality test for the result of the post-score. The result can be seen in Table 4.

Table 4

The Normality Test result for Post-Score

Group	Shapiro-Wilk		
	Statistic	df	Sig.
Pre-Test			
Blended Learning through WhatsApp	.761	32	.002
Team Games Tournament through Kahoot	.795	30	.000

The data analysis reveals that the data distribution in both classes does not follow a normal pattern. This is evident from the statistical results, where the significance value for Group 1 is 0.000, which is less than the alpha level (α) of 0.05, and similarly, the significance value for Group 2 is 0.000, also below the alpha level of 0.05.

Comparison of Post-Test

Another Mann-Whitney test was performed to determine if the difference in the posttest scores was significant. The results are presented in Table 5.

Table 5

The Mann-Whitney Test Result on Post-Test Score

Pre-Test	Mann-Whitney U	Wilcoxon W	Z	Sig. (2-tailed)
	411.500	876.500	-1.021	.307

According to the data presented in Table 5 above, the significance value is calculated as 0.37, which exceeds the predetermined alpha level (α) of 0.05. Consequently, the null hypothesis (H_0) is not rejected. This finding suggests that there is no statistically significant difference in post-test scores between students who were taught using blended learning through WhatsApp and those who were instructed using Team Games Tournament through Kahoot in terms of vocabulary enhancement.

Test Normality of Normalized Gain

The researcher conducted the normality test for the result of the gain score. The result can be seen in Table 6 below:

Table 6

The Normality Test Result for Normalized Gain Score

	Group	Shapiro-Wilk		
		Statistic	df	Sig.
Gain	Blended Learning through WhatsApp	.847	32	.000
	Team Games Tournament through Kahoot	.776	30	.000

Upon examination, it becomes evident that neither of the data populations follows a normal distribution, as indicated by the significance values of 0.00, which are less than the predetermined alpha level (α) of 0.05. Given that both datasets deviate from normal distribution, it is advisable to conduct the homogeneity test based on the median row of the data.

Comparison of Normalized Gain

As indicated by the data presented in Table 7 above, the calculated significance value is 0.330, which is greater than the predetermined alpha level (α) of 0.05. This result leads to the acceptance of the null hypothesis (H_0).

Table 7

The Mann-Whitney Test Result for Normalized Gain Score

	Mann-Whitney U	Wilcoxon W	Z	Sig. (2-tailed)
Pre-Test	412.000	940.000	-.975	.330

Consequently, it can be concluded that there is no statistically significant difference between students who were instructed using Blended Learning through WhatsApp and those who received instruction through Team Games Tournament via Kahoot.

Based on the findings above, the pretest knowledge of the students who were taught using blended learning through WhatsApp and the students who were taught TCT through Kahoot was different. Although the initial knowledge of both groups was different, after the students were taught using the methods of blended learning through WhatsApp and Team Games Tournament through Kahoot, the researcher found that the achievement between the two groups was significantly increased, and there is no significant difference in the post-achievement score of both groups. It can be said that the enhancement of the two groups in learning vocabulary was improved. Furthermore, although the difference is not significant, it is notable that students in the TGT group had higher mean scores.

Students' Responses

Table 8

Percentage of Students' Response

Criteria of Response	Percentage of Students' Response (Blended Learning through WhatsApp)	Percentage of Students' Response (Team Games Tournament through Kahoot)	Average of Students' Response
Positive	6.2%	43.3%	24%
Moderate	91%	57%	74%
Negative	3.1%	-	2%

Based on the data presented in Table 8, the following conclusions can be drawn:

- 6.2% of the participants in the Blended Learning through WhatsApp group exhibited positive responses.
- In contrast, 43.3% of the participants in the Team Games Tournament through Kahoot group showed positive responses.
- Furthermore, 91% of the students in the Blended Learning through WhatsApp group displayed moderate responses, while 57% of those in the Team Games Tournament through Kahoot group had moderate responses.

In the case of negative responses, 3.1% of the students in the blended learning through WhatsApp group expressed negativity toward this teaching method.

Notably, there were no negative responses from the participants in the Team Games Tournament through the Kahoot group.

These findings indicate varying levels of enthusiasm and satisfaction among students in both groups, with the Team Games Tournament through Kahoot group generally showing higher positive responses and lower negative responses compared to the Blended Learning through WhatsApp group.

The students were enthusiastic to compete with others, which motivated them to be more active in learning vocabulary and strive to be winners in the competition. Especially since the TGT method used Kahoot as the platform, it's leveraged reputation as

an engaging game accessible via smartphones. In this century, the implementation of games can attract students to be active in learning a lesson. That is why the Team Games Tournament through the Kahoot method was more effective for students in learning vocabulary. However, despite the Team Games Tournament through the Kahoot method being more effective in enhancing students' vocabulary, blended learning also demonstrated its eligibility in improving students' vocabulary enhancement.

The survey results indicated that 43% of students in the Team Games Tournament through the Kahoot group had a positive response, while 57% had a moderate response. In contrast, 6.2% of students in the blended learning through WhatsApp group had a positive response, with 91% expressing a moderate response. Notably, there were no negative responses from the Team Games Tournament through the Kahoot group. These findings suggest that the majority of students agreed that both blended learning through WhatsApp and team games through Kahoot enhanced their vocabulary learning.

Conclusion and Recommendation

In conclusion, the study finds that the Team Games Tournament through the Kahoot method is more effective in enhancing students' vocabulary. This is attributed to the competitive classroom environment created by the Team Games Tournament approach and the engaging nature of Kahoot games as a vocabulary learning tool.

However, it is important to acknowledge that the blended learning method also contributed positively to students' vocabulary enhancement.

The researcher recommends that all English teachers implement the use of blended learning methods through WhatsApp and team games and tournaments through Kahoot. Since it has been proven by the researcher and provides positive results in improving vocabulary enhancement, English teachers are also expected to facilitate the students with a variety of materials so that students do not find boredom in learning English, especially in learning vocabulary.

The researcher suggests that all students learn more about English by using these two methods in the classroom. By using these methods, the students will not find boredom because they are based on technology and games, which will reduce boredom in learning English, especially in learning vocabulary.

It is suggested that the institution provide SMAN 1 Parongpong is suggested to provide a Wi-Fi network in the classroom so that the students find it easier to access lessons from the internet and can explore even more about lessons, especially learning English. 4. For future researchers: The researcher hopes that the result of this study can be used as an additional reference in conducting a study, especially in vocabulary knowledge in different levels and contexts. The researcher suggests that the implementation of these two methods, which are blended learning through WhatsApp and team games tournaments through Kahoot, is not always used only to enhance vocabulary but can also be used to enhance the reading skills of the students. Along with the researcher conducting this study, in spite of the fact that vocabulary skills can enhance each material taught by using these methods, the researcher also sees that the reading skills of the students are also enhanced.

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Moderating Role of Age, Educational Attainment, Years in Teaching, and Salary in Teachers' Innovative Behavior

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Innovative educational approaches are essential to producing graduates who have the skills needed to succeed in a society that is constantly evolving on a global scale. Teachers are needed to exhibit innovative behavior to accomplish challenging educational objectives and assist students in functioning more effectively in the globalized world. This descriptive-correlational study determines the variations that exist in teachers' innovative behavior when age, educational attainment, years of teaching experience, and salary range are accounted for. Purposive-quota sampling was used to collect responses from the 323 teachers of nine higher education institutions in the Philippines who agreed to answer the online questionnaire that gathered their profiles and assessed their innovative behavior. Calculations using analysis of variance and pairwise comparisons verified that there is a significant variation in the level of innovative behavior in terms of educational attainment, years in teaching, and salary range. On the other hand, the innovative behavior of teachers does not vary in terms of age. These results imply that continuous learning enhances a person's ability to innovate. Additionally, as teachers get more experience in teaching, their skills and competence in creating new ideas and putting them into action increase. Moreover, when teachers receive a higher amount of pay, they have more means of supporting innovations. Lastly, it is important to note that a teacher's age is not a hindrance to being innovative. Institutional leaders should support their teachers' ongoing professional development. As a result of their interactions with coworkers, students, and subject-area specialists, they can gain more knowledge and self-assurance in their ability to implement innovations.

Keywords: *teachers' innovative behavior, educational attainment, age, salary, years in teaching*

One of the factors contributing to the Philippines' declining educational standards is thought to be the poor quality of its teachers. Mateo (2019) claims that the Department of Education (DepEd) acknowledged that creative teaching has been proven to raise educational standards. As a result, the education industry is committed to offering instructors programs that will improve their teaching.

It was said that many educational systems around the world pay little attention to the skills and conduct of instructors (The World Bank, 2019). Additionally, Umamah et al. (2021) concluded from their analysis that, to tackle the difficulties of education in the twenty-first century, there is a need for more adequate teacher preparation.

Scientific studies are becoming increasingly interested in innovative teacher behaviors because of their significance, although many of these studies place a strong emphasis on the cognitive and operational aspects of innovative behavior (Trapitsin, 2018). Thurlings et al. (2015) and Indrasari and Takwin (2019) both stressed the importance of innovation in keeping up with the education system's continually changing requirements.

Teachers that exhibit innovative behavior must be imaginative and flexible when developing cutting-edge, remarkable, and worthwhile concepts that foster a supportive environment for teaching and learning. In this age of technological breakthroughs, understanding and enhancing instructors' inventive conduct should be considered. Innovative behavior has been identified by Zainal and Matore (2019) as a critical component in ensuring that the requirements of the 21st-century learning environment are met.

Dea and Negassa (2019) determined that certain teachers' behavior and instructional strategies are influenced by linked demographic characteristics. Additionally, decisions based on demography can have a big impact on how a particular population lives their daily lives, according to the Indeed Editorial Team (2021). Examining variations across demographic parameters may also cause patterns to emerge (Demographic Differences, 2007).

There are several perspectives when it comes to teachers' ages, according to Rajesh Shah and Udgaonkar's (2018) analysis of the literature. Some said that teachers lose their enthusiasm for teaching and innovation as they get older and receive promotions. On the other hand, other research argued that teachers' expertise increased with age, making it simpler for them to choose different strategies to enhance students' learning.

One of the demographics considered by the majority of studies is the level of education of teachers. In their study, Zhang et al. (2021) discovered that instructors from various groups reported varying degrees of support for their autonomy. Teachers with master's degrees in particular reported feeling more supported in their autonomy. Additionally, Sari and Adi (2021) discovered a positive relationship between instructors' increased education levels and creativity.

New research suggests that there is a straightforward and linear relationship between a teacher's duration of teaching experience and the quality of their instruction. According to some studies, the link can be complex and cyclical, though (Graham et al., 2020).

According to Kad Tong et al. (2017), remuneration should be offered properly, even though salaries may not be a motivator for instructors. They also suggested that people will become upset if they are not paid fairly, so remuneration for the labor done should be considered. On the other hand, according to Evans (2019), teachers who earn more work harder. He added that teachers earning modest incomes might be persuaded to take on a part-time job, which could have an impact on their enthusiasm and effort in the classroom. Their attention is split between finding a second source of income, which may limit their capacity to develop cutting-edge teaching techniques.

This study attempted to offer more noteworthy findings regarding the relationship between age, educational attainment, years in teaching, and salary range with innovative behavior. The findings

could have a substantial impact on the formulation of policies that enable teachers to innovate. Results could have a significant impact on creating policies that make teachers more financially stable so that they can be more capable of acquiring resources to implement and sustain innovations in teaching.

Methodology

Research Design

In this descriptive-correlational study, age, educational attainment, years of teaching experience, and income range are taken into consideration to determine the variances in teachers' innovative behavior. The moderating effect of these demographic factors can be considered in creating policies to enhance the innovative behavior of teachers.

Population and Sampling

Nine sectarian higher education institutions (HEIs) in the Philippines approved the participation of their teachers in this study. Five of these HEIs are in Luzon, one in the Visayas, and three in Mindanao. Since the majority of administrators do not devote much time to teaching, they were not invited to participate in the study.

One of the HEIs recruited sixty teachers at random to complete the data collection form for the pilot study. The HEI chosen for the pilot study has the most number of tertiary teachers, ensuring that even if some of them are involved in the study, there will still be sufficient representation from their institution to take part in the real investigation.

Sending invites and following up to ask for their participation took place over the course of four weeks, up until the necessary number of answers were collected. Out of the 397 teachers who were invited to participate, 324 individuals consented to complete the online study questionnaire. One of them, however, did not complete all the questions, so his answers were disregarded. As a result, the data analysis included only 323 participants.

Instrumentation

The first section of the data collection tool was used to compile respondents' demographic information. Their age, level of education, number of years spent teaching, and income range were all listed.

The other section of the data collection tool sought to identify the teachers' innovative practices. By Lambriex-Schmitz et al. (2020), a multidimensional, inventive work behavior instrument for teachers was conceived and investigated. They did a thorough assessment of the literature and examined the scales already in use to measure innovative behavior as well as the existing dimensions of it. As a result, they expanded on innovative work behavior by including the concept of sustainability.

Each of the three dimensions—exploring opportunities and generating and promoting ideas—had five items. Eight more items measured concept realization. Finally, their analysis included 10 assertions for the new recommended dimension of concept sustainability. The purpose of this study was to assess the respondents' level of inventive behavior using all 33 questions from this multidimensional scale.

Data Gathering Procedures

After the approval of the respective institution heads and their research directors, a list of faculty members with their e-mail addresses was given by some institutions. The link to the Google Form questionnaire for the actual study was forwarded to their e-mail addresses and Messenger accounts. For some of the institutions, it was the research director who forwarded the link to the school deans, and the school deans forwarded it to their faculty members.

Ethical Considerations

Approval of the Ethics Research Board (ERB) from the researcher's institution was obtained before data gathering to make sure that ethical considerations were imposed. The participation of

teachers in the study was voluntary. The first part of the Google Form was informed consent. It discusses the purposes of the study, the risks and benefits for the respondents, the analysis and storage of the gathered information, and future publication concerns. Most importantly, they were assured of the secrecy of their identity and the confidentiality of their responses as required by the Data Privacy Act of 2012, or the so-called RA 10173. After reading the informed consent, they must confirm their willingness to participate in the study before they can proceed with the actual items for the research questionnaire.

Data Analysis

An analysis of variance (ANOVA) was used to determine if there are variations in the level of innovative behavior in terms of age, educational attainment, years in teaching, and salary range. Means and standard deviations are used for multiple comparisons.

Results and Discussion

Comparison of Teacher's Innovative Behavior in Terms of Age

The ANOVA findings for evaluating the degree of instructors' innovative conduct across the three age categories are displayed in Table 1. The summative level of inventive activity does not differ significantly between the groups ($F = 2.058$; $p = .129$).

Table 1

ANOVA Results for Teacher's Innovative Behavior In Terms of Age

Dependent Variable	Age	M	SD	F	p	Verbal Interpretation
Opportunity Exploration	22 - 35	4.044	0.568	.497	.609	Not Significant
	36 - 49	4.115	0.579			
	50 – 65	4.110	0.616			
Idea Generation	22 - 35	3.907	0.729	3.622	.028	Significant
	36 - 49	4.142	0.711			
	50 – 65	4.126	0.729			
Idea Promotion	22 - 35	3.791	0.789	2.269	.105	Not Significant
	36 - 49	3.982	0.799			
	50 – 65	4.006	0.782			
Idea Realization	22 - 35	3.971	0.611	.892	.411	Not Significant
	36 - 49	4.031	0.716			
	50 – 65	4.108	0.660			
Idea Sustainability	22 - 35	3.773	0.714	1.658	.192	Not Significant
	36 - 49	3.905	0.762			
	50 – 65	3.969	0.763			
Summative Innovative Behavior	22 - 35	3.897	0.591	2.058	.129	Not Significant
	36 - 49	4.035	0.628			
	50 – 65	4.064	0.641			

The findings demonstrate that in idea generation, it produces a significant variation between age categories ($F = 3.622$; $p = .028$). On the other hand, it also demonstrates that there is no statistically significant difference between the categories for the following aspects of innovative behavior: opportunity

exploration ($F = .497$, $p = .609$), idea promotion ($F = 2.269$; $p = .609$), idea realization ($F = .892$; $p = .411$), and idea sustainability ($F = 1.658$, $p = .192$).

Since there is a significant difference in the level of idea generation, a post hoc test was conducted and analyzed. The result of the pairwise comparison is shown in Table 2.

Table 2

Multiple Comparisons in Terms of Age for Idea Generation

Dependent Variable	(I) Age	(J) Age	MD (I-J)	S.E.	p-value	95% CI		Verbal Interpretation
						LB	UP	
Idea Generation	22 - 35	36 - 49	-.235*	0.092	0.011	-0.417	-0.054	Significant
		50 - 65	-.219*	0.110	0.047	-0.435	-0.003	Significant
	36 - 49	50 - 65	0.016	0.103	0.877	-0.187	0.220	Not Significant

*. The mean difference is significant at the 0.05 level.

The results of the pairwise comparison in Table 2 illustrate that those teachers who belong to the age categories of 50–65 years ($M = 4.126$; $SD = 0.729$) and 36–49 years ($M = 4.142$; $SD = 0.711$) have a significantly higher level of idea generation compared to those teachers who belong to the age category of 22–35 years ($M = 3.907$; $SD = 0.729$). Respectively, the absolute mean differences are 0.235 with a p-value of 0.011 and 0.219 with a p-value of 0.047.

However, there is no significant difference in the level of idea generation between those who are in the age category of 36–49 years ($M = 4.412$; $SD = 0.711$) and those who are in the age category of 50–65 years ($M = 4.126$; $SD = 0.729$). The computed absolute mean difference is 0.016, and the p-value is .877. Thus, idea generation is higher among those who are older than 35 years old.

Madden et al. (2018) found out that older teachers who participated in their study exhibit a decline in idea generation in the selection of propositional language. Contrary to this, the results of this study identified that older teachers exhibit a higher level of idea generation than new ones. This can be attributed to the notion that older teachers are more experienced and are more confident in expressing their opinions and ideas to solve problems and suggest developments (Sánchez-Mena et al., 2018).

Though there was a variation in the level of idea generalization, the calculations reveal that, generally, age does not play a major role in the level of innovative behavior. Among the components of innovative behavior, only idea generation showed a variation according to age. It should be noted that the other components of teachers' innovative behavior have no significant variations across the categories of age.

Ruiz et al. (2021) quoted several authors in their study to point out that older individuals are alleged to be less insistent on acquiring and implementing new ideas. Sari and Adi (2021) included age when they conducted their study among academic staff and non-academic employees' innovative work behavior. Their study also reveals that no significant variations are indicated in the measure of innovative behavior corresponding to an individual's age. With these inconsistent results, it is proposed that future investigations be done to identify the role of teachers' age in innovative behavior.

The nonsignificant variation in the level of innovative behavior across ages is evident. Though previous studies revealed diminishing levels of performance and innovative behavior among teachers as they aged, the results of this study imply that it is possible that age cannot hinder a person's ability to innovate. Because of this, teachers, regardless of age, should be given an equal chance to participate in innovative exercises.

Comparison of Teacher's Innovative Behavior in Terms Educational Attainment

The result of the ANOVA is presented in Table 3. It reveals that the difference in the summative level of innovative behavior of the respondents ($F = 5.380$; $p = .005$) is significant.

Table 3*ANOVA Results for Teacher's Innovative Behavior According to Educational Attainment*

Dependent Variable	Educational Attainment	M	SD	F	p	Verbal Interpretation
Opportunity Exploration	Bachelor's Degree	3.933	0.569	5.766	.003	Significant
	Master's Degree	4.114	0.575			
	Doctoral Degree	4.204	0.579			
Idea Generation	Bachelor's Degree	3.884	0.730	4.624	.010	Significant
	Master's Degree	4.091	0.767			
	Doctoral Degree	4.187	0.648			
Idea Promotion	Bachelor's Degree	3.722	0.850	6.604	.002	Significant
	Master's Degree	3.911	0.820			
	Doctoral Degree	4.122	0.665			
Idea Realization	Bachelor's Degree	3.974	0.623	2.169	.116	Not Significant
	Master's Degree	3.975	0.735			
	Doctoral Degree	4.139	0.625			
Idea Sustainability	Bachelor's Degree	3.747	0.719	3.617	.028	Significant
	Master's Degree	3.848	0.839			
	Doctoral Degree	4.023	0.641			
Summative Innovative Behavior	Bachelor's Degree	3.852	0.599	5.380	.005	Significant
	Master's Degree	3.988	0.673			
	Doctoral Degree	4.135	0.551			

Additionally, there is also a significant variation in each of the components of innovative behavior: opportunity exploration ($F = 5.766$; $p = .003$), idea generation ($F = 4.624$; $p = .010$), idea promotion ($F = 6.604$; $p = .002$), and idea sustainability ($F = 3.617$; $p = .028$). In general, there is a variation in the level of innovative behavior according to education level, so the null hypothesis is rejected. Therefore, it is worthy to look at the results of the multiple comparisons between the categories of educational attainment to further explain the differences in the level of innovative behavior.

Table 4 shows that teachers who already have a master's degree ($M = 4.114$, $SD = 0.575$) and doctoral degree ($M = 4.204$, $SD = 0.579$) have an increased level of opportunity exploration than those who have obtained a bachelor's degree ($M = 3.933$, $SD = 0.569$). The absolute mean differences are .181 and .271, while the p-values are .022 and .001, respectively.

Table 4*Multiple Comparisons in Terms of Educational Attainment for Innovative Behavior*

Dependent Variable	(I) EA	(J) EA	MD (I-J)	SE	p	95% CI		Verbal Interpretation
						LB	UP	
Opportunity Exploration	Bachelor's	Master's	-.181*	0.079	0.022	-0.336	-0.027	Significant
		Doctoral	-.271*	0.081	0.001	-0.431	-0.112	Significant
	Master's	Doctoral	-.090	0.076	0.240	-0.240	0.060	Not Significant
Idea Generation	Bachelor's	Master's	-.207*	0.098	0.037	-0.401	-0.013	Significant
		Doctoral	-.303*	0.101	0.003	-0.502	-0.103	Significant
	Master's	Doctoral	-.096	0.095	0.315	-0.284	0.092	Not Significant
Idea Promotion	Bachelor's	Master's	-.189	0.107	0.079	-0.399	0.022	Not Significant
		Doctoral	-.399*	0.110	0.000	-0.616	-0.183	Significant
	Master's	Doctoral	-.211*	0.104	0.043	-0.415	-0.007	Significant
Idea Sustainability	Bachelor's	Master's	-.101	0.102	0.324	-0.301	0.100	Not Significant
		Doctoral	-.276*	0.105	0.009	-0.482	-0.070	Significant
	Master's	Doctoral	-.175	0.099	0.076	-0.369	0.019	Not Significant
Innovative Behavior	Bachelor's	Master's	-.136	0.084	0.107	-0.301	0.030	Not Significant
		Doctoral	-.283*	0.086	0.001	-0.453	-0.113	Significant
	Master's	Doctoral	-.147	0.081	0.071	-0.307	0.013	Not Significant

*. The mean difference is significant at the 0.05 level.

Pairwise comparisons also show master's degree holders ($M = 4.091$, $SD = 0.767$) and doctoral degree holders ($M = 4.187$, $SD = 0.648$) have significantly higher levels of idea generation compared to those with bachelor's degrees ($M = 3.884$, $SD = 0.730$). Correspondingly, the absolute mean differences are 0.207 and 0.303, whereas the p-values are 0.037 and 0.003.

Pairwise comparison results on the level of idea promotion. Accordingly, teachers who have a doctoral degree ($M = 4.122$; $SD = 0.665$) have higher representation for idea promotion than those who have a master's degree ($M = 3.911$; $SD = 0.820$), as well as those who have a bachelor's degree ($M = 3.722$; $SD = 0.850$). The absolute mean differences are 0.399 and 0.211, with corresponding p-values of 0.000 and 0.043.

Lastly, results describe that the difference in the level of idea sustainability is only significant between those who have a doctoral degree ($M = 4.023$; $SD = 0.641$) and a bachelor's degree ($M = 3.747$; $SD = 0.719$). The absolute mean difference

is 0.276, and the p-value is 0.009. Similarly, only those who have a doctoral degree ($M = 4.135$; $SD = 0.551$) have higher collective innovative behavior than those who have a bachelor's degree ($M = 3.852$; $SD = 0.599$), with an absolute mean difference of 0.283 and a p-value of 0.001. Notice that in all these components of innovative behavior, the difference between those who have degrees' degrees and a doctoral degree is not significant.

The calculations of the Analysis of Variance together with the pairwise comparison on the level of innovative behavior reveal that in most cases, teachers who are already doctoral degree holders exhibit higher innovative behavior than those who are bachelor's degree holders. Though the differences are not significant, it should be noted that teachers with a doctoral degree have a higher computed mean in all the measures of innovative behavior than those who are master's degree holders. Thus, higher educational attainment suggests higher innovative behavior.

These results are likened to the findings of Abun et al. (2021). In their study, there are very few participants who have a doctoral degree compared to many bachelor's degree holders, yet their results still show a significant difference. They studied the effect of educational attainment on the self-efficacy of teachers, which influences innovative behavior (Cundawan et al., 2021).

Similarly, The results of the study by Sari and Adi (2021) concluded that the level of education is positively linked with creativity. According to them, while obtaining higher education, more opportunities are laid for them to develop. Hence, the advanced level of education of an individual increases her tendency to perform innovatively.

Vera-Toscano et al. (2017) argued that practical evidence proposes that continuous learning and having a higher level of educational attainment cultivate an individual's participation in adjusting to transforming society. Their exposure to different experts in their graduate courses and the sharing they have with their classmates fosters their ability to recognize opportunities to create innovation. Further, having higher educational attainment gives

them more confidence to promote their opinions and get the approval of others. In return, they become more motivated to sustain the implementation of an innovative idea because they are more active in organizing it.

To bridge the gap, school leaders should continue to expose their teachers, especially those who have no graduate degree yet, to activities where they can acquire new knowledge. Seminars and pieces of training can be provided to get acquainted with the innovations in teaching.

Moreover, encouragement should be consistently given to teachers to obtain a higher educational degree. Institutions can offer a more flexible work schedule for teachers so that they can find time to acquire a higher level of education.

Comparison of Teacher's Innovative Behavior in Terms of Years in Teaching

Table 5 reveals that the collective level of innovative behavior has a significant difference across the three categories of years of teaching. The values of $F = 3.658$ and $p = .027$.

Table 5

ANOVA Results for Teacher's Innovative Behavior According to Years of Teaching

Dependent Variable	Years in Teaching	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Verbal Interpretation
Opportunity Exploration	1 - 10 years	4.030	0.538	1.315	.270	Not Significant
	11 - 20 years	4.146	0.619			
	more than 20	4.123	0.608			
Idea Generation	1 - 10 years	3.945	0.691	3.804	.023	Significant
	11 - 20 years	4.093	0.820			
	more than 20	4.211	0.643			
Idea Promotion	1 - 10 years	3.780	0.790	5.107	.007	Significant
	11 - 20 years	3.957	0.834			
	more than 20	4.118	0.719			
Idea Realization	1 - 10 years	3.950	0.620	1.999	.137	Not Significant
	11 - 20 years	4.050	0.739			
	more than 20	4.129	0.659			

[table continues on the next page]

Idea Sustainability	1 - 10 years	3.780	0.704	2.675	.070	Not Significant
	11 - 20 years	3.888	0.830			
	more than 20	4.015	0.708			
Innovative Behavior	1 - 10 years	3.897	0.572	3.658	.027	Significant
	11 - 20 years	4.027	0.695			
	more than 20	4.119	0.589			

When it comes to the components of innovative behavior, there are significant differences on the level of idea generation ($F = 3.804$; $p = .023$) and idea promotion ($F = 5.107$; $p = .007$). However, there is no significant difference in opportunity exploration ($F = 1.3 = .270$), idea realization ($F = 1.999$; $p = .137$), or idea sustainability ($F = 2.675$; $p = .070$).

Hence, it is worthy to look at the pairwise comparisons across the three categories. The pairwise comparison is presented in Table 6.

Table 6

Multiple Comparisons by Years in Teaching for Innovative Behavior

Dependent Variable	(I) YT	(J) YT	MD (I-J)	SE	p	95% CI		Verbal Interpretation
						LB	UP	
Idea Generation	1 - 10	11 - 20	-.148	0.095	0.122	-0.336	0.040	Not Significant
		more than 20	-.266*	0.098	0.007	-0.460	-0.073	Significant
	11 - 20	more than 20	-.119	0.106	0.264	-0.327	0.090	Not Significant
Idea Promotion	1 - 10	11 - 20	-.177	0.104	0.090	-0.382	0.028	Not Significant
		more than 20	-.338*	0.107	0.002	-0.549	-0.128	Significant
	11 - 20	more than 20	-.161	0.116	0.163	-0.389	0.066	Not Significant
Innovative Behavior	1 - 10	11 - 20	-.129	0.082	0.113	-0.290	0.031	Not Significant
		more than 20	-.222*	0.084	0.009	-0.388	-0.057	Significant
	11 - 20	more than 20	-.093	0.091	0.309	-0.271	0.086	Not Significant

*. The mean difference is significant at the 0.05 level.

Results show that only teachers who have more than 20 years of teaching experience ($M = 0.589$; $SD = 0.643$) have a higher level of idea generation than those who have been teaching for only 1–10 years ($M = 3.945$; $SD = 0.691$). The absolute mean difference is 0.266 and the p-value is .007. Likewise, in idea promotion, the difference between those who have been teaching for 20 years or more (11–2018; $SD = 0.719$) and those who have only taught for 1–10 years ($M = 3.780$; $SD = 0.790$). is also significant, with a mean absolute difference of 0.338 and a p-value of .002.

Additionally, those who have over 20 years of teaching experience ($M = 4.119$; $SD = 0.589$) also have more teaching experience than those who have only 1–10 years of teaching experience ($M = 3.897$; $SD = 0.572$), with a mean difference of 0.222 and a p-value of .009. However, the difference between those who have more than 20 years of teaching and those who have been teaching for 11–20 years for all the measures of innovative behavior is not significant.

These results determine that the innovative behavior of those who have more than 20 years of teaching experience is significantly higher than that of those who have only 1–10 years of experience. Additionally,

though the difference is not significant, between those who have been teaching for more than 20 years and those who have been teaching for 11–20 years, it can also be seen that the mean is most of the time higher. Hence, these results suggest that a longer length of teaching indicates higher innovative behavior.

There is a scarcity of studies that determine the association between length of teaching and innovative behavior. Some studies show a positive correlation between length of teaching and factors that may influence innovative behavior, such as job satisfaction (Abun et al., 2021).

Based on the results, it is implied that the effect of years of experience on innovative behavior can be considered one of the forerunners in research. The increased innovative behavior associated with the length of experience may be due to the competence and expertise that have been developed for them

over the years of teaching. Additionally, their strategies in approaching challenges and creating solutions has also been hastened by experience and time. Thus, it is recommended that more support and exposure be given to beginner teachers so they can also draw on innovative ideas and have the courage to promote them to their colleagues.

Comparison of Teacher's Innovative Behavior in Terms of Salary Range

Table 7 reveals that the level of innovative behavior of teachers differs according to salary range ($F = 3.649$; $p = .027$). Specifically, there is also a significant difference when the salary range is considered on the level of opportunity exploration ($F = 3.108$; $p = .046$). Additionally, the level of idea generation also varies ($F = 4.353$; $p = .014$). Lastly, the ability of idea promotion also changes with salary pay ($F = 5.601$; $p = .004$).

Table 7

ANOVA Results for Teacher's Innovative Behavior According to Salary Range

Dependent Variable	Salary Range	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Verbal Interpretation
Opportunity Exploration	10, 000 - 20, 000	3.989	0.566	3.108	.046	Significant
	20, 001 - 30, 000	4.065	0.576			
	30, 001 - 40, 000	4.202	0.594			
Idea Generation	10, 000 - 20, 000	3.850	0.745	4.353	.014	Significant
	20, 001 - 30, 000	4.093	0.692			
	30, 001 - 40, 000	4.168	0.739			
Idea Promotion	10, 000 - 20, 000	3.786	0.816	5.601	.004	Significant
	20, 001 - 30, 000	3.849	0.769			
	30, 001 - 40, 000	4.140	0.783			
Idea Realization	10, 000 - 20, 000	4.010	0.617	1.166	.313	Not Significant
	20, 001 - 30, 000	3.983	0.663			
	30, 001 - 40, 000	4.113	0.716			
Idea Sustainability	10, 000 - 20, 000	3.803	0.749	2.624	.074	Not Significant
	20, 001 - 30, 000	3.818	0.717			
	30, 001 - 40, 000	4.018	0.783			
Innovative Behavior	10, 000 - 20, 000	3.888	0.615	3.649	.027	Significant
	20, 001 - 30, 000	3.961	0.590			
	30, 001 - 40, 000	4.128	0.656			

Clearly, the results show that the salary range indicates an impact on the level of innovative behavior of the respondents. Therefore, it is worthy to look at the results of the multiple comparisons between the categories of salary range to further explain the differences in the level of innovative behavior according to salary range.

Table 37 explains that there is a significant difference in the level of opportunity exploration between those who are receiving a salary of 30,001–40,000 ($M = 4.202$; $SD = 0.594$) and those who are receiving a salary of 10,000–20,000 ($M = 3.989$; $SD = 0.566$). The absolute mean difference is 0.213, and the p-value is 0.018. Table 41 also shows that those who are receiving a salary of 30,001–40,000 ($M = 4.168$; $SD = 0.739$) and 20,001–30,000 ($M = 4.093$; $SD = 0.692$) have higher levels of idea generation than those who are receiving a salary of 10,000–20,000. Respectively, the absolute mean differences are 0.318 and 0.243, while the p-values are 0.019 and 0.004.

Table 8

Multiple Comparisons on the Level of Innovative Behavior by Salary Range

Dependent Variable	(I) SR	(J) SR	MD (I-J)	SE	p	95% CI		Verbal Interpretation
						LB	UP	
Opportunity Exploration	10,000 - 20,000	20,001 - 30,000	-.076	0.083	0.360	0.087	0.087	Not Significant
		30,001 - 40,000	-.213*	0.090	0.018	-0.037	-0.037	Significant
	20,000 - 30,000	30,001 - 40,000	-.137	0.075	0.067	-0.284	0.010	Not Significant
Idea Generation	1 - 10	20,001 - 30,000	-.243*	0.103	0.019	-0.445	-0.040	Significant
		30,001 - 40,000	-.318*	0.111	0.004	-0.537	-0.099	Significant
	11 - 20	30,001 - 40,000	-.075	0.093	0.417	-0.258	0.107	Not Significant
Idea Promotion	1 - 10	20,001 - 30,000	-.063	0.112	0.576	-0.284	0.158	Not Significant
		30,001 - 40,000	-.354*	0.121	0.004	-0.592	-0.116	Significant
	11 - 20	30,001 - 40,000	-.291*	0.101	0.004	-0.490	-0.092	Significant
Innovative Behavior	1 - 10	20,001 - 30,000	-.074	0.088	0.404	-0.247	0.100	Not Significant
		30,001 - 40,000	-.241*	0.095	0.012	-0.428	-0.053	Significant
	11 - 20	30,001 - 40,000	-.167*	0.079	0.037	-0.323	-0.010	Significant

*. The mean difference is significant at the 0.05 level.

Results also reveal that the idea of promotion among those who are receiving a salary of 30,001–40,000 ($M = 4.140$; $SD = 0.783$) is higher than that among those who are taking 20,001–30,000 ($M = 3.849$; $SD = 0.769$) and those who are getting a salary of 10,000–20,000 ($M = 3.786$; $SD = 0.816$). This is

also the case for the summative level of innovative behavior. Accordingly, those who are receiving a salary of 30,001–40,000 ($M = 4.128$; $SD = 0.656$) exhibit a higher extent compared to those who are receiving 20,001–30,000 ($M = 3.961$; $SD = 0.590$) and 10,000–20,000 ($M = 3.888$; $SD = 0.615$).

The results of the pairwise comparison generally imply that the level of innovative behavior is greater for those who are receiving a higher salary. In educational institutions, the salary of teachers is based on qualifications that include the length of teaching and educational attainment. Thus, this result could be a consequence of the discussions that educational attainment and length of teaching increase the level of innovative behavior.

Evans (2019) claimed that raising the salary of teachers could increase effort. According to him, teachers who get an increase earlier are less likely to find a second job and are motivated to stay in teaching and explore ways to become better. Sarjana (2016) conducted a study among teachers and found out that giving rewards increases teachers' performance in terms of creativity, competence, and innovation.

According to Will (2020), increasing the salary of teachers also encourages them to stay motivated. Further, increasing their salary also enables them to be financially stable and less worried. Thus, they could focus on improving their teaching performance and innovating their materials.

Conclusions and Recommendations

The results of ANOVA and pairwise comparison tests confirm that there is a variation in the intensity of teachers' innovative behavior in terms of educational attainment, years in teaching, and salary range. On the contrary, there is insufficient evidence to conclude that innovative behavior varies according to age because the difference is only significant for the encourager.

The increase in educational attainment, years in teaching, and salary range indicate a higher level of innovative behavior. Years in teaching increase

as time goes by; thus, it cannot be sped up. On the other hand, for most academic institutions, salaries are higher for those who have higher educational attainment. Thus, it is recommended that institutional leaders encourage their teachers to continue taking graduate degrees. By doing so, they can acquire more knowledge and confidence in making innovations from their interactions with colleagues, classmates, and experts in the teaching field.

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Extra Challenge: Online Teaching Experiences of Selected Asian Elementary Teachers

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This study determined the challenges and coping mechanisms of selected Asian elementary teachers in online teaching during the height of the COVID-19 pandemic. This utilized the qualitative research method, specifically the phenomenological design. The data was gathered from ten teachers from the Philippines, Thailand, and Indonesia. The challenges they encountered were: (1) network and connectivity issues; (2) lack of orientation on the use of technology for online teaching; (3) managing student behavior; and (4) reliability of exams and outputs. Their coping mechanisms were optimism and innovation in their teaching strategies. Variations in coping mechanisms include: (1) partnership with parents; (2) embracing changes; (3) convenience and flexibility in time and space; and (4) reflections. This study concluded that teacher participants had different and similar experiences, as did their coping strategies, depending on the country where they lived. However, optimism and innovation were the important values they learned. Lastly, the study recommends that elementary teachers continuously receive technical training to improve their teaching quality. Finally, future researchers should explore the different experiences of elementary teachers in Asia and the factors that cause these experiences through quantitative and qualitative research designs.

Keywords: *teaching experiences, Asian context, online teaching, qualitative*

The COVID-19 pandemic has become a serious health concern and has had a significant influence on schooling. School closures affect around 1.5 billion kids and youth worldwide. Even during a pandemic, the education sector can devise long-term plans to ensure that children and youth do not lose their entitlement to a quality education (UNESCO, 2020).

Globally, the unexpected transition to remote learning has left teachers scurrying for urgent answers to teach their pupils efficiently and effectively, who are also adjusting to the changes. Teachers with limited resources work extra shifts to upskill and equip themselves with the digital tools and alternatives accessible. Thus, the abrupt transition reawakened their commitment to assume responsibility for providing education regardless of the conditions

As part of the government's anti-Covid-19 virus safety precautions, the Philippines was placed on lockdown beginning March 2020, locking school gates and keeping children within the premises of their houses. With this, the Department of Education (DepEd) developed DepEd Commons, an online platform for public school teachers to encourage remote learning modes. As Education Secretary Briones stressed, "instruction must continue even in times of crisis, whether it is a calamity, disaster, emergency, quarantine, or even war." A total of 151,749 instructors have joined the online platform to continue giving education (DepEd.gov.ph, 2020).

Because of the current COVID-19 crisis, most educational systems have been driven to embrace alternatives to face-to-face teaching and E-learning. To continue teaching despite school closures, educational systems have moved activities online (OECD, 2020).

The present covid-19 pandemic has created considerable challenges and has had an influence on educational institutions, and no one knows when it will be over. Every country is currently putting plans and mechanisms in place to manage the virus, but the number of cases is still rising. The

new normal should be considered in the creation and implementation of the "new normal policy" in the educational setting in order to sustain and provide outstanding education despite lockdown and community quarantine (Tria, 2020).

Because of the Corona virus epidemic, the teaching community has transitioned to an online teaching paradigm, and most of us are either working from home or attending online classes from colleges and universities. There are prerequisites for online education and teaching during the COVID-19 pandemic, as well as how to efficiently turn formal education into online education by using existing educational technologies in an ever-changing educational environment (He & Wei, 2021).

Schools across Europe, including Germany and Italy, were compelled to close and transition from traditional to online instruction. Teachers had to adjust to online learning (König et al., 2020). However, Georgia has the option of continuing their education at schools via online distance learning. It investigates the numerous platforms accessible and highlights those that have been used for support by the government, such as the online portal, TV School, and Microsoft Teams for public schools and alterations (Basilaia & Kvavadze, 2020).

Researchers around the globe conducted research to identify the challenges teachers face in their implementation of online teaching. A study conducted among 107 K–12 teachers in the United States of America identifies the challenges faced by teachers during the pandemic, including a lack of student participation and engagement (or a lack of parental support), students without access to technology, concerns about students' well-being, no face-to-face interactions with students, no work-life balance, and learning new technology (An et al., 2021).

A recent study in the Netherlands revealed the characteristics of teachers and their intent to incorporate technology in education, as well as their negative and positive experiences with online

teaching (Noroozi & Schuurink, 2020). Similar research discovered that Kumunova high school instructors encountered various experiences and challenges while teaching using online platforms. They ran into issues with learning assessment and evaluation (Ramadani & Xhaferi, 2020).

Also, universities in Thailand abruptly converted their face-to-face classes to compulsory 100 percent online learning when the innovative COVID-19 began its global attacks (Imsa-ard, 2020).

Moreover, Indonesian teachers identified a number of additional challenges and constraints, including some restrictions in the teaching methods normally used in a regular face-to-face class, less coverage of curriculum content, a lack of technology skills that limit the potential of online learning, a lack of e-resources in Indonesian, resulting in more time needed to develop e-content, longer screen time as a result of creating e-content and providing feedback on students' work, and more time spent on computers (Putrii et al., 2020).

In Pakistan, teachers who utilize Google Classroom, Zoom, and Microsoft Teams to provide online lessons found a range of concerns and challenges, including high internet costs and inadequate educational materials (Noor, Isa, & Mazhar, 2020). Many studies on teachers online teaching during the pandemic were conducted; however, there are still very few published books for the consumption of the public who are interested in this field of practice.

According to a random survey of Macau instructors, the Education and Youth Development Bureau only offered online classes for two weeks in October 2021 (DSEJ, 2021). Thailand, like Indonesia, has moved away from face-to-face classes and toward online instruction. After a long period of learning at home due to school closures, Thai pupils have been back in the actual classroom beginning July 1. They are getting used to their new normal routine (UNICEF, 2020).

At the same time, two countries, Myanmar and the Philippines, have entirely closed their schools.

A lack of continuity in schooling affects around 34 million children. Myanmar's schools were closed and reopened again in September due to a shortage of finance. All schools in the Philippines remain closed due to the lack of a declared start date for face-to-face lessons (UNICEF, 2020).

Teachers from many industries took advantage of the opportunity to learn and use accessible online platforms, platforms appropriate for the level of pupils they teach. As a result, the goal of this research is to identify the challenges and coping strategies of selected Asian teachers as they strive to deliver education during a pandemic through online teaching during the school year 2021-2022 and identify best practices that could be replicated locally. This study specifically explored the following research questions: (1) *What are the challenges of selected Asian elementary teachers in conducting online teaching during the COVID-19 pandemic?* (2) *How do selected Asian elementary teachers cope with the challenges of conducting online teaching?* (3) *What are the similarities and differences in the challenges and coping of the selected Asian elementary teachers considering the country where they teach?*

Methodology

Research Design

This qualitative study specifically utilized transcendental phenomenology as its research design. This is the study of the conscious experiences from the subjective or first-person perspective of the participants. It explored their experiences, including perception, memory, imagination, emotion, desire, and social relationships. This was conducted with intentionality to describe elementary teachers' challenges in Asia and how they dealt with the obstacles in online teaching.

Participants of the Study and Sampling Techniques

The ten purposively chosen participants of this study were from selected Asian countries such as the Philippines, Thailand, and Indonesia, which

resulted from utilizing the snowball sampling technique. The participants were determined based on the following qualifications:

- Must have at least three years of experience in teaching.
- Must have experienced teaching online during the school year 2020-2021 or 2021-2022.
- Elementary teachers in private and public schools.
- Must be willing to participate in the research study.

Instrumentation

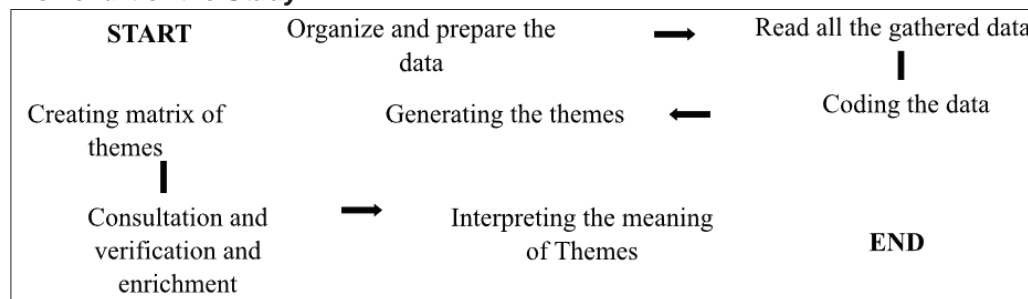
This study utilized a pre-constructed interview question guide. It followed a systematic interview protocol that was prepared and facilitated by the researchers themselves. The interview was guided based on the research problems.

Data Analysis

The data gathered through online interviews, phone calls, and observation notes was included as a narrative in the final report. After the interviews, the data was analyzed using the 7-step data analysis method described by Creswell (2013). This method results in the data being organized into a small number of themes. The process of data analysis and interpretation is shown below in Figure 1.

Figure 1

Flowchart of the Study



Trustworthiness

All researchers are concerned with ensuring qualitative research's validity and reliability while being ethical. Because practitioners intervene in people's lives, the ability to trust study findings is extremely important for practitioners. The research findings are reliable to the extent that there were some errors in conducting the study. This study will look at trustworthiness and rigor in relation to the traditional terminology of validity and reliability. According to Cope (2014), as referenced by Connelly (2016), the utility and integrity of the findings are based on the trustworthiness or truth value of the qualitative research and the transparency of the study's conduct. Furthermore, according to Lincoln and Guba (1985), the credibility of a research study is crucial in assessing its worth.

Establishing trust entails: *credibility* in the 'truthfulness' of the findings; *transferability* that illustrates that the findings can be applied in multiple circumstances; *dependability* that demonstrates that the outcomes are consistent and reproducible; and *confirmability* that is a measure of neutrality, or the extent to which a study's findings are dictated by respondents rather than researcher bias, incentive, or interest. In this study, credibility was utilized to assure data validity by asking each instructor to participate in the interviews. By interviewing two or more people in each institution that implemented online education throughout the

epidemic, triangulation was also used to increase the trustworthiness of the participants' remarks. Following the facilitation of the interviews, the transcribed data interviews were done. The researchers addressed how the interview was transcribed with their research adviser.

Reflexivity was also utilized in this study. Prior to the interview, the researcher collected personal notes on the participants. Following the conclusion of the interview, the researcher began transcribing their responses.

Ethical Considerations

Primarily, the researchers obtained permission from the university's Ethics Review Board (ERB). After the approval of the ERB, in the next step, the researchers utilized an **online face-to-face interview** to gather data from the purposefully chosen participants. However, if the participants connections and resources will not permit it, the second option will be utilized, which is a **phone interview**. The researchers interviewed each participant for about an hour via Zoom or Messenger applications, and the meeting will be recorded. The following entities will be safeguarded because ethical considerations will be taken into account:

If a participant becomes uncomfortable while taking part in the study, they are given the option of continuing or withdrawing their participation in the study. The data gathered was solely shared between the two parties: (a) researchers and (b) participants. To maintain the confidentiality of the data, the participants were asked to provide personal information. They were reminded that the information gathered would be used solely for research purposes and that any information submitted would be kept confidential.

There was a chance that participants were forced to produce sensible responses while participating in the study due to unavoidable circumstances. If hypothetical events occurred that could have an impact on the participants' affective elements, such as self-worth, performance, or

attitude, the researchers reminded the participants that all information would be collected just for research purposes and would not be corrupted by personal opinions.

Results and Discussion

Elementary teachers from the Philippines, Thailand, and Indonesia were asked about their challenges in conducting online teaching during the time of the COVID-19 pandemic. Teachers expressed positive as well as negative experiences, which highlighted their challenges in conducting online teaching. take primacy. Teachers then conclude that having quick access to internet tools and webpages is critical for giving online instruction (Nartiningrum & Nugroho, 2021).

Challenges of in Conducting Online Teaching During the Time of Covid-19 Pandemic

Four themes were generated based on the data analysis conducted. These themes are the following: (1) *network/connectivity issues*; (2) *lack of technology orientation*; (3) *managing student's behavior*; and (4) *reliability of exams and learning outputs*.

Network/Connectivity Issues

The means of communication in online teaching during the pandemic. Teachers who participated in this study expressed their frustration and disappointment with having internet interruptions during online teaching. Based on the results of the study, five teacher participants, three from the Philippines and two from Indonesia, expressed their experiences by means of communication with the students during online classes. They shared:

"During online classes, we always encounter delayed interaction. Teacher-student interaction depends on the strength or slowness of the signal. The others are speaking, but they are freezing on the screen; our communication does not meet. Some are speaking long after the questions

were posed. So, the connection in terms of class interaction is not continuous.” (Participant 1, Grade Schoolteacher for 3 years in the Philippines, one-on-one online interview via Zoom).

“Availability of internet connection is the most difficult aspect of online teaching because interactions between teacher and pupils are interrupted (Participant 3, teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

“It is a bit difficult to teach online, especially when the internet connection is lost in the middle of class. It is so difficult to teach on an online platform if the internet connection is poor (Participant 4, grade school teacher for 6 years in the Philippines, one-on-one interview via Zoom).

Having an internet connection problem in the middle of a class discussion might cause students not to understand the lesson, which is a challenging part for teachers. According to research performed among Malaysian mathematics teachers, the top two challenges cited were internet worries and students’ participation in online learning (Jiew, Chin, & Jupri, 2022).

Similarly, literature indicates that the online course was less effective as a result of a poor internet connection and a limited internet allocation (Putra, Witri, & Sari, 2020). Elementary teachers in Indonesia also had the same challenge. They said:

“I think in Indonesia I’m not really sure compared to the Philippines, but from time to time we have a problem of internet connection” (Participant 8, grade school teacher for 18 years in Indonesia, one-on-one interview via Zoom).

“During our class sessions, we want to ensure a stable internet connection. because internet connection is really important and students need to access it. However, it is really difficult for us” (Participant 10, grade

school teacher for 22 years in Indonesia, one-on-one interview via Messenger).

Studies reveal that one of the challenges teacher’s experience with online teaching has to do with communication gaps and delays in interaction between teachers and students. The challenges faced by teachers were caused by internet issues and student involvement during online instruction (Chin, 2021). The findings revealed that a slow internet signal interfered with classroom learning.

Providing a stable internet connection for students to learn effectively is also true for students, which can help the government, school administrators, instructors, and parents recognize how important well-equipped facilities and a stable internet connection are for efficient learning.

Lack of Technology Orientation

According to the participants, they were not well prepared and oriented for online teaching. Based on the interview, 7 out of 10 participants experienced difficulty in teaching due to technological preparation. It is challenging for teachers to manage the online ICT infrastructure since they are unfamiliar with the platforms and technologies available online. The participants shared:

“My first challenge is that I’m adjusting to the online teaching modality because remember, my training is for face-to-face classes, not online. Another is that I don’t know how to use Zoom, I don’t know how to use Google Form, and I don’t know how to use interactive gadgets or apps. Using a digital platform, you will sometimes use apps such as Google Classroom, where you can write your evaluation. It can also be done with Quizwhizzer, and it can also be done with Wordwall, but when I first taught online, I didn’t know that personally, so I had a little difficulty” (Participant 1, grade school teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

"So many! There are so many difficulties; it's challenging because, first of all, I don't really have a background in teaching online classes. It took so much effort to learn how to shift, and we do not have training even using Google apps and Zoom. We were just asked to shift to online teaching without technology training" (Participant 2, teacher for 6 years in the Philippines, one-on-one online interview via Zoom).

"First, I really lack training in using online apps for teaching. I am not exposed to this. Our school did not provide training as well, but we have to teach." (Participant 3, teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

"Teaching without training is difficult. The most difficult thing is to give activities, worksheets, and exams, especially in Pathfinding and other physical activities, because it can't really be done online. I mean, we were not trained to do this" (Participant 6, teacher for 15 years in Thailand, one-on-one interview via Zoom).

"There came a time when I cried even in front of the table while eating. I had no difficulty in teaching before, but when our coordinator instruction told us that we would shift to online even without providing training on the use of the apps and teaching strategies online, I was really devastated." (Participant 7, grade school teacher for 20 years in Thailand, one-on-one interview via Zoom).

Two more teacher participants from the same school shared their challenges with handling online teaching. They said:

"So, at first, it's really difficult because you don't know what to do or how to do it, and it's your first time to do the online teaching" (Participant 9, grade school teacher for 18 years in Indonesia, one-on-one online interview via Zoom).

"Looking for the right platform is very challenging. Since there are a number of choices, in our school, we are using Google Meet and other applications. It's very helpful in online classes" (Participant 10, grade school teacher for 22 years in Indonesia, one-on-one online interview via Messenger).

The main perceived barriers to implementing educational technology were a lack of knowledge about how to integrate technology, a lack of incentives to use technology, a lack of time due to high-stakes testing, difficulty managing a classroom when students use computers, and a lack of technical support (Hill & Valdez-Garcia, 2020). Also, teachers are unfamiliar with online platforms and tools, and they lack the expertise and abilities to manage the online ICT infrastructure in difficult circumstances (Hassan et al., 2020).

These teacher participants both struggled; they did not know how to handle the class or what strategies to apply. According to more studies, the inability of teachers to successfully use technology in the classroom, a lack of support and resources for online instruction, and the difficulty in energizing and engaging students are all disadvantages (Cardullo, et al., 2021). It was also stated that the inability to successfully meet the needs of each student and instructor due to a lack of funds, resources, and training made the transition to online education difficult (Brown, Correll, & Stormer, 2021). These challenges were really teaching them to strive and explore the new mode of teaching.

Managing Students' Behavior

Another challenge that the teachers faced during online teaching was how they could manage the behavior of the class if it was an online platform. There are 9 out of 10 participants who experienced the challenge of managing students on an online platform. According to Wink, LaRusso, and Smith (2021), managing inappropriate student behavior in the classroom is a difficult issue for many teachers.

They said:

"One of the difficulties of handling an online class is that the students' minds are diverted because of the ambiance at their house. It's hard to catch their attention when the surroundings are so noisy" (Participant 2, teacher for 6 years in the Philippines, one-on-one online interview via Zoom).

"It's hard to motivate the pupils nowadays because they seem like gadgets; they prefer online games more than the lesson" (Participant 3, teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

"But in my experiences in the past years, the hardest part is when there is a typhoon. The rain was heavy, and my teaching was also stopped because the children were afraid that they might be struck by lightning. And also, because of the noise in the house, they are not attested to studying when that happens" (Participant 4, grade school teacher for 6 years in the Philippines, one-on-one interview via zoom)

Students' motivation in an online learning environment decreases over time. Low motivation was also found to be a significant predictor of poor academic attainment. Students' grades were also influenced by their motivation (Ozer and Badem 2021). Another is that some students' interest is affected by the learning environment. This was also true in the study of Barrot, et al. (2021), who discovered that college students faced a wide range of online learning difficulties, both in terms of type and intensity. Their home learning environment was the most difficult, whereas technical literacy and competency were the easiest.

More teacher-participants shared that:

"The challenges that I experienced in online teaching are the attendance of the students. They would come late. Most of the students are absent during the online

classes. For example, we have a schedule 7:00-8:30 in the morning so the students will be online around 8:00 o'clock. Sometimes late or most of the time no attendance at all" (Participant 5, grade school teacher for 3 years in Thailand, one-on-one online interview via Zoom).

"Online is difficult during a pandemic because others have their cameras open but are not listening. Because here we can't force the children because no matter what we say to open the camera, they don't really open the camera, we can't really do anything. So, online is a really big challenge during a pandemic; it's really difficult because they can't be forced" (Participant 6, teacher for 15 years in Thailand, one-on-one interview via Zoom).

"Many of our students are not sure about listening and learning, but we must report that the children were there as long as we could see their names on screen. That was the time when I was under a lot of pressure and stress" (Participant 7, grade school teacher for 20 years in Thailand, one-on-one interview via Zoom).

Scenarios such as these happen because Gherhes (2021) discovered that anxiety, fear of being exposed, shame, or shyness, a desire to protect the privacy of their homes and personal spaces, and the possibility that other people might walk into the background were the main reasons given by more than half of the study participants for not agreeing to keep their webcams on during online classes. Teachers should be aware of the reasons why some students refuse to open their cameras. Alternatively, they could devise techniques to urge students to turn on their cameras while online classes are in session.

Literature tells us that contrary to face-to-face instruction, it was discovered that teachers struggled with distance learning and could not

actively engage pupils (Ayten, 2021). However, despite the difficulties, teachers chose to continue and tried their best to build effective communication and help students engage in the lesson.

Reliability of Exams and Outputs

One difficult experience for teachers in online classes was evaluating student's output. Some teachers felt burdened and dissatisfied with the reliability of their output. Five out of 10 participants expressed their experiences with conducting online classes. In one interview, the participants shared:

"Evaluation is always a burden to me every time I do a quiz; it used to be a quarterly evaluation challenge for me because I wasn't satisfied with whether they really answered it or what if they called their mom, their cousin, and then they were just next door they are" (Participant 1, grade school teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

"The hardest part is assessing and evaluating the pupil because you don't know whether it's the parents who answered. The reliability of the test result is always a question to me. I am not sure if this is their answers really. Both written and oral tests are difficult to evaluate." (Participant 3, teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

Assessing students work, especially in the online class, is difficult for teachers. According to studies, some students were dishonest due to pandemic-related issues (such as insufficient supervision), but there are other reasons that lead to student dishonesty, such as poor time management, feeling overloaded and pushed, and having difficulty with technology (Verhoef & Coetser, 2021). On the side of the students, they had various reasons why they did some dishonesty in their work.

More teacher participants confirmed that, through their answers, they really felt dishonesty when it came to the outputs of the students. They said:

"I doubt the honesty of the students in their classwork, seatwork, homework, and even quizzes and tests because I can compare their performances and it is different from when they are online. For example, they always got perfect scores in an online class, but in face-to-face classes you can see the big difference, so I should say there is dishonesty in doing their works" (Participant 8, grade school teacher for 18 years in Indonesia, one-on-one interview via Zoom).

"It is difficult to know if their scores are reliable. You don't know if they are the ones doing it. Of course, next to them are their mothers, their guardians. So, you seem to feel that they are not the ones who answered this; it was their guardian or their parents, so maybe that's it" (Participant 9, grade school teacher for 18 years in Indonesia, one-on-one online interview via Zoom).

"There, it is another one of the hardest things in the online class because, checking the activities, you don't know if they really answered because mostly the child's writing is ugly; their writing is a little different. Well, it is difficult to cope with the student's learning situation" (Participant 2, teacher for 6 years in the Philippines, one-on-one online interview via Zoom).

Academic dishonesty can reduce the quality of students' learning experiences as well as the reliability and trust in the assessments utilized in online classrooms. Students may receive great grades, but their learning is not authentic (Costley 2018).

In this case, teachers may find ways or strategies to maintain students' academic integrity. According to the literature, the need to adapt assessment to new learning requirements, the design of learning activities with unique features, and the combination of three types of presence (social, cognitive, and facilitatory).

Coping with the Challenges of Conducting Online Teaching

The teachers faced the challenges in different ways. Two themes, such as *optimism* and *innovation in teaching strategies*, resulted from the one-on-one interview. The data are represented in detail as follows:

Optimism

Teachers faced various challenges with teaching online, but despite the negative experiences, most of them stayed positive and continued teaching. According to Vignesh (2022), several institutions found it challenging to provide education throughout the pandemic. Others remained and embraced "online education," while others closed and faced criticism from a variety of sources. These findings are comparable to the results of a study that found that, while there are multiple common concerns with online training and its efficiency is not always at par with that of traditional classroom instructions, teachers usually appreciate it (Hung, 2021).

Seven of the 10 teacher participants expressed that they were resilient and optimistic. In one of the interviews,. The shared:

"Whatever the challenges that make me want to give up, I give my attention to what is better to do" (Participant 2, teacher for 6 years in the Philippines, one-on-one online interview via Zoom).

"We cannot do anything without help from the Lord, and that's what we are holding on to" (Participant 3, teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

"You know in your praying challenges we need to face it right? We need to survive for those challenges" (Participant 5, grade school teacher for 3 years in Thailand, one-on-one online interview via Zoom).

"Talk to God, kneel down, and pray, that's all" (Participant 6, teacher for 15 years in Thailand, one-on-one interview via Zoom).

"Prayer, faith in God, and by God's grace, we are able to cope with this pandemic" (Participant 10, grade school teacher for 22 years in Indonesia, one-on-one interview via Messenger).

"I tell myself that 'I can do it' even if I cry. No one will give up! So, it seems like not only me but also my co-teachers are saying that no one will give up because we will lose" (Participant 7, grade school teacher for 20 years in Thailand, one-on-one interview via Zoom).

"Just by having positive mindset! We know that God will sustain us amidst the pandemic situation. God is there, God is still in control! So, just having positive mindset and faith. And for sure we can go on even though we are in a difficult situation" (Participant 8, grade school teacher for 18 years in Indonesia, one-on-one interview via Zoom).

The teacher participants encountered challenges and difficulties to overcome. Their role is extremely crucial, especially adapting to online teaching. But it did not hinder them from giving up their profession; instead, they found ways and became even more positive.

Innovation in Teaching Strategies

Teaching strategies are essential for teachers to engage and meet the needs of their learners. According to studies, reflective practitioners should critically examine their own work and provide innovations that will improve routine educational

practice (Osmanovic Zajic, Maksimovic, & Milanovic, 2022). Teachers who are teaching during a pandemic are willing to accept change, develop, integrate, and use new ways, create new things, analyze situations, and seek knowledge from many sources in order to make something interactive (Nurkhana, F., and A.E. Atmojo, 2021). This research finding was also true for the nine participants, who expressed that innovation in teaching strategies helped them cope with the challenges they were experiencing in online teaching during the pandemic. In the one-on-one interview, the participants said:

"But as of now, when I cope with those challenges to make my class lively online, so I'm still here and using the call card because it's the one that can cope with their screen because when I put it in the back, they immediately look at my screen because I can pull it out anytime or have their name called. And then at the same time, I also use virtual games like KAHOOT, which is more effective to use for me. And then word Wall in virtual games because they are very interactive and lively, so students will not be sleepy."

"Then videos and screen sharing are zoomed in with icons there and you can change the background and emoticons. Interactive icons helped. And then the children always need a white board so they can participate anytime. In that way, I think I lessen the challenges, meet together with my students, and make our class livelier because of the tools we provide in the class" (Participant 1, grade school teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

"I changed my lesson plan and the way I teach online. I exchanged it like last time I did it talking and talking, and the next time I did it by singing or taking action. And make a study so they find it interesting the next

time they attend class. That's how I coped with the challenges that I experienced." (Participant 5, grade school teacher for 3 years in Thailand, one-on-one online interview via Zoom).

"I think one of the best strategies to make them involve is to have interactive online educational activities. I'm not sure of you are familiar with quizzes, Kahoot, Flipgrid and those other should I say platform to make them involve because whether we like it or not students nowadays are so connected with the internet, modern technology so we are bringing them their like to manipulate their gadgets. In that way, they are more interested as I observe and of course videos, power points and I also give each of the students a chance or chances to say something to be involve inquisitive to ask questions and also, I use random picker application to choose the students randomly, to let them involve the time that I require. Sometimes I tell a story just to eliminate the monotony or boredom. Those are my strategies as a teacher" (Participant 8, grade school teacher for 18 years in Indonesia, one-on-one interview via zoom).

"And then, there are many songs; there are always songs every day. Then, my friend, because I have a friend with me here in the house, sometimes videos me while I'm still dancing in the act of the camera. So, it really needs to be done, but I think it's effective that way."

"All the things you do when you teach, you incorporate with actions with songs that make it lively."

"As a primary teacher, I make sure every day is fun, every day is a lively class, and every day is different from another day like that. So even though sometimes the lesson is very challenging, you make it easy"

(Participant 9, grade school teacher for 18 years in Indonesia, one-on-one online interview via Zoom).

"So, I make it challenging; I always do finger play. The children I teach are small, in grades 1 and 2. So, mostly before starting, we will do an action song, then we will pray, and then we will finger play. What are they? They are more alive in fingerplay. They want to play. That's their favorite part. Before we go to class, I fingerplay at least three fingerplays" (Participant 2, teacher for 6 years in the Philippines, one-on-one online interview via Zoom).

"Teamwork with my co-teachers and also, of course, our principal. We shared our knowledge about technology and the use of different platforms so that we could also teach the children and their advice" (Participant 3, teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

"As a Grade 1 Teacher, you need lively activities. And I also saw the children, the grade 1 students will not lose their liveliness in class. Aside from you as a teacher, you must be lively and the activity medium you use must also be engaging. So, we have online activities that have websites that help us to use that. I also have one myself in PowerPoint, I put it in and make games, and by the way, online too, I'm also not very good at making children write more on activities" (Participant 4, grade school teacher for 6 years in the Philippines, one-on-one interview via Zoom).

"Sometimes it's like a clown, all the techniques, ideas, and technique strategies that I really apply, especially in online teaching. Because sometimes my children don't get their attention, they won't really listen" (Participant 6, teacher for 15 years in Thailand, one-on-one interview via Zoom).

"My students are grades 4,5,6, they are not too heavy. Actually, I pay for a website where I make games like word wall, and some things like worksheets. There is also a limited amount of time, but my students have a lot of fun there. Now they say they miss it. We also have a game that they love so I have a lot of games. Then they will say, teacher, we are excited to play. Especially we have a maze game that looks like there are two children who both have beards. So, they love that and of course because they remember better so they have to press their cellphones quickly. But in the beginning, it really seems too boring if I only do multiple choice because of course that's the only way you answer. Then I found a way that if I pay, I won't lose, I can still relax. Because even though I'm paying, I'm making a game, so, my explanation is getting slower because they're excited to play" (Participant 7, grade school teacher for 20 years in Thailand, one-on-one interview via zoom).

"Actually, online class is very challenging, for us teachers. Number 1, by utilizing new applications. Like for example, I tried to use new things yeah. I used Padrick, this are some of the apps that I used during the online class to have a lively activity with my students. I used Quiziz and also, I used Jamboard. And also, other applications in google. And then, in here, we also encouraged to use WAK home gadget. To make sure that devices we're using and able to carry out the high demands of speed in processing more solve in opening anything slots of students in class online during the teaching learning process" (Participant 10, grade school teacher for 22 years in Indonesia, one-on-one interview via messenger).

The usage of Kahoot Platform as an evaluation approach had a significant and immediate positive impact on the educational process during the COVID-19 outbreak. Therefore, selecting and employing appropriate and relevant learning applications and platforms could help to support the process of online teaching and learning (Lusiyani & Anindya, 2021).

Teachers need someone to access new sources of knowledge and information that will help them apply and share with their students. Teachers would benefit from learning practical techniques for innovative behavior in the classroom through teamwork, humor, and principal support to boost their instructional efforts (Johari, Abdul Wahat, & Zaremohzzabieh, 2021).

According to Barbetta (2021), thanks to high-tech tools like video conferencing platforms and learning management systems, instructors can successfully apply these strategies when teaching online. Technology made a significant contribution to the educational system, particularly the abrupt shift in teaching. Teaching is not just how good one is. It is also knowing how to connect with students and how to get them interested in the lesson that will help them learn through innovation strategies. Teachers will find ways to catch learners' attention. According to Giyatmi (2021), teachers must devise new strategies to motivate students and make online learning more engaging. Game-based learning, commonly known as online learning, is one of them. In an online classroom, the teacher can use a variety of gaming tools, such as Kahoot, Wordwall, and Quizzwhizzer.

As a result, Gordillo et al. (2022) discovered that video-based learning was less effective in terms of knowledge retention and motivation than game-based learning using educational video games produced by teachers. It enhances student involvement and confidence. The participants listed above are extremely dedicated to their careers as teachers. Despite the obstacles, they succeeded. Furthermore, Lin et al. (2022) discovered that

on student evaluation of instruction, teachers who employed teaching innovation approaches outperformed teachers who used standard teaching strategies. During the COVID-19 outbreak, teaching innovative instructors improved in student evaluations of teaching, whereas non-teaching innovative teachers did not.

Similarities and Differences in the Experiences

The one-on-one interview generated four important themes. These include partnership with parents, embracing changes, convenience and flexibility in time and space, and reflections, which, according to them, are the similarities and differences in the challenges and coping strategies in online teaching.

Partnership with Parents

Partnerships with parents can significantly improve outcomes for children. Positive relationships between parents and teachers have been demonstrated in studies to boost children's academic achievement, social competence, and emotional well-being. Children do better at school and at home when parents and teachers collaborate (Ludvik, 2020). It was also stated that the significance of parental involvement in education is that parents are becoming more suited to educate their children. These factors were greatly contributing to the student's progress.

Six of the 10 teacher participants expressed having collaborated with parents, teachers, and schools during their years of online teaching. The participants shared:

"Another beneficial is the relationship between teacher and parent. I've been close to them because they've been my partner in helping the learning of their children, and that's the good thing we experienced during the online interview" (Participant 4, grade school teacher for 6 years in the Philippines, one-on-one interview via Zoom).

"Good thing parents are involved to help and guide, and these are the reasons children are learning during online classes. And I was given an opportunity to know them more" (Participant 7, grade school teacher for 20 years in Thailand, one-on-one interview via Zoom).

"Here in our school, students are rich. So it happens, as much as possible, they are aiming for a rank. The competition between student to student and even parents to parents. A lot of parents are not aware of what the kids learned, but what is important for them is the ranking. They are hiring tutors or even parents that are able to answer the questions or activities. It's not authentic! That's the hardest thing to accept because we are trying to make them learn, but what happened is that they are just after the score or the grades" (Participant 8, grade school teacher for 18 years in Indonesia, one-on-one interview via Zoom).

"There are parents sometimes who don't understand even though their children are smart, but that's when I deduct them for "not following the instructions" (Participant 9, grade school teacher for 18 years in Indonesia, one-on-one online interview via Zoom).

"Most likely, our school has online activities provided. They also provide a site; they purchased it for use by students" (Participant 6, teacher for 15 years in Thailand, one-on-one interview via Zoom).

"We really help each other! We support each other! If, for example, I have a friend who is really knowledgeable in a computer, he or she will share his or her knowledge" (Participant 10, grade school teacher for 22 years in Indonesia, one-on-one interview via Messenger).

Teachers play a vital role in a child's holistic development, but establishing a good relationship between teachers and parents is another factor that would improve a child's growth and performance. According to one study, recent educational changes in Finland and Portugal necessitate a holistic engagement of parents with learning, bringing parents and teachers together as partners (Levinthal, Kuusisto, & Tirri, 2021).

He further shared that it is difficult to accept and that they cannot do anything but remind the students from time to time. Parents were involved, but in a way, they became competitive. Similarly, research found that more than a quarter of pupils have private tutors, as parents hunt for ways to give their children an advantage outside of the classroom. A study found that while class feud did not directly predict academic achievement, it could indirectly affect learning anxiety and learning engagement (Li, 2022). Academic achievement is important to both teachers and students, and even to parents.

Having the support of gadgets or materials from the school will help both teachers and students experience an easy way of teaching and learning. According to the literature, there are benefits to using electronic gadgets for learning. Computers and other technological devices can significantly improve the educational experience (Slavin, 2018).

Teachers had different experiences during online teaching. In order to overcome the challenges, some teachers collaborate with their co-teachers by helping and sharing their knowledge, just like Participant 10 did. According to Honigsfeld and Nordmeyer (2020), as a team, we may provide social-emotional support and enable open dialogues about what works well and what doesn't in this brand-new learning environment. Everything, including teacher-created materials, openly accessible resources, carefully selected course material, achievements, setbacks, and even complete failures, are available for sharing.

Embracing Changes

Many schools have been forced to shift to the new mode of teaching, whether they like it or not. The findings of this study revealed that not all teachers in various schools have the same perspectives. Four of the 10 teacher participants shared their responses based on their experiences during online teaching. The following teacher participants embraced changes and were able to cope with online teaching. They said:

"My final insight in online teaching is that we should be a teacher of change. For example, we should not focus on just the traditional that we learn. We are teaching like this, tomorrow again like this. We should improve. Like I said, we need to modify our lesson plans, the way we teach. Yeah, my final insight is that we learn. We should make modifications, we should make changes, and we should be flexible teachers" (Participant 5, grade school teacher for 3 years in Thailand, one-on-one online interview via Zoom).

"At first, I didn't have any interest. When we were told to shift to online teaching, I felt like I was too negative. I think I'm too old to adopt the new mode of teaching. I don't know what to do and I don't know how to operate via zoom. But I learned to go with the trend. While there was no class yet, I practiced first and asked my daughter to teach and help me. Because of that, I got ideas and learned a lot. If the online comes back, that's fine with me. Why? It's more relaxing because the kids are still learning" (Participant 7, grade school teacher for 20 years in Thailand, one-on-one interview via zoom).

"Online teaching is really beneficial because there were things I thought before that I could not do, but I was able to do it. I have learned a lot of strategies, and I wasn't afraid to try them" (Participant

9, grade school teacher for 18 years in Indonesia, one-on-one online interview via Zoom).

According to the literature, instructors must also develop ways to increase their relationship with students and keep them interested and engaged during online classes (Lapitan et al., 2021). The above participants faced various challenges, but they learned to cope in different ways. They modified and explored, and another study found that most institutions of higher learning are increasingly utilizing online learning to facilitate teaching and learning as a supplement to the traditional face-to-face approach (Araka et al., 2021). It was, however, a different perspective for teacher Participant 1. Although he was able to adopt the new mode, in his final insight, he became resistant, especially when it came to the learning of the students. He said:

"Honestly, I don't like online teaching for the elementary students because it doesn't match the child's age. Another insight is that when the students answer incorrectly in math, you can go to him/her and correct right away. But when in online, correction is always delayed. You can only correct when the module has been passed. In module, you cannot correct right away unlike in the classroom, where you can correct their mistakes as quickly as you can and interaction is fast compared to online. My final insight is that online teaching is not applicable for elementary students." (Participant 1, grade school teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

Teaching is a challenging profession, and teaching during the pandemic became even more of a challenge for teachers. Participant 1 faced a different challenge. During the first year of the pandemic, he had trouble teaching, but along the way, he learned to adopt it. But in his final insight,

he became resistant, especially when it came to the learning process of the students. A similar study conducted in Finland discovered that, as the educational structure of most higher education institutions in the country changes, teachers may resist change for a variety of systemic or individual reasons (Gorospe & Edaniol, 2022).

Convenience and Flexibility in Time and Space

One of the benefits of online teaching is the flexibility of time and convenience in space. Among 10 participants, 5 revealed that they were satisfied with delivering online classes. They said:

"One of the benefits of online teaching is that time and space are flexible. Like me now, my space is quite convenient. But I'm just using any background on my screen even I'm next to the bed or musketeer. You can join the class even if you just wash up. So those are the benefits of online classes. You can drink milk and eat while having online class" (Participant 1, grade school teacher for 3 years in the Philippines, one-on-one online interview via zoom)

"First of my advantages is convenience and flexibility. Then, we know that virtual is more affordable than in-person classes and there are more learning opportunities for teachers and for students to learn. And online teaching is more favorable to the teacher because it is more convenient and flexible on the part of the teacher. When do you schedule your class by subject? The teacher is in charge because the teacher chooses your class" (Participant 3, teacher for 3 years in the Philippines, one-on-one online interview via Zoom).

This experience was verified through a similar interview conducted with participants from the same country. Participants 7 and 6 also shared their experiences with conducting online teaching. They said:

"Online teaching is favorable because even if I travel to school, I can call in Google Meet to have classes. Online teaching is anywhere" (Participant 7, grade school teacher for 20 years in Thailand, one-on-one interview via Zoom).

"The online teaching here at the International School is favorable and no problem because all the gadgets are provided. Others are still hoping that online teaching will return because they say it's only at home. But in the government school the educational assistance is divided, so it's really difficult" (Participant 6, teacher for 15 years in Thailand, one-on-one interview via Zoom).

Another teacher participant who was able to survive and grow as a professional said:

"You all have the luxury of time to learn because after you've done it, you don't have anything to do anymore. Maybe just prepare your slides" (Participant 9, grade school teacher for 18 years in Indonesia, one-on-one online interview via Zoom).

This benefit enabled the teachers to improve and continue online teaching. Distance education provides instructors and students with flexible learning opportunities in terms of time, place, and learning level through the use of internet technology. This fact was also confirmed on the part of the students. Online students, rather than the other way around, can plan their study time around the rest of their day. Students have the freedom to work when it is convenient for them, allowing them to balance employment, family, and school obligations (Belille, 2022).

Conclusion and Recommendations

Based on the qualitative findings of the study, the following conclusions were made:

The challenges of selected Asian elementary teachers' technology were network/connectivity issues, a lack of technology orientation, managing student's behavior, and managing exams and learning outputs.

Despite the challenges, teacher participants experienced optimism and learned to have innovative teaching strategies that helped them cope with the challenges of conducting online teaching. Teachers were often coping through the training programs in their schools and self-learning through technology. They practiced coping strategies where individuals' cognitive and behavioral efforts reduced and helped overcome challenges.

Teachers had similarities and differences in the challenges and coping with online teaching in terms of partnership with parents. Under this theme were collaboration with teachers and schools; other themes were embracing changes, convenience and flexibility in time and space, and gaining teaching experiences in using technology.

Therefore, teachers really experienced challenges in conducting online teaching, and they didn't have a choice but to embrace the changes.

These findings could be explained by Jack Mezirow's Learning Theory, which supports how teachers experienced and were able to cope with the challenges of conducting online teaching. When teachers evaluate their experiences, they make room for new insights. His theory involves a fundamental change in perceptions, which is a critical reflection of the challenges teachers encounter. The idea is that teachers who are receiving new information also analyze their previous ideas and understandings. Moreover, Lev Vygotsky's Learning Theory explained that social constructivism supports how teachers were able to make effective strategies based on their experiences. When teachers use it effectively and talk about their prior knowledge or challenges, knowledge is constructed. His theory connects with the necessity for teachers to positively assume that they must first identify where the student is at a given

learning point or level in their knowledge skills. The elementary teachers need to be knowledgeable and skilled to take on the role.

Teachers' role in elementary grades is as facilitators. The teacher functions more as a facilitator who coaches, mediates, prompts, and helps students develop and assess their understanding and, thereby, their learning. General education teachers in elementary grades, despite their experiences and challenges, believe that they can cope with those challenges if they have support from the school and have had very good training in online teaching.

Based on the findings of this study, the following recommendations were drawn, which are intended to improve the quality of teaching for elementary teachers:. The following recommendations were directly addressed to teacher education institutions in Asian countries, school administrators, pre-service and in-service teachers, and finally, future researchers.

TEIs: Pre-service teachers should be trained to become digitally literate to help them cope with the demands of their future work.

School Administrators: Provide in-service teachers with continuous technology training for online teaching to be ready for remote teaching in times of calamity or power outage.

Teachers: Adept oneself to continuous professional development to be resilient to changes.

Researchers should conduct a similar study that will focus on the challenges faced by selected Asian elementary teachers in the transition to the next normal.

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Undergraduate Students' Intrinsic Motivation and its Correlation with the Economics-Mathematics Learning

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Intrinsic motivation is deemed significant in one's activity because it positively affects one's behavior and performance. This descriptive-correlational research employs survey instruments with 37 statements, scoring 1 (totally untrue) to 7 (very true). It aimed to know the intrinsic motivation level in learning mathematics and its correlation with economics-mathematics subject learning achievement. The study participants were 93 undergraduate students majoring in accounting and management. The result of the study showed that students had moderate intrinsic motivation in terms of felt pressure and tension; high intrinsic motivation in terms of interest or enjoyment; perceived competence; effort or importance; and perceived choice; and very high intrinsic motivation in terms of value or usefulness. Furthermore, the study revealed that the achievement level is high. However, there is no significant correlation between students' intrinsic motivation and their achievement in economics and mathematics. The result implies that students' intrinsic motivation does not necessarily correlate with academic achievement. This study recommends future research consider other factors that could be associated with students' achievement, such as instructional strategies and methods, students' extrinsic motivation, curriculum, or the learning environment.

Keywords: *intrinsic motivation, undergraduate students, Economics-Mathematics, achievement, Indonesia*

Mathematics is an important subject for students since it is in the curriculum from elementary school to middle school to university. Undergraduate students majoring in accounting and management had mathematics subjects in their curriculum as well, and economics-mathematics is one of them. Many researches have been conducted to search for factors that affect students in learning of mathematics, and one of those factors is motivation (Wawan & Retnawati, 2022). Koon (2016), who conducted research on undergraduate students, also stated that motivation affects students' mathematics achievement.

Motivation is an important central factor in students' performance and involvement in learning (Monteiro et al., 2015). One type of motivation that affects learning is intrinsic motivation (Zaccone & Pedrini, 2019), which is a form of motivation that comes from someone's urge to achieve something in the activities he participates in (Saija, 2019). When students' learning is intrinsically motivating, they will search for more knowledge on their own (Leng et al., 2010). Intrinsic motivation, according to Ryan dan Decy (Saeed & Zyngier, 2012), positively affects behavior, performance, and someone's circumstances. Furthermore, someone with good intrinsic motivation will perform tasks voluntarily and with persistence without any external reward (Radovan & Makovec, 2015), and he will do the tasks happily (Leng et al., 2010). So important is intrinsic motivation for someone to take part in an activity that intrinsic motivation measurement instruments were made, and one of them is the Intrinsic Motivation Inventory (IMI), which is a measurement with some dimensions (multidimensional) based on the self-determination theory used to measure the subjective experience of an activity participant (Monteiro et al., 2015). The intrinsic motivation dimensions that can be measured using this instrument are interest/enjoyment, perceived competence, effort/importance, felt pleasure and tension, perceived choice, value/usefulness, and relatedness (Astari, 2018).

Realizing that economics-mathematics is a mandatory subject stated in the curriculum of accounting and management majors, this is an important subject. This subject discussed the implementation of mathematics in economics, such as sequences and series, linear functions, derivatives, integrals, and matrices (Matdoan et al., 2021). Hence, the primary object of this study is to see the students' intrinsic motivation and its relationship with their achievement.

Methodology

Research Design

This study utilized a descriptive-correlational design. This design was used because the aim of the study is to describe the undergraduate students' intrinsic motivation and its correlation with economics-mathematics learning achievement. Data was gathered using the survey and analyzed quantitatively for frequencies, averages, and correlation.

Population and Sampling Technique

The population of the study was composed of undergraduate students majoring in accounting and management at a selected university. Purposive sampling was used, and 93 students participated in this study.

Instrumentation

An online survey questionnaire using Google Forms was used to gather the data for the students' intrinsic motivation. The questionnaire was adapted from the Intrinsic Motivation Inventory (IMI), which contains 37 statements, scoring 1 (totally untrue) to 7 (very true) for positive statements (or reversing for negative statements). Those 37 statements are divided into six dimensions related to mathematics learning: interest/enjoyment (seven statements), perceived competence (six statements), effort/importance (five statements), felt pressure and tension (five statements), perceived choice (seven statements), and value/useful achievement

statements. While the students achievements were scores taken from their final examination results in economics-mathematics class.

Analysis of the Data

The data gathered was analyzed through IBM SPSS Statistics version 24. The students' intrinsic motivation scores were used for descriptive analysis on every dimension of intrinsic motivation, and the mean of each intrinsic motivation dimension score and the mean of the whole score were used to determine the category of intrinsic motivation. The intrinsic motivation criteria are divided into five categories based on the intrinsic motivation average score, which are: very low, $1 \leq IM \leq 2.2$, low, $2.2 < IM \leq 3.4$, moderate, $3.4 < IM \leq 4.6$, high, $4.6 < IM \leq 5.8$, very high, $5.8 < IM \leq 7.0$. Furthermore, the mean and standard deviation of the economics-mathematics test were used to determine the category of the students' achievement, and the last step is the correlational analysis between undergraduate students' intrinsic motivation and their achievement in learning economics-mathematics.

Ethical Consideration

Prior to the administration of the questionnaire, an applicant was submitted to the mathematics education chairperson for approval. Participants in this research filled out the research questionnaire through a Google Form, and the data were handled with confidentiality.

Results and Discussion

Descriptive Analysis on Students' Intrinsic Motivation

The analysis is done using the frequency of each score from 1 to 7, stated in each table for each dimension (Table 1–Table 6), and based on the mean for the overall analysis (Table 7).

Interest or Enjoyment

Table 1

Descriptive Statistics for Interest and Enjoyment

	1	2	3	4	5	6	7	Mean	SD
I enjoyed the mathematics class activity very much.	0	0	0	12	28	20	33	5.80	1.07
The mathematics class activity was fun to do.	0	0	0	11	30	26	26	5.72	1.00
I thought the activity in mathematics class was boring.	20	24	21	10	7	5	6	2.99	1.75
The mathematics class activity did not hold my attention at all	30	31	14	7	4	1	6	2.47	1.66
I would describe the mathematics class activity as very interesting	0	1	0	13	24	21	34	5.78	1.15
The mathematics class activity was quite enjoyable	1	0	0	14	19	27	32	5.78	1.18
While I was doing the mathematics class activity, I was thinking about how much I enjoyed it	0	0	2	15	26	20	30	5.66	1.16

Based on the means and standard deviations, the students give a high to very high categorical response to the statements in this dimension. More specifically, based on the frequencies, 87.1% of the students really enjoy, 69.9% feel not bored, 80.6% are interested, and 88.2% feel happy with the activities in the economics-mathematics class. So, the students' response toward the interest/enjoyment dimension showed high and very high interest and enjoyment from the undergraduate students in economics-mathematics classes.

Competence**Table 2***Descriptive Statistics for Competence*

	1	2	3	4	5	6	7	\bar{x}	s
I think I am pretty good at the mathematics class activity	1	0	10	25	29	18	10	4.88	1.22
I think I did well at mathematics class activity, compared with the other students	2	4	18	22	25	14	8	4.48	1.41
After working at the economics-mathematics class activity for a while, I felt competent	3	0	8	21	31	18	12	4.92	1.35
I am satisfied with my performance in economics-mathematics class.	4	4	12	17	21	18	17	4.82	1.64
I am skilled at economics-mathematics class activity	3	6	17	28	23	10	6	4.25	1.40
I could not do the economics-mathematics class activity very well	18	17	20	18	12	4	4	3.18	1.66

Based on the means and standard deviations of the students, they give a high to very high categorical response to the statements in this dimension. More specifically, based on the frequencies, 61.3% of the students had a good perception, 50.5% had a success perception, 65.5% had a very competent perception, 60.2% had a satisfied perception, and 59.1% of the students had an ability perception towards the activities in economics-mathematics class. But for the quite expert perception, only 41.9% of students' give high and very high categorical responses. So, the student's response toward the perceived competence dimension showed that the students' perception towards the economics-mathematics class activities was high for the competence they had.

Effort or Importance**Table 3***Descriptive Statistics for Effort or Importance*

	1	2	3	4	5	6	7	\bar{x}	s
I put lots of effort into economics-mathematics class activity.	0	1	2	5	12	30	43	6.12	1.08
I did not try very hard to do the economics-mathematics class activity well.	38	26	16	4	4	3	2	2.22	1.47
I tried to do the economics-mathematics class activity very hard	0	1	3	6	23	28	32	5.83	1.14
It was important to me to do well in economics-mathematics class activity	0	0	1	5	13	25	49	6.25	0.96
I did not put much energy into this economics-mathematics class activity.	12	15	18	18	20	5	5	3.58	1.66

The mean and standard deviation values showed that the students gave high to very high categorical responses to positive statements, but moderate to high categorical responses to negative statements. More specifically, based on the frequencies, 86% of the students had hard efforts, and 93.5% of the students thought that the activities were important. But, 48.4% thought that they gave much energy to the activities in economics-mathematics class. So, these students responses towards the effort/importance dimension showed that they knew the importance of mathematics activities and gave high efforts for them.

Felt Pressure and Tension**Table 4***Descriptive Statistics for Felt Pressure and Tension*

	1	2	3	4	5	6	7	\bar{x}	s
I did not feel nervous at all while doing economics-mathematics class activity	2	3	7	21	23	18	19	5.04	1.48
I felt very tense while doing economics-mathematics class activity	17	13	14	25	13	5	6	3.46	1.74
I was very relaxed in doing economics-mathematics class activity	3	3	14	24	22	13	14	4.66	1.52
I was anxious while working on economics-mathematics class activity	10	17	6	19	19	14	8	4.01	1.84
I felt pressured while doing economics-mathematics class activity	27	16	19	17	6	4	4	2.86	1.69

Based on the means and standard deviations, the students give high to very high categorical responses for positive statements, but moderate categorical responses for the negative statements. More specifically, based on the frequencies, 64.5% of the students didn't feel nervous, 47.3% felt very tense, 82.7% felt relaxed, 35.5% didn't feel anxious, and 66.7% of the undergraduate students did not feel pressured by the activities in economics-mathematics class. So, the students' responses towards the felt pressure and tension dimension showed that most of the accounting and management major students felt neither very anxious nor pressured in the economics-mathematics class activities, but some did feel pressure and anxiety.

Choice**Table 5***Descriptive Statistics for Choice*

	1	2	3	4	5	6	7	\bar{x}	s
I believe I had some choice about doing economics-mathematics class activity	0	2	4	15	35	19	18	5.28	1.20
I felt like it was not my own choice to do the activity in economics-mathematics class	23	15	13	17	16	6	3	3.19	1.77
I did not really have a choice about doing this economics-mathematics class activity	20	14	12	17	15	7	8	3.49	1.92
I felt like I had to do the activity in economics-mathematics class	0	1	3	8	23	28	30	5.76	1.16
I did the economics-mathematics class activity because I had no choice	22	22	15	19	8	3	4	2.94	1.65
I did the economics-mathematics class activity because I wanted to	1	1	7	12	19	24	29	5.53	1.40
I did economics-mathematics class activity because I had to	0	2	1	11	16	28	35	5.85	1.21

Based on the means and standard deviations, the students gave a high to very high categorical response to the statements in this dimension, except for statements related to other choices, for which they gave a moderate categorical response. More specifically, based on the frequencies, 77.4% of the students

felt that they had some choices, 54.8% thought that mathematics was not their own choice, 49.5% felt that there was no other choice, more than 80% of the students felt that they had to do it, and 77.4% of the students perceived that they wanted the activities. So, the students' response towards the perceived choice dimension showed that the students felt that doing activities in economics-mathematics class was a choice that some of the students wanted, but for some other students, the activities weren't their own choice.

Value or Usefulness

Table 6

Descriptive Statistics for Value or Usefulness

	1	2	3	4	5	6	7	\bar{x}	s
I believe that economics-mathematics class activity could be some value to me	0	0	2	6	6	20	59	6.38	1.01
I think that doing economics-mathematics class activity is useful to increase my critical thinking ability	0	1	1	4	10	23	54	6.31	1.02
I think that economics-mathematics class activity is important to do because it can make it easier for me to study other subjects	0	1	3	11	12	23	43	5.96	1.24
I would be willing to do the economics-mathematics class activity again because it has some value to me	0	0	2	7	17	26	41	6.04	1.06
I think doing economics-mathematics class activity could help me excel	0	1	2	6	14	31	39	6.03	1.10
I believe doing economics-mathematics class activity could be beneficial to me	1	0	3	2	13	24	50	6.20	1.14
I think that economics-mathematics class activity is important	0	0	4	3	18	17	51	6.16	1.12

Based on the means and standard deviations, the students give high to very high categorical responses to the statement for these dimensions. More specifically, based on the frequencies, 91.4% of the students perceived the activities as beneficial, 93.5% felt that the economics-mathematics activities were useful, and 83.9% felt that mathematics was important for other subjects, worth achieving, and important (92.5%). So, the students' response towards the value/usefulness dimension showed that the students felt the importance of the activities in economics-mathematics class; they were beneficial and worth it.

Overall Intrinsic Motivation

Table 7

Descriptive Statistics for Intrinsic motivation

Intrinsic motivation dimension	Score mean	Category	Overall mean	Overall category
interest/enjoyment	5.33	High	5.08	High
perceived competence	4.53	High		
effort/importance	5.28	High		
felt pressure and tension	4.07	Moderate		
perceived choice	4.83	High		
value/usefulness	6.12	Very high		

Data in Table 7 showed that, as a whole, the undergraduate students' intrinsic motivation for following the activities in economics-mathematics class was categorized as high. The result of the study also showed that undergraduate students had moderate intrinsic motivation in terms of felt pressure and tension; high intrinsic motivation in terms of interest/enjoyment, perceived competence, effort/importance, and perceived choice; and very high intrinsic motivation in terms of value or usefulness.

Students' Achievement

Table 8

Descriptive Statistics for Students' achievement

	N	Minimum	Maximum	Mean	Std. Deviation
Test Score	93	15	100	79.91	24.131

The mean test score is 79.91 and is categorized as high compared with the maximum score of 100, but the high standard deviation score gives information about the wide-range distribution of the data.

Correlation Between Students' Intrinsic Motivation and Achievement

Based on the result in Table 9, the significance value is 0.386, which is greater than 0.05 (alpha), so it can be concluded that there is no significant relationship between undergraduate students' intrinsic motivation and their achievement in economics-mathematics subject learning.

Table 9

Correlation Between Students' Achievement and Intrinsic Motivation

		Test Score	Intrinsic Motivation
Test Score	Pearson Correlation	1	.091
	Sig. (2-tailed)		.386
	N	93	93
Intrinsic Motivation	Pearson Correlation	.091	1
	Sig. (2-tailed)	.386	
	N	93	93

The results confirm a previous study on the correlation between intrinsic motivation and achievement, which found that there's no correlation between intrinsic motivation and achievement (Yuniar, 2021; Xeka, 2022). It can happen that students with high intrinsic motivation do not have high achievement.

The overall mean of the participant responses in this study showed that their intrinsic motivation for the economics-mathematics class activity is categorized as high. More specifically, the results showed that the class activity was interesting to them, they enjoyed it, their perceived competence was high, they put efforts into gaining competence through the class activity, they felt not very anxious nor felt pressures on the class activity, and the students felt the importance of the activities in economics-mathematics class was beneficial and worth it. Some of the students felt that doing activities in economics-mathematics class was a choice, which was wanted by some of the students, but for some other students, the activities weren't their own choice. Another result was that the student was categorized as average. However, there is no correlation between students' intrinsic motivation and their achievement in economics-mathematics learning. This study's result implies that students' intrinsic motivation does not necessarily correlate with academic achievement.

It is recommended to give consideration to other factors that could be associated with students' achievement, such as instructional strategies and methods, students' extrinsic motivation, curriculum, or learning environment.

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Student's Multiple Intelligence and Engagement in Extracurricular Activities

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Multiple intelligences and student engagement in extracurricular activities are important in developing a more comprehensive and inclusive approach to education. Extracurricular activities promote academic success and personal development among students. This study evaluated the influence of multiple intelligences on students' engagement in extracurricular activities. One hundred students who are members of recognized school clubs and organizations are purposely gathered to participate in this descriptive-correlational study. This study found that students who have high levels of verbal-linguistic, mathematical-logical, and visual-spatial multiple intelligences are cognitively and emotionally engaged with extracurricular activities. Additionally, students with high levels of interpersonal and musical intelligence are more likely to engage cognitively, behaviorally, and emotionally in extracurricular activities. This highlights the importance of schools offering a variety of extracurricular activities that cater to different types of intelligence in students. Furthermore, educators can use this information to design strategies that enhance students' multiple intelligences and motivate them to join extracurricular activities.

Keywords: *multiple intelligence, student engagement, extracurricular activities*

Several studies have linked participation in extracurricular activities to numerous student benefits, including improved academic performance, increased social skills, and higher self-esteem. Moreover, extracurricular activities benefit adolescents' mental health, with team sports providing the most significant advantages (O'Flaherty et al., 2022). As the world becomes increasingly competitive, there is a growing interest in understanding the factors influencing students' engagement in extracurricular activities (Zhang & Tang, 2017).

According to Merriam-Webster (2023), extracurricular engagement refers to participation in activities that are not part of the regular curriculum. These activities can include clubs, sports teams, volunteer work, and other programs outside of the traditional classroom setting. However, engagement can be defined as emotional involvement or commitment (Merriam-Webster, 2023). Therefore, student engagement can be understood as the level of involvement, participation, and interest a student has in their learning and educational experiences. Several studies have examined factors influencing extracurricular engagement, such as parental involvement (Wong et al., 2018), school climate (Konold et al., 2018), social support (Rodríguez et al., 2017), and intelligence (Ren & Zhang, 2020).

This study is anchored on the Multiple Intelligence Theory (MIT) proposed by Gardner in his book, "Frames of Mind: The Theory of Multiple Intelligences," which proposes a pluralistic view of intelligence (Gardner, 1993). According to Gardner (1993), intelligence comprises many abilities and has various natures that a single measure cannot represent. Furthermore, Gardner explained that intelligence areas, or modalities, are the abilities found in each individual (Aydin, 2018). The seven types of intelligence include verbal-linguistic, musical, mathematical-logical, visual-spatial, bodily-kinesthetic, intrapersonal, and interpersonal. Further development made revisions to Gardner's theory, which combined intrapersonal and interpersonal

intelligence into personal intelligence (Suprpto et al., 2017) and the addition of naturalist intelligence and existential intelligence (Batdi, 2017).

Gardner's Multiple Intelligence (MI) is an idea that proposes a pluralistic view of intelligence. Furthermore, studies on individuals have shown that certain brain regions are activated when performing different complex problems. Verbal-linguistic intelligence is a well-developed verbal ability sensitive to words' sounds, meanings, and rhythms. Halil (2017) stated that verbal-linguistic intelligence is a type of intelligence that children have, which makes this intelligence commonly employed in daily tasks. Individuals with verbal-linguistic intelligence have receptivity towards the meaning of words and can communicate information. Consideration of verbal-linguistic intelligence inside the classroom has enhanced students' learning and increased their motivation (Ghaznavi et al., 2021).

Musical intelligence is the capacity to produce songs and music, sing and play musical instruments, and enjoy all genres of music, as well as a great sensitivity to global harmony and an understanding of varied life patterns (Simanjuntak et al., 2018). According to the study of Thambu et al. (2021), individuals with musical intelligence can distinguish sounds and are sensitive to rhythm and melody. Additionally, applying musical intelligence in early childhood development helps develop motor and problem-solving skills (Alcivar et al., 2020; Rose et al., 2019). Furthermore, researchers have found that musical intelligence will likely improve a learner's motivation (Bokiev et al., 2018).

Sener and Çokçaliskan (2018) described mathematical-logical intelligence as the ability to solve and understand situations systematically and logically; thus, this type of intelligence is closely related to deductive reasoning. Azinar et al. (2020) stated that mathematical-logical intelligence is the most dominant intelligence in mathematics learning since every field of mathematics study hones this intelligence. Findings from Herawati et al. (2021) and a study backed up by Azinar et al. (2020)

have found that mathematical-logical intelligence greatly influences problem-solving in geometry and provides better results in language learning.

Visual-spatial intelligence is the capacity to visualize space and objects mentally. Those with this intellect will instead sketch a picture rather than write a paragraph. Furthermore, individuals with visual-spatial intelligence recognize color, forms, patterns, and how light falls on an item and grasp mental models (Šafranĳ & Zivlak, 2018). According to the study by Jamaan et al. (2019), students with higher visual-spatial intelligence had better learning outcomes than those with lower visual-spatial intelligence during geometry classes.

Michelaki & Bournelli (2022) characterized bodily-kinesthetic as an individual's ability to use the body to perform different activities. The results of their study have found that programs such as dance can develop individuals' bodily-kinesthetic intelligence. Koçak's (2019) study on the relationship between attitude toward sports and bodily-kinesthetic intelligence has found that increased bodily-kinesthetic intelligence also increases positive attitude toward sports. The study by Ay et al. (2018) supports the previous study's findings. Additionally, they found a positive relationship between bodily-kinesthetic intelligence and an individual's motivation.

Interpersonal intelligence is the ability to understand others. This is closely related to Thorndike's (1920) model of social intelligence, defined as the ability to understand and manage others (Kanesan & Fauzan, 2019). According to Syasmita et al. (2019), individuals with interpersonal intelligence are considered sociable, more involved, show great empathy, are gifted leaders, and excel in social science subjects. Additionally, people with higher interpersonal intelligence are likely to have higher creativity than others (Kuncorowati et al., 2017).

According to Sadiku and Musa (2021), intrapersonal intelligence, or self-smart is understanding oneself. Intrapersonal intelligence

is about knowing about one's true self, including strengths and weaknesses, which enables an individual to manage his or her life efficiently (Abdi, 2020). Research has shown that emotional intelligence, such as intrapersonal intelligence, has a positive relationship with academic buoyancy, behavioral engagement, and emotional engagement (Simpson & Allen, 2021).

Another theory used in this research is Fredricks et al. (2004) Student Engagement Model (SEM). These researchers defined student engagement as students' dedication or involvement in school and its activities, which consists of three distinct yet interconnected types of engagement. According to this model, student engagement is influenced by three interrelated factors, such as cognitive, emotional, and behavioral engagement.

Cognitive engagement pertains to a student's inclination toward acquiring knowledge (Yundayani et al., 2021). Emotional engagement refers to how students feel about learning and can be observed through their attitudes, interests, and values regarding the learning experience (Schindler et al., 2017). On the other hand, behavioral engagement refers to the student's level of effort, persistence, attention, and concentration (Nguyen et al., 2018).

Kanaparan et al. (2019) relate emotional involvement to the students' feelings, attitudes, and perceptions of learning and the learning environment. Manwaring et al. (2017) found that student's perceptions of an activity's value significantly impacted both emotional and cognitive engagement. Furthermore, students' emotional engagement depended on whether they perceived that they were learning or growing.

Nguyen et al. (2018) define behavioral engagement as a domain concerning student behavior in class, student engagement in school-related activities, and student engagement in their academic work. Behavioral engagement relates to student behavior, including positive engagement in activities during and after school and the lack of disruptive behaviors (Gorski, 2021).

Moreover, Denault et al. (2019) discovered that participation in sports, arts, sociocultural activities, academic-related committees, volunteering, and civic activities predicted increased vocational exploration. In contrast, participation in academic-related committees, volunteering, and civic activities predicted a decrease in career indecision by the end of high school. These findings imply that career counselors could advocate extracurricular activities as an additional technique for assisting students in exploring the world of employment.

Bartkus et al. (2012) suggested that extracurricular activities are categorized along a scale ranging from direct to indirect. These explanations help ensure that extracurricular and co-curricular activity research is well-designed and implemented.

Additionally, the idea that intelligence comes in many forms has gained traction in recent years. According to Gardner, multiple intelligences are the ability or set of abilities that individuals use to resolve problems or create products valued in one or more cultural settings (Gardner, 2000). There have been several studies conducted implementing the concept of multiple intelligences in the school setting (Hernández-Barco et al., 2021; Yildiz et al., 2020; Şener & Çokçalışkan, 2018).

However, Hussain et al. (2018) explained that student engagement is defined as the effort that a student expends on learning processes for the material of a particular course. Most researchers and scholars believe student engagement can affect an individual's academic success (Lei et al., 2018). Furthermore, a study by Winstone et al. (2022) found that students who engage in extracurricular activities have a positive impact on their well-being. The studies prove that student engagement can significantly affect an individual in more than one aspect.

According to Fredricks et al. (2004), student engagement is a multifaceted notion such as cognitive, emotional, and behavioral factors that researchers should investigate holistically rather than separately. Li et al. (2021) described cognitive engagement as the degree to which people think

strategically throughout a particular activity's learning or problem-solving process. It is the learners' investment in the learning task. Findings in the study of Gorski (2021) imply that cognitive engagement is one of the mechanisms behind the remarkable impact of some extracurricular activities on students' academic performance.

A study conducted by Matjasko et al. (2019) found that participation in extracurricular activities may positively affect a student's behavioral engagement. Furthermore, active participation in extracurricular activities has reduced youth delinquency among students (Han et al., 2017).

Multiple intelligence theory has gained recognition in education (Şener & Çokçalışkan, 2018). Several studies have examined the relationship between multiple intelligences and academic achievement (Bergold & Steinmayr, 2018). In the Philippines, Asio et al. (2021) studied the relationship between multiple intelligences and participation rates in extracurricular activities. However, limited studies explore the potential link between multiple intelligences and engagement in extracurricular activities (Attamimi & Umarella, 2019). Thus, this study aims to examine the association of multiple intelligences with high school students' engagement in extracurricular activities.

Methodology

Research Design

The study implemented a descriptive-correlational research design to find connections between multiple intelligences and student engagement in extracurricular activities. Research studies that seek to identify the relationship between several variables and give static images of circumstances employ the descriptive correlational design (McBurney & White, 2009).

Population and Sampling Technique

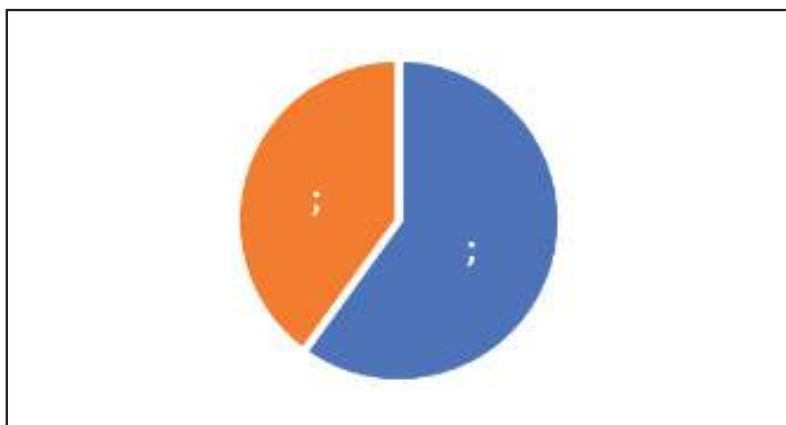
This study's participants are high school students enrolled in the school year 2022-2023 at the university in the municipality of Silang, province

of Cavite, Philippines. The study focuses on a sample of 100 students who participated in extracurricular activities, drawn from a larger group of students (7–12). The purposeful sampling technique was applied to gather the participants in the study. The sample was selected based on students' engagement in extracurricular activities such as clubs, organizations, and other school activities that are recognized by the school.

Figure 1 shows the distribution of the participants by their sex. Most of the participants of the study are female, with sixty or 60%, while forty or 40% of the remaining participants are male.

Figure 1

Distribution of the Participants of the Study according to Sex



Instrumentation

The researchers used a survey questionnaire presented below as the primary data-gathering instrument.

- 1. Profile of the Respondents Scale (PRS).** This instrument was used to determine and classify the sex of the respondents.
- 2. The Multiple Intelligences Profiling Questionnaire VII (MIPQ VII).** The researchers adapted the MIPQ VII developed by Tirri et al. (2011). The MIPQ VII aims to help learners reflect on themselves and teachers identify their students' strengths. The Multiple Intelligences Profiling Questionnaire VII (MIPQ VII) is a 5-point Likert scale ranging from strongly agree (SA) to strongly disagree (SD). The positive items' maximum rating is five (5). A score of five (5) means students strongly agree with the given statement, while a rating of one (1) means students strongly disagree. The MIPQ VII consists of 27 questions based on Howard Gardner's Multiple Intelligences Model.
- 3. Extra-Curricular Engagement Questionnaire (ECEQ).** The researchers also adapted the questionnaire SSES, created by the RAND Corporation in 2006. This questionnaire was used to measure students' cognitive, behavioral, and emotional involvement in school. The ECEQ employs a 5-point Likert scale with five questions, ranging from (5), which means "strongly agree," to (1), which means "strongly disagree." A score of five (5) indicates that a student is heavily involved in extracurricular activities, while a score of one (1) indicates that they are not engaged.

Table 1 presents the reliability of each subscale of the instruments used and determined through Cronbach Alpha. The majority of the subscales are good; two are acceptable, and one is excellent.

Table 1*Reliability Test Results of Multiple Intelligences and Student Engagement*

Variables	Number of Items	Cronbach's α	Verbal Interpretation
Multiple Intelligence			
1. Verbal-linguistic	3	0.703	Acceptable
2. Musical	4	0.848	Good
3. Mathematical-logical	4	0.853	Good
4. Visual-spatial	4	0.838	Good
5. Bodily-kinesthetic	4	0.803	Good
6. Interpersonal	4	0.894	Good
7. Intrapersonal	4	0.724	Acceptable
Student Engagement			
1. Cognitive	5	0.919	Excellent
2. Emotional	5	0.886	Good
3. Behavioral	3	0.845	Good

Data Gathering Procedures

Upon approval from the ERB (Ethics Review Board), the researchers asked for approval from the AUP Academy Principal to conduct an online survey using Google Forms. The selected respondents' advisers and subject instructors received an email with a link to the survey once it was approved. The email informed the target respondents that the researchers would assess their engagement in extracurricular activities and their multiple intelligences. The email also provided detailed information about the research, including its methodology and objectives.

The researchers followed a strict protocol to ensure that the data collected was valid and reliable. The collected data was kept confidential, and the researchers ensured that no personal identifying information was collected. The researchers regularly monitored the survey's progress, and they followed up with respondents who still needed to complete it.

Analysis of Data

The data gathered from this research was analyzed using SPSS. To categorize the respondents' profiles, multiple intelligence dimensions, and levels of involvement in

extracurricular activities, descriptive statistics of frequency, mean, and standard deviation are employed. Additionally, correlation analysis was conducted using Pearson's correlation coefficient to establish the relationship between students' multiple intelligences and participation in extracurricular activities and to determine the degree and direction of this relationship. Regression analysis was applied to identify the multiple intelligences that predict the type of engagement in extracurricular activities. To measure the difference in students' engagement considering their sex, a T-test was used.

Results and Discussion**Student's Multiple Intelligence**

Students who possess different intelligences can be developed to varying degrees. Table 2 shows the results of the study on the participants multiple intelligences. The respondents have a *high extent* of verbal-linguistic ($M = 3.69$; $SD = 0.79$), musical ($M = 3.68$; $SD = 0.94$), bodily-kinesthetic ($M = 3.67$; $SD = 0.82$), interpersonal ($M = 3.50$; $SD = 0.91$), and intrapersonal ($M = 3.88$; $SD = 0.70$) intelligences. *Average* on mathematical-logical ($M = 3.10$; $SD = 0.91$) and visual-spatial ($M = 3.37$; $SD = 0.84$) intelligences. This finding suggests that the

participants' responses were consistent and that they shared similar opinions about the statements related to verbal-linguistic, musical, bodily-kinesthetic, interpersonal, and intrapersonal intelligences, which are high.

Table 2

Multiple Intelligences of the Participants of the Study

	Mean	SD	Scaled Response	Verbal Interpretation
Verbal-linguistic Intelligence	3.69	0.79	Agree	High
Musical Intelligence	3.68	0.94	Agree	High
Mathematical-logical Intelligence	3.10	0.91	Moderately Agree	Average
Visual-spatial Intelligence	3.37	0.84	Moderately Agree	Average
Bodily-kinesthetic Intelligence	3.67	0.82	Agree	High
Interpersonal Intelligence	3.50	0.91	Agree	High
Intrapersonal Intelligence	3.88	0.70	Agree	High

Legend: 1-1.49 = Strongly Disagree; 1.50-2.49 = Disagree; 2.50-3.49 = Moderately Agree; 3.50-4.49 = Agree; 4.50-5 = Strongly Agree

Delisle and Keeley (2020) found out that using MI-based activities improved student engagement, particularly for those with strengths in bodily-kinesthetic and spatial intelligence, leading to better academic outcomes. Overall, MI theory highlights the importance of recognizing and accommodating different learning styles to promote inclusive and effective learning.

Student's Engagement in Extracurricular Activities

Engagement in extracurricular activities has been linked to a range of positive outcomes, including improved social skills, increased self-confidence, and a greater sense of belonging.

Table 3 shows that the respondents have a high extent of cognitive ($M = 3.83$; $SD = 0.90$), emotional ($M = 3.60$; $SD = 0.90$), and behavioral ($M = 3.71$; $SD = 0.93$) engagements. This result implies that high school students are highly engaged in school-recognized clubs, organizations, and other extracurricular activities.

Table 3

Engagement in Extracurricular Activities of the Participants of the Study

	Mean	SD	Scaled Response	Verbal Interpretation
Cognitive Engagement	3.83	0.90	Agree	High
Emotional Engagement	3.60	0.90	Agree	High
Behavioral Engagement	3.71	0.93	Agree	High
Engagement (Over-all)	3.71	0.91	Agree	High

Legend: 1-1.49 = Strongly Disagree; 1.50-2.49 = Disagree; 2.50-3.49 = Moderately Agree; 3.50-4.49 = Agree; 4.50-5 = Strongly Agree

There are many factors that can influence student engagement, including the quality of teaching, the relevance of the curriculum, and the availability of extracurricular activities. Teachers and school administrators can help promote student engagement by creating a positive and supportive learning environment, offering opportunities for student choice and voice, and providing a variety of extracurricular activities that appeal to a range of student interests (Skinner & Belmont, 2019).

Various factors contribute to emotional engagement, including a sense of belonging, autonomy, competence, and relevance in the classroom. Teachers can promote emotional engagement by creating a positive and inclusive classroom environment, offering choices and opportunities for self-directed learning, providing feedback and recognition for students' achievements, and making connections between course content and students' interests and experiences (Skinner & Belmont, 2019).

Studies have shown that students who are behaviorally engaged are more likely to achieve higher academic performance, have better attendance, and have fewer disciplinary issues (Furrer & Skinner, 2018).

One important factor that influences behavioral engagement is the teacher-student relationship. A study by Roorda et al. (2017) found that students who had positive relationships with their teachers were more likely to be behaviorally engaged in class. Additionally, teachers who provided supportive and challenging classroom environments were more likely to have students who were behaviorally engaged.

Relationship Between Multiple Intelligence and Engagement in Extracurricular Activities

Table 4 shows that verbal-linguistic ($r = 0.269$), musical ($r = 0.345$), mathematical-logical ($r = 0.197$), visual-spatial ($r = 0.264$), bodily-kinesthetic ($r = 0.344$), interpersonal ($r = 0.492$), and intrapersonal ($r = 0.22$) intelligences are significantly related to cognitive engagement. Among the seven multiple intelligences, only interpersonal intelligence has a moderately positive relationship to cognitive engagement; the other six multiple intelligences are weakly positively related to cognitive engagement.

Musical ($r = 0.544$) and interpersonal ($r = 0.624$) intelligences are moderately related to emotional engagement. Verbal-linguistic ($r = 0.624$), mathematical-logical ($r = 0.624$), visual-spatial ($r = 0.624$), bodily-kinesthetic ($r = 0.624$), and intrapersonal ($r = 0.624$) intelligences demonstrated a weak positive relationship to emotional engagement.

Lastly, only interpersonal intelligence is moderately related to behavioral intelligence, with an associated probability of 0.475 significant to the 0.001 level; the other multiple intelligences are related to behavioral engagement, but the relationship is weakly positive.

The results suggest that students who possess a great extent of one or more of the multiple intelligences are more likely to exhibit cognitive, emotional, and behavioral engagements in extracurricular activities.

Table 4

Relationship Between Multiple Intelligence and Engagement in Extracurricular Activities

Multiple Intelligence	Verbal-Linguistic	Musical	Math-Logical	Visual-Spatial	Bodily-Kinesthetic	Interpersonal	Intrapersonal
Cognitive Engagement	0.269**	0.345***	0.197*	0.264**	0.344***	0.492***	0.22*
Emotional Engagement	0.345***	0.544***	0.202*	0.222*	0.364***	0.624***	0.259**
Behavioral Engagement	0.147	0.351***	0.193	0.165	0.287**	0.475***	0.204*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Maguire et al. (2017) found that emotional intelligence, such as interpersonal and intrapersonal intelligence, has a positive relationship with cognitive and emotional engagement. They considered that emotional intelligence had a role in predicting cognitive and affective engagement. This implies that people with high interpersonal and intrapersonal intelligence will likely have high cognitive and emotional engagement in extracurricular activities.

Bokiev et al. (2018) found that a student's verbal-linguistic and musical intelligence positively correlated with school engagement. Developing a student's verbal, linguistic, and musical intelligence will likely lead to higher student engagement.

Additionally, Ghaznavi et al. (2021) found a relationship between multiple intelligences and student engagement. Applying multiple intelligences in the classroom raised the student's engagement in the class.

Overall, the student's multiple intelligences have a positive relationship with their engagement in extracurricular activities. According to the table, the dimensions of multiple intelligences are correlated to cognitive, emotional, and behavioral engagement in extracurricular activities. This means developing or having a great extent of one or more dimensions of multiple intelligence can lead to a high level of cognitive, emotional, and behavioral engagement toward extracurricular activities.

Regression Analysis of Multiple Intelligence and Engagement in Extracurricular Activities

Table 5 shows that interpersonal intelligence predicts cognitive, emotional, and behavioral engagement in extracurricular activities with a p-value of 0.001. Of this variance, 55.60%, 70.60%, and 53.60% of cognitive, emotional, and behavioral engagements in extracurricular activities, respectively, are attributed to interpersonal intelligence. Additionally, musical intelligence predicts emotional engagement in extracurricular activities (t value of 4.469 and a significant value of .001). The result of the study implies that students with high interpersonal intelligence will most likely have the highest levels of student engagement, specifically cognitive, emotional, and behavioral. Students who are also musically inclined are emotionally engaged in extracurricular activities.

Table 5

Predictors of Engagement in Extracurricular Activities

Predictor	Dependent Variable	R	R ²	Adjusted R ²	df	F	t	Sig
Interpersonal	<i>Cognitive Engagement</i>	0.556	0.309	0.256	7	5.87	3.389	0.001
Interpersonal	<i>Emotional Engagement</i>	0.706	0.498	0.460	7	13.0	3.359	0.001
Musical							4.469	0.001
Interpersonal	<i>Behavioral Engagement</i>	0.536	0.287	0.233	7	5.29	3.638	0.001

Results show that interpersonal intelligence best predicts student engagement. Ramirez (2018) found that interpersonal intelligence best affects students' engagement. Simpson and Allen (2021) also concluded that emotional intelligence is closely related to interpersonal and intrapersonal intelligence and is highly associated with student engagement compared to other types of intelligence. Additionally, Zhoc et al. (2020) also approved that emotionally intelligent students are likely to be engaged in school.

Differences in Engagement in Extracurricular Activities When Sex is Considered

Table 6 presents the difference in engagement in extracurricular activities of the participants of the study when their sex is considered. However, the results show no significant difference in cognitive, emotional, and behavioral engagements in extracurricular activities between male and female students.

Table 6*Difference in Engagement in Extracurricular Activities When Sex is Considered*

Engagement	Group	N	Mean	SD	t	p	Verbal Interpretation
Cognitive Engagement	Male	40	3.78	1.043	-0.4516	0.653	Not Significant
	Female	60	3.86	0.799			
Emotional Engagement	Male	40	3.67	0.769	0.6149	0.54	Not Significant
	Female	60	3.56	0.967			
Behavioral Engagement	Male	40	3.71	0.894	0.0146	0.988	Not Significant
	Female	60	3.71	0.959			

The result shows that both male and female students have the same level of engagement with extracurricular activities. According to Lei et al. (2018), sex had no moderating effect on student engagement. However, other studies have contradicted the claim that there are significant differences in student engagement when considering sex. Fatou and Kubiszewski's (2018) study found that female students have higher overall student engagement than male students.

This study concludes that students should recognize and embrace their unique strengths and multiple intelligences. Engaging in extracurricular activities that align with their intelligence can not only enhance their skills but also boost their confidence and overall well-being. Students can identify their intelligence by reflecting on their personal interests, strengths, and preferred learning styles. Additionally, students should consider exploring a variety of extracurricular activities to further develop their intelligence and broaden their experiences. It is also important for students to recognize that intelligence is not fixed and can be developed through intentional effort and practice. Therefore, engaging in extracurricular activities that challenge them and push them out of their comfort zone can lead to even greater growth and development.

This study recommends that teachers should strive to recognize and cater to the diverse intelligences of their students in order to enhance their overall engagement in extracurricular activities. Teachers should consider using a variety of teaching

strategies that engage different types of intelligence in their classrooms. This could include activities that allow for collaboration, problem-solving, and creativity, as well as providing opportunities for self-directed learning and reflection. It's crucial for teachers to understand that each student has their own strengths and weaknesses in terms of their intelligence. Teachers can help students feel more confident and involved in extracurricular activities by using a strengths-based approach and providing opportunities for all types of intelligence to be displayed. This can lead to a more positive school experience overall.

New research material could be built on existing studies to further explore and evaluate the validity of Gardner's theory in various contexts, such as cross-cultural studies and studies focusing on specific age groups. Additionally, researchers could investigate the effectiveness of implementing the theory in educational settings, including its impact on teaching and learning outcomes. Further research could also explore the potential of using Gardner's theory to better understand individual differences in cognitive processing and identify personalized learning strategies. Investigate the relationship between the engagement of specific intelligences and academic performance. This would shed light on the importance of incorporating activities that target different intelligences in the educational curriculum. Lastly, researchers should consider including participants from different age groups to increase the generalizability of the results.

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Ways and Practices to Develop Interest in and Love of Reading: A Basis for An Enhancement Program

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Reading skills are vital to daily activities. It is a passport to enter academia and a key to progress. Despite its benefits, many failed to develop an interest in and love of reading. As observed, many prefer playing mobile games and scrolling social media posts rather than picking up a book and reading. Since reading is an indispensable skill, students must fall in love with reading. This study aimed to propose a reading program to develop an interest in and love of reading after discovering the bibliophiles' ways and practices. This is a qualitative, descriptive case study. It describes the bibliophiles' ways and practices for how they love reading. It involved nine bibliophiles who read one book every month and spent vacant time for pleasure reading. The interview responses were recorded, transcribed, and coded to draw themes. The study discovered that interest in and love of reading are developed at home and reinforced at school. Their parents and teachers exposed them to and reinforced their reading experiences, created reading opportunities, established family reading routines, recommended and provided appropriate materials, and practiced pleasure reading. Besides previewing reading materials and setting the context before reading, they note details and develop mental connections while reading. After reading, they extract values, visualize the story, recreate narratives, and learn from each other. Consequently, bibliophiles develop an interest in and love of reading through reading routines, significant people, and self-motivation. This study proposes a ten-day reading program applying the bibliophiles' ways and practices. Parents are given detailed instructions on how to reinforce ways and practices at school.

Keywords: *bibliophiles, love of reading, reading skill, reading practices*

Reading skills are vital in daily activities. Real-world examples demonstrate the necessity of reading skills for cooking, eating, traveling, going to school, and working. Reading the food labels allows us to decide what to cook and what to eat. Reading road signs and directions allows us to reach our destinations. It is a passport to progress in school and to work promotion. Reading and Mental Health published that leisure reading has a greater impact on cognitive growth, academic success, and social mobility than socioeconomic position (Billington, 2019). These are some of the reasons why reading skills are essential.

Regardless of the enumerated practical benefits of reading, many individuals never developed the habit of reading. Many students are not interested in and dislike reading. As observed, young people today prefer to play mobile games and consume their time in social media rather than visit libraries and read books. The American Psychological Association (2018) reported that teens today spend more time on digital media and less time reading. "One of every three teenagers has not read a book for pleasure in a year." Less than 20% of US teens read for pleasure. Pennington and Waxler (2017) printed the National Endowment for the Arts (NEA) findings indicating a fall in American reading habits, particularly among children and teenagers regarding reading literature. The statistics demonstrate a deterioration in reading ability.

Moreover, the Philippine Star published the 2018 Program for International Student Assessment (PISA) result. The result showed that the "Philippines scored lowest in reading out of the 79 countries that participated. Results of the PISA further showed that only one out of five Filipino learners aged 15 achieved at least the minimum proficiency level in overall reading literacy" (Juan, 2019). These reports show that there is a need to develop an interest in and love of reading among young learners today.

Several studies have been conducted related to reading strategies and reading comprehension, but fewer studies have been conducted on how to

develop love and interest in reading and why people lack love and interest in reading. Thus, this study was conceptualized to discover how bibliophiles develop an interest in and love of reading and to propose a reading program to help elementary learners develop an interest in and love of reading.

Methodology

Research Design

This study employed a qualitative, descriptive case study. A case study is an examination of a person, a team, a plan, or an event as a unit of analysis. It entails complete absorption in every facet of the analytical unit. It is seen as an actual investigation to recommend action. The focus is on the subject under study and the context (Baron & McNeal, 2019). This study investigates the reality and describes the bibliophiles' ways and practices of how they develop an interest in and love of reading.

Population and Sampling Technique

This study involved bibliophiles, or bookworms, who are devoted to reading and have passion and interest in reading. Using purposive sampling, nine (9) bibliophiles participated in the study: three (3) were girls, six (6) were boys, two (2) were grade five, and seven (7) were grade six pupils ages 11–12. These nine bibliophiles are recommended by their teachers, who read one book every month and enjoy leisure reading in their free time.

Instrumentation

The data was gathered through face-to-face interviews using a question guide, which was reviewed by three instructors. The question guide is composed of sixteen (16) open-ended questions. Five (5) questions pertaining to SOP 1 and six (6) questions pertaining to SOP 2 plus five additional questions.

Data Analysis

This study observed Braun and Clarke's (2022) reflexive thematic analysis. The data was analyzed

based on six steps: (1) become familiar with the data. The researchers read and re-read the interview responses to become familiar with the data. Also, they highlight the significant lines to answer the research questions. (2) Generate initial codes. The researchers used line-by-line coding to reduce the data into small chunks of meaning. (3) Search for themes. The researchers examined the codes that fit together as a theme and collated them together for an initial theme. (4) Review themes. The researchers reviewed the themes and whether the codes supported the themes and were logical. (5) Define themes. The researchers finalized the themes by ensuring that the themes were supported by codes and participants' responses. (6) Write-up. The researchers identified all the final themes and discussed them.

Ethical Considerations

This study considered the ethical standards of consent, anonymity, and confidentiality. The researchers informed the parents and requested their permission for their children to participate in the study because the participants were not of legal age. The participants also consented to take part. By not using their true name, anonymity was achieved, and the information was kept confidential.

Trustworthiness

This study considered the trustworthiness framework of Lincoln and Guba (1985). This study ensured credibility, transferability, and confirmability. To achieve credibility, the researchers conducted member checking. This study can be replicated and is applicable to other contexts and situations. Lastly, the researchers kept the record for checking and rechecking purposes.

Results and Discussion

Ways and Practices to Develop Interest in and Love of Reading

Table 1 shows the ways and practices to develop an interest in and love of reading. It lists the five (5) ways and practices that emerged from the codes.

Table 1

Ways and Practices to Develop Interest in and Love of Reading

Themes	Codes
Exposing to and reinforcing the reading experience	Reading pictures Watching videos Providing family support Extending teachers support
Creating reading opportunities	Doing reading assignments Requiring the class to read Memorizing long words Doing spelling Writing sentences
Establishing family reading routines	Listening to parents reading stories Introducing reading Teaching reading
Recommending and providing reading materials	Suggesting what to read Telling what to read Offering books Suggesting some books Enumerating what to read Collecting reading materials Using available reading materials Buying books Acquiring used books Giving books to read
Doing pleasure reading	Reading books regularly Reading borrowed books Looking for books during recess Finding time to read Going to the library every recess

It shows that the ways and practices of the participants to develop an interest in and love of reading are: 1) exposing them to and reinforcing reading experiences; 2) creating reading opportunities; 3) establishing family reading routines; 4) recommending and providing reading materials; and 5) doing pleasure reading.

For learners, one of the ways to develop an interest in and love of reading is to do it for pleasure. One participant confessed, *"By reading books now and then sometimes every week."* Others expressed, *"In my house, I read the books that my mom bought or the books that I borrowed"*. Some participants revealed, *"Then, every recess malakat*

kona sa iban na classrooms kag nagapangita sang libro (Then every recess I would go to other classrooms to look for a book). *I always find time to read if I finish my work, and in my spare time, I do read and pick the book that will educate me and the book I love. We had a library, our very own elementary library, and every recess I would go there.* "Setting aside class time for silent pleasure reading seems to be the best way to engage a student who has no interest in reading. It offers the gentlest pressure that is still likely to work." Allowing learners to freely choose what they want to read is motivating. The motivation to read greatly depends on their choice (Willingham, 2015).

For parents and teachers, one of the ways to aid in developing their children's interest in and love of reading is to recommend and provide reading materials. One participant admitted, *"We have a large number of books in our house from the people who gave them to us."* Others disclosed, *"When I was in grade 2, they gave us really big books for science and all the subjects, and I got interested in reading."* The rest of the participants imparted, *"Gabakal sila book every once or twice a month. (They buy a book every once or twice a month.) My mother introduced me to reading and brought me books. First, my parents taught me how to read some words, but then when I started reading books, they would always buy books. They always buy books that I am interested in. My mom brought the old books that her friends had and let me read them. I remember when I was in kindergarten, I think my teacher asked me what kind of drama I was interested in, and I told her that I was interested in action. And then she told me and gave me a few books to read and see if I was interested in them even more."*

There are various ways and practices to develop an interest in and love of reading. The learners' ways and practices of developing an interest in and love of reading are enhanced by teachers' and parents' ways and practices. It implies that

learners, parents, and teachers should collaborate to develop an interest in and love of reading.

Parents are crucial in fostering their children's love of reading (Reggin et al., 2019). Schools can assist in teaching children to value reading, but parents have more power and responsibility than anyone else. Reading isn't just something parents should advocate for. The children need to see that reading is important to parents and that they should do what they promote (Willingham, 2015).

Jose and Raja (2011) added that teachers are the primary source of information for children in developing reading habits. Teachers can assist beginning readers in producing the sounds of letters and words by teaching them phonetics properly. They may teach beginning readers syllabication so they can recognize new words. Also, they should provide special support in choosing reading resources based on their age, time available, and capacity that fit their reading levels. They must understand that they must play a significant part in motivating and enticing the children to become enthusiastic readers. Their suggestions and encouragement will be beneficial.

Practices Before, During, and After Reading to Develop Interest in and Love of Reading

Table 2 shows the practices before, during, and after reading, based on the participants. The table lists the practices in logical order.

Table 2

Practices Before, During, and After Reading to Develop Interest in and Love of Reading

Themes	Categories
Before Reading	
Previewing the reading materials	Scanning the content of the book Reading the title Checking the back cover Scanning pages Checking the content of the book

[table continues on the next page]

Setting the context	Meditating before reading Answering Teachers Questions Eliminating distractions
During Reading	
Noting details	Taking down notes Remembering important events Listing difficult words
Developing mental connections	Imagining the happenings Maintaining focus
After reading	
Extracting Values	Reflecting Discovering moral lesson Praying
Visualizing the story	Drawing a mental picture of the content Drawing a mental picture of the character Remembering facts Memorizing listed words
Recreating narratives	Plotting stories Rewriting the story
Learning from each other	Demonstrating learning Sharing realization Exchanging learning Answering questions

The practices before reading are previewing the materials and setting the context, while the practices during reading are noting details and developing mental connections. On the other hand, the practices after reading are extracting values, visualizing the story, recreating narratives, and learning from each other.

Before reading, the participants previewed the materials by scanning the content of the book, reading the title, checking the back cover, scanning pages, and checking the content of the book. One of the participants mentioned, *"I would scan the book and I would see if it is really interesting, and if it's interesting, I would read the whole thing."* Also, the participants set the context by meditating before reading, answering teachers' questions, and eliminating distractions. Several of the participants declared, *"I make sure that there are no distractions*

and I finish all my tasks before so I can focus on reading and have my full attention."

During reading, noting details and developing mental connections are the participants' practices. They did the following: take down notes, remember important events, and list down difficult words. Imagining the happenings and maintaining focus were practiced by the participants to develop mental connections. Almost all the participants cited, *"Ga take note gd ko sa mga new words nga indi ko comfortable. (I write down the new words.) We take down notes and remember the important happenings. Just read, analyze it, and take down notes. Gina take note ko ang mga budlay nga words. (I take down difficult words.) Our teacher asked us to take note when we read, to take note of the important things because we will need them to answer questions. Many of the participants responded, "I imagine the happenings of the story and sometimes stories are unexpected. I just sit and imagine what it's about. I imagine the story in every sentence. I try to focus on it for 30 minutes or more."*

After reading, the participants did the following: extracted values, visualized the story, recreated narratives, and learned from each other. They extracted values by reflecting, discovering moral lessons, and praying. Three of the participants indicated, *"I try to find the moral lesson; what can I simply do and what can I do? I pray after reading."* To visualize the story, they drew mental pictures of the content and the characters, remembered facts, and memorized listed words. A few of the responses were, *"I just put the book down and lay down to imagine it. Kun novel, I imagine the characters; kun dictionaries and encyclopedias, gina remember ko ang facts. (If novel, I imagine the characters; if dictionary and encyclopedias, I remember the facts.) I would try to memorize the words written and try to imagine what is going to happen. In recreating narratives, the participants practiced plotting and rewriting the story. Several participants affirm that "Ga sulat ko sa mga story nga gin read ko sakon notebook. (I write in my notebook the story I*

read.) *After reading, I sort of get inspired, so I have a specific notebook where I write short stories in case I get bored and get inspired.*" They learned from others by demonstrating learning, sharing realizations, exchanging learning, and answering questions. Some participants shared, *"Mag act or mag explain kung ano na learn namon sa reading. (We act out or explain what we learned from what we read.) We have a report. Sometimes they let us explain what we learn, what it's about, what lessons we learn from it, and how we can apply it. Gina tagaan kami questions, and we answer them. (We were given questions to answer.) We answer specific questions.*

These practices before, during, and after reading aided the participants in developing an interest in and love of reading. Babayiğit (2019) discovered that sixth-grade students frequently use pre-reading, pre-, and post-metacognitive reading strategies. Before reading the material, they quickly browse the pages and consider the text's information. While reading the material, the students take notes, highlight important information, deconstruct complex sentences, like telling complex sentences, and guess the meaning of the unknown vocabulary. After reading, students imagine what they have read and compare and analyze what they get from the text. Metacognitive reading strategies aid readers in improving their reading skills.

Livingston (2003) explains John Flavell's metacognition theory. The theory backs up the notion that reading happens in three stages: getting ready to read, creating meaning as you read, and reviewing and reflecting afterward. The readers get ready to read by skimming the material to learn about its length and organizational structure, establish reading objectives, and draw on their existing knowledge. They recognize main ideas, make predictions, draw conclusions, read selectively, read fast, and check their understanding as they read. After that, the readers respond to self-tests to see how well they understood the material and then summarize the book to reflect on what they had read.

Ways Bibliophiles Develop Their Interest in and Love of Reading

Bibliophiles develop their interest in and love of reading through 1) self-motivation, 2) significant persons' motivation, and 3) reading routine establishment.

Self-motivation, or intrinsic motivation, comes from within and brings enjoyment and satisfaction (Fernandez & Garcia, 2022). The learners' inner desire and motivation urge and push them to achieve and develop a love and interest in reading. If the learners don't have the goal of developing a love and interest in reading, no reading progress occurs. The study shows that the participants motivate themselves by memorizing long words, doing spelling, and writing sentences to build vocabulary and engage in pleasure reading.

Some of the participants responded, *"Ga memorize gid ko sa mga long nga words para hapos lang maka read sang mga words nga indi familiar sakon. Spelling kag sentences nga gin encourage sakon nga mama kag papa dayun English lesson sa school."* Other participants confessed, *"By reading books now and then sometimes every week. In my house, I read the books that my mom bought or the books that I borrowed. Then, every recess malakat kona sa iban na classrooms kag nagapangita sang libro. I always find time to read if I finish my work, and in my spare time I do reading and pick the book that will educate me and the book I love. We had a library—our very own elementary library—and every recess I would go there.*

Self-motivation is strengthened by the significant person's motivation. The motivation of other people plays a very essential role if children have a goal to develop their interest in and love of reading. Without support and motivation from parents and teachers, the reading progress of students is impossible. Most of the participants reveal that they develop their interest in and love of reading by exposing them to and reinforcing reading, creating reading opportunities, developing family and school routines, and recommending and

providing reading materials. Several responses are, *"I started to like bible stories because they were very interesting, and I would see some pictures of some bible stories such as Daniel, David, Esther, and also Jesus. At home, gina tan-aw ako ni mama sang Leaf Frog nga naga teach sang sound kag vowels and read. During weekends, if the library is open, makadto ako da. Why I love reading is when my mom lets me watch some reading videos". My parents encourage me to read. Ginaencourages ko nga maglakat gd sa Library kag maghulam books. I started loving reading, thinking, and writing when I was in grade 1. It is because of mteacher,er who encouraged me to read.*

Manuas et al. (2022) found that motivation for reading increases reading interest. They concluded that motivation is needed to be able to read. Fernandez and Garcia (2022) added that extrinsic reading affects reading with intrinsic motivation. Reeve (1989) emphasized that "interest contributes to intrinsic motivation by arousing the initiation and direction of attention and exploratory behavior, while enjoyment contributes to intrinsic motivation by sustaining the willingness to continue and persist in the activity." It implies that intrinsic and

extrinsic motivations play a great role in developing an interest in and love of reading.

By establishing a reading routine, learners will be able to develop a reading habit. The study shows that the participants used to preview the reading material and set the context before reading. During reading, they note details and create mental connections. After reading, they extract values, visualize the story, recreate narratives, and learn from each other. These practices allow them to develop an interest in and love of reading.

Reading Program to Develop Interest in and Love of Reading

Based on the results presented, the reading program is designed to develop an interest in and love of reading.

Producing Bibliophiles: Ten-day Sessions

Program Description: *Producing Bibliophiles* is a program to assist learners in developing an interest in and love of reading. It consists of a ten-day session that offers various activities outside the classroom.

Table 3

Program Goal: To develop an interest in and love of reading.

Session	Objectives At the end of the session, the learners should:	Learning Experiences	Assessment Tasks
1	Recall the dos and don'ts throughout the program. Promote rewards and incentives.	Orienting parents and learners Disseminating information Discovering the learners' interest	Checklist of dos and don'ts
2	Demonstrate different strategies for previewing the reading materials.	Picking a book based on preference. Predicting, asking questions, and figuring out unknown content materials.	Demonstration
3	Enumerate ways to set the context of reading.	Role-playing, setting the context	Demonstration
4	Give the meaning of words using context clues and structural analysis.	Looking for clues in the context Doing structural analysis	Multiple-choice test

[table continues on the next page]

5	Distinguish important from non-important details.	Answering WH and H's questions	Filling-out T-chart
6	Name ways to develop imagination and focus while reading.	Reading: preferred reading material Imagining while reading and sharing imagination	Oral presentation
7	List values demonstrated by the main characters	Analyzing characters of the story	Reporting Analysis result
8	Present visualizing plans	Discussing and visualizing plans by the group	Proposed visualization plans
9	Summarize or retell the reading materials of their choice	Listing the sequence of events and important points	Summarizing
10	Describe different methods of learning from others.	Think-pair-share Group discussion	Demonstration

Note: Motivate and offer incentives every session. Monitor activities at home by asking random questions or sharing what happened at home.

Conclusions and Recommendations

Learners don't employ sufficient ways and practices to foster a love of reading and a desire to read. Parental and pedagogical practices must be added to these practices. In addition, it is necessary to follow the customs before, during, and after. To cultivate an interest in and a love for reading, individuals need to be motivated by themselves as well as by important others, and a reading program might be put in place. Collaboration between parents, instructors, and students is important if learners wish to develop an interest in and love of reading. Additionally, they ought to try to understand other ways and practices. They should be aware of the practices before, during, and after reading to establish reading routines.

To support learners' ways and practices, teachers and parents should arm themselves with a variety of practices for fostering a love of reading and a desire to read. Teachers should go to training sessions and seminars on fostering a love of reading. They should also incorporate methods and techniques into their lessons and encourage students to participate in reading initiatives. Parents ought to promote and motivate children to participate in reading activities. Parents should purchase books while ensuring their homes have adequate reading materials.

Elementary school administration should adopt the ten-day reading session program. They should

also provide appropriate reading materials and design interesting programs to develop students' interest in and love of reading. Moreover, they should create clubs that motivate and encourage non-readers.

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Creative Drama and Oral Communicative Competence of Pupils in a Faith-Based Elementary School

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The students' difficulties in speaking English as a second language continue to challenge language teachers. Over the past few years, educators and language specialists have searched for ways to make language teaching relevant and effective for the improvement of students' oral communicative competence in English. This qualitative action research aimed at determining creative drama as a strategy for developing English oral communicative competence among the Grade 5 and 6 students in a faith-based elementary school. Participants' selection is through purposive sampling. They were non-English-speaking students who took English as a main subject or learning area in the basic education curriculum. The observation, interview, and focus group discussion revealed that creative drama improved the pupil's oral communicative competence. They became alert as they tried to complete the communication task and were able to add something not explicitly called for and convey most of the information necessary for the communication task. Future research may further explore whether the improvement sustains over time and how sustained interaction sequences and classroom dialogue contribute to this effect. They may also use quantitative methods to examine whether creative drama is more beneficial than other communication strategies.

Keywords: *communicative competence, language-based competence, second language*

Communicative competence is the aim of 21st-century language learning (Abu, et al., 2020). According to Pangket (2019), this competence is a fundamental learning goal in the Philippine Basic Education Curriculum. The speaker needs communicative competence, which incorporates a variety of sociolinguistic and vernacular competences that allow him/ her to recognize how and when to express the language. Lasala (2013) claims that second-language speakers, especially students, need communicative competence to participate in and learn from their classroom experience.

This study highlights oral communicative competence by combining knowledge, skills, and attitudes to enable a speaker to communicate efficiently and appropriately in social settings (van der Veen, 2017). For children to communicate successfully, van der Veen (2017) further added that it is not adequate only to emphasize the universal and formal qualities of language use (grammar, pronunciation, etc.), but also to incorporate a more communicative emphasis, which implies working on the different aspects of social interaction in meaningful activities (Roth & Spekman, 2020), such as drama.

One of the new areas for study has been in the field of oral language education in the Philippine basic education's primary level, which indicated that much remains unknown about the benefits of dialogically organized classroom talk (van der Wilt et al., 2018), such as drama in developing children's oral communicative competence. Most studies are conducted at the secondary and tertiary education levels (van der Veen, van Kruistum, & van Oers, 2017). Previous studies indicated that children's language and verbal communicative abilities rapidly develop during an early stage of a child's education (Nærland & Martinsen, 2011) through various interventions. Still, there was no mention of drama among them.

Investing in children's oral communicative competence may improve the excellence "of

classroom dialogue and children's learning. Furthermore, children's oral language abilities are positively related to their social participation and acceptance" (van der Veen, 2017, p. 34). As oral language competence is the first language-based competence children develop and a prerequisite for children's participation in classroom talk (Troesch et al., 2016), teachers need to pay attention to it from an early stage of the child's education in a systematic and goal-oriented way.

Using drama within the classroom appears to be a credible method to stimulate both situational and interactional authenticity in language practice (Sweeney, 2017). Teaching English through drama sets a meaningful communicative context for listening and speaking and generates students to apply the language resources necessary to stimulate their linguistic skills (Trivedi, 2013; Fabio, 2015). A study by using the combination of drama and task-based learning revealed positive feedback from the participants and reported inhibitions to use English diminished whilst being engaged in drama tasks (Carson, 2012.)

According to Whitebread et al. (2015), learning is mediated through dialogue. Dialogue is a communication process that mainly involves speaking. As a significant communicative competence, speaking seems to be essential among all four abilities that include listening, speaking, reading, and writing because anyone who understands a language is usually referred to as a speaker of that language (Abda, 2017). The primary goal of all English language teaching should be to give learners the ability to use English effectively and accurately in communication (Derakhshan et al., 2015). However, after many years of studying English, not all language learners can communicate fluently and accurately because they lack the necessary knowledge. Furthermore, based on recent research findings, over three-quarters of students cannot communicate verbally in English because of shyness, inadequate vocabulary, fear of being criticized, and many

others. Most of them wish that they had been taught speaking skills more appropriately and comprehensively while in school (Alam & Uddin 2013).

Gershon (2018), in his study, said that difficulties in speaking English among students continue to pose a challenge to language teachers and that over the past few years, educators and language specialists have searched for ways to make language teaching relevant and effective. Cascallar and Henning (2011) believed that communicative competence using the English language would be enhanced if the students felt that they were working on communicative skills, practicing some functions within a social context, and not just accumulating vocabulary and sentence level structures.

Inspired by the research of Derakhshan et al. (2015) and Tariq et al. (2013) and driven by the growing interest in improving English speaking skills among elementary pupils, the researchers carried out a similar study. The researchers aimed at making the subjects taught in English appealing, meaningful, and lovable to their pupils, making them more participative during class discussions, and making them more confident with their speaking skills. They believed that oral communicative competence is significant buildings in confidence-building in young students preparing for higher education.

This study helps the researchers and the English teachers become more effective and efficient in their teaching, thus allowing them to achieve one of the language classroom's goals, which is to help the students become good communicators of the English language. Based on the needs analysis findings, they developed reading, writing, and speaking and listening courses with the following objectives: comprehend academic reading materials, write essays, understand educational lectures, participate orally in scholarly activities, and conduct academic presentations.

This study endeavors to answer the following questions:

1. What is the level of oral communicative competence of Grade 5 and 6 pupils in a faith-based elementary school before the utilization of creative drama as assessed by:
 - a. Pupils themselves
 - b. Teacher/Researcher
2. What factors affect the oral communicative competence of the Grade 5 and 6 pupils in a faith-based elementary school?
3. Does teaching language using creative drama improve the Grade 5 and 6 pupils' oral communicative competence in a faith-based elementary school?

Methodology

To improve the current practice in teaching and increase performance quality, the researchers adopted action research. McCutcheon and Jung (1990) characterize the essential components of action research as methodical investigation, reflexivity, and practicality. It is used to answer questions and solve problems that arise from the classroom's daily life and put results into high-priority practice (McKay, 1992; Twine & Martinek, 1992). In this study, the teacher-researcher became an agent of inquiry in shaping his own profession's knowledge base (Johnson, 1993), driven by his desire to improve his practice by identifying a specific problem with a particular set of students.

The study was conducted in a faith-based elementary school with five and six classes of 23 and 28 pupils, respectively. The school has been implementing a curriculum prescribed by the Department of Education (DepEd) while maintaining distinctive philosophy and mission and operating educational policies (Beardsley-Hardey, 2017) common to other faith-based schools. Faith-based schools refer to those that (a) provide education for a well-rounded, disciplined life (Gregg, 2018), (b) are identified as non-sectarian and religious, and (c) sustain faith formation as a similarly significant value in the overall education of a person (Ariño & Teinturier, 2019).

The researchers used class observation to see how the pupils performed daily. The observation happened in two periods for each class per day in one week. Everything watched, heard, and experienced during the class observation was recorded carefully in detail in the following observation sheet:

Day/Time	Content	Teacher's Activity	Students' Activity
	1. Warm-up		
	2. Pre-speaking		
	3. While-speaking		
	4. Post-speaking		

Further, the researcher interviewed selected pupils using his self-made questions. Focus group discussions among pupils with the subject teacher also followed. Their answers were videotaped and then transcribed.

After a week, the researcher introduced drama as a potential strategy for improving oral communicative competence among the pupils. The pupils from each class were grouped and assigned a theme or topic for their drama performance to be done at the following meeting. The gap of five days provided time for the pupils to rehearse and practice for the performance. During the drama performances, students were carefully observed, taking note of the pronunciation, fluency, syntax, and vocabulary, this time with the English teachers' assistance, and everything that happened was recorded in detail.

After the drama presentations, the researchers interviewed the participants. They also utilized a focus group among the pupils, with the subject teacher discussing their observations and their assessments of the participants' pronunciation, fluency, syntax, and vocabulary during the drama's execution. The focus groups' interactions and inputs were videotaped and transcribed later by the researchers.

Results

Class observations, interviews, and focus group discussions were carried out to evaluate how pupils performed in English-speaking classes before the introduction of creative drama as a teaching strategy.

Pupils Assessment of Their Speaking Performance

Pupils' communicative competence is at a developing level, as the class observations, individual interviews, and focus group discussion revealed:

- (1) Most of them were not eager to contribute their opinions in English. Only a few of them participated actively, but the others spoke very little or not at all.
- (2) They tended to use Filipino when the teacher conducted socialized recitation during English time.
- (3) The majority was disinterested in the topic, and others did not listen attentively. They even chatted with the pupils next to them when their classmates were speaking.
- (4) The pupils looked very nervous when they spoke in front of the class. Sometimes, they did not know what to say and just kept silent.
- (5) When asked about their opinion, they read what they had written on a piece of paper. They did not remember the structures and vocabulary needed to speak naturally.

Teacher and Researcher's Assessment of the Pupils' Speaking Performance

The preceding observations were evident, as most of the pupils were lightly attentive; they expressed what came quickly but appeared unwilling to put forth any special effort. The delivery was often hesitant

and halting, with a few unnatural pauses and fragmented utterances, and was characterized by quite a few incomplete statements, inappropriate expressions, and isolated words with some short, complete utterances. Further, it indicated that the pupils could convey some of the information called for in the communication task, and a large number of relevant facts were omitted.

Further, on a few occasions, the pupils were listless; they appeared not to care if a message was conveyed correctly. Likewise, pupils conveyed very little of the information called for in the communication task, and nearly all the relevant facts were omitted.

Improved Communicative Competence in Drama Performance

The pupils' oral communicative competence during the drama performance was elevated to the "advanced" level. The observation, interview, and focus group discussion disclosed that, in general, pupils were alert as they tried to complete the communication task and were able to add something not explicitly called for. The delivery was seldom hesitant or halting and seemed relatively smooth and effortless. Further, the delivery is characterized by very few incomplete statements, inappropriate expressions, or isolated words with mostly complete utterances. The pupils can convey most of the information called for in the communication task, and nearly all of the relevant facts are included.

Previous studies support the previous results. Gershon (2010) said that drama allows the child, both personally and as an individual, to maximize his potential, which is the target of all educational programs. Drama comes in as a valuable tool in teaching pronunciation, rhythm, and intonation. Moreover, drama can easily be linked to body movements and expressions of emotions, making it concrete, practical, and valuable to the students. Zyoud (2013) stated that drama activities provide students with various contextualized and scaffolded activities that gradually involve more participation

and oral language proficiency; they are also non-threatening and a lot of fun. Using drama to teach English-speaking subjects results in authentic communication and involves ideas, emotions, feelings, appropriateness, and adaptability.

In a study on "Using Drama Activities and Techniques to Foster Teaching English as a Foreign Language: A Theoretical Perspective" by Zyoud (2013), it was pointed out that drama is an appealing teaching strategy that promotes cooperation, collaboration, self-control, goal-oriented learning, as well as emotional intelligence skills. Drama bridges the gap between coursebook dialogues and natural usage and can also help link parallel mismatches between the classroom and real-life situations by providing insights into handling a tricky situation. Drama strengthens the bond between the thoughts and expressions in the language, includes suprasegmental and paralanguage, and offers good listening practice. Suppose drama is considered a teaching method in the sense of being part of the eclectic approach to language teaching. In that case, it can become a primary aid in the acquisition of communicative competence.

Drama's use in education is a means of personal and social development, self-discrepancy, and role-taking ability in the pupil (Brown, 1994). Drama activities facilitate the type of language behavior that should lead to fluency. One of the most significant advantages of drama use is that students become more confident in their use of English by experiencing the language in action. Drama encourages adaptability, fluency, and communicative competence. It puts language into context, gives learners experience of success in real-life situations, and arms them with confidence for tackling the world outside the classroom.

Discussion

This study investigated the effect of drama on the development of the pupils' oral communicative competence. This section presents the discussion of the results according to the research questions.

For the first question, the observation, interview, and focus group discussion revealed the pupils' oral communicative competence is at a "developing" level. A majority of them were worried about making mistakes when speaking English. A number of them reported that they could not think of anything to say. More than half of the pupils said they often used Filipino in speaking classes, while others claimed they had no motivation to express themselves. When taking part in speaking activities, less than half of the students were shy about their speech's attention. More than a quarter of them agreed that they were fearful of criticism or losing face.

Concerning the second question, the results indicated various factors that affect the students' speaking performance. A majority of the respondents said that the students' speaking performance was affected by topical knowledge. The following two important factors were mentioned: listening ability and motivation to speak. Besides, the teachers' feedback during speaking activities was reported to affect the students' speaking performance. Similarly, the students thought they needed to be confident to perform well and minimize the pressure to perform well.

The information that topical knowledge provides enables learners to use language regarding the world in which they live. It was suggested to allow the students to conduct pre-reading and do advanced research about the topic.

Somebody cannot develop speaking skills unless he or she builds listening skills. Students must understand what is said to them to have a successful conversation. Therefore, one is undoubtedly unable to respond if he or she cannot understand what is displayed. Since speaking is closely related to listening, someone must provide students with ample activities to develop their learning skills.

Self-confidence has a high impact on oral performance. If the learners were more confident, they would have better oral understanding. Pupils need exposure to various activities to develop their

self-confidence and be encouraged to participate in small group activities and extensive group activities.

The teachers' decisions about how to react to students' performance will depend upon the lesson's stages, the activities, the types of mistakes made, and the particular student making that mistake. If the teachers correct the problem at the onset right away, it will destroy the conversational flow and the speaking activity's purpose. If the pupils are fixed haphazardly, they can find this very demotivating and become afraid to speak. It is suggested that the teachers correct the pupils' mistakes positively and with encouragement after any speaking activity.

The third question sought to affirm if drama as a strategy will improve the pupil's oral communicative competence. The results were confirmatory, as they favorably indicated an "advanced" performance among the pupils, a step ahead of the previous "developing" score category.

Speaking is the process of building and sharing meaning through verbal and non-verbal symbols in a variety of contexts. Drama strengthens such an approach. In drama, participants express ideas, opinions, or feelings to others by using words or sounds of articulation to inform, persuade, and entertain. Teachers need to regularly utilize drama as a strategy for teaching oral communication skills. Further, it is recommended to allow the students to join the drama guild and make drama presentations a part of the school convocation and desired public performances.

To conclude, the present study showed that drama as an intervention significantly affects children's oral communicative competence. Future research should further explore whether this effect sustains over time and how sustained interaction sequences and classroom dialogue contribute to this effect. Furthermore, it is worthwhile to explore the differences in children's learning, thinking, and communicative development in the context of productive and non-productive classroom dialogue. For example, do children inducted into drama over

a more extended period learn to think differently (i.e., reasoning, thinking together, listening) and become more competent communicators? The results of those studies and analyses might add to the available empirical evidence of the benefits of drama and support teachers in establishing a communicative classroom culture using the English language. Howe and Abedin (2013) suggested, "It is time to take risks" (p. 346) and also used quantitative methods to examine whether drama is more beneficial than other communication strategies.

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The Influence of Service Quality (SERVQUAL) Dimensions in Electronic Banking on Customer Satisfaction Among International Students

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In an increasingly interconnected world where electronic banking has become integral to daily financial transactions, delving into the influence of SERVQUAL dimensions within this context is imperative to enhance the customer satisfaction of international students at a faith-based institution in Puting Kahoy, Silang, Cavite, Philippines. A descriptive-correlational technique assessed 130 survey responses from international students. The results revealed a good rate of SERVQUAL in electronic banking services. The perceived SERVQUAL dimensions of responsiveness, tangibility, and empathy have a very moderate positive significant correlation, while assurance and reliability have a low positive significant correlation. The regression analysis showed that all five SERVQUAL dimensions have an influence on customer satisfaction. Further, the results showed that there was no significant difference between the respondents' demographic variables and their assessments of electronic banking services. The researchers, according to their findings, recommend the application of SERVQUAL dimensions to enhance electronic banking services. Providers must ensure fair charges for customers (assurance), expand banking products on e-platforms (tangibility), schedule and communicate maintenance activities (empathy), and guarantee uninterrupted services during core business hours (reliability).

Keywords: *SERVQUAL, customer satisfaction, electronic banking*

The first and most important mission and purpose of every business organization is to satisfy its customers. Banks employ electronic banking to enhance customer service, cut down online wait times, let consumers withdraw cash whenever they want, let them obtain online statements, make payments and remittances easier, and even let them transfer money to another account. The banking sector finds it challenging to ascertain how clients assess and evaluate the worth of the goods and services they offer since services are intangible. The purpose of this study is to examine the relationship between customer satisfaction and foreign students' usage of electronic banking in relation to the SERVQUAL dimensions (responsiveness, assurance, tangibility, empathy, and reliability). The rapid growth of electronic banking usage in all countries around the world during the years preceding the COVID-19 pandemic demands constant innovation and improvements to ensure and increase service quality (SERVQUAL), an antecedent to customer satisfaction (Mendoza, 2020). The last five years saw an increase in technological advancements in the Philippines due to their cost-reduction outcomes among banks and their customers (Rashid et al., 2021). In this regard, Laycock (2021) revealed in his study that 36% of Filipinos will possess bank accounts by the year 2026, up from 18% in 2021. To continue this trend, the importance of customer perceptions regarding the dimensions of SERVQUAL in e-banking cannot be overlooked when it comes to Filipinos' decisions to adopt banking services (Mendoza et al., 2020).

As emphasized by Sharma et al. (2020), international students have progressively turned to banking for their needs. This shift primarily stems from the necessity to conduct various tasks online, such as paying school fees. However, it is still uncertain whether international students in the Philippines are satisfied with banking services since this aspect has not been thoroughly examined. This study analyzes the influence of SERVQUAL dimensions in e-banking services on customer

satisfaction among foreign students. Since the international students in the Philippines come from various parts of the world with varying banking experiences and expectations, as well as different economic systems, it is critical to understand their approaches to e-banking. Thus, from a foreign perspective, this study seeks to improve service quality to satisfy their needs, as their purchases can boost the country's economy.

Both the customers, who are foreign and local students, and the banks would benefit from the research on SERVQUAL's impact on customer satisfaction among international students when it comes to electronic banking. It would illustrate the importance of both customer satisfaction and service quality when utilizing the banks' services, respectively. The advantages that banks receive from internet-connected banking operations are especially important for their business operations because they make it possible for more transactions to be handled quickly and conveniently, which would doubtless have a major effect on the success of the bank.

The purpose of this study is to examine the relationship between customer satisfaction and foreign students' usage of electronic banking in relation to the SERVQUAL dimensions (responsiveness, assurance, tangibility, empathy, and reliability). According to Parasuraman et al. (1988), responsiveness, assurance, tangibility, empathy, and reliability are present as the dimensions of the SERVQUAL model. Responsiveness is the capacity to assist clients promptly across various issues. Assurance encompasses competence, courtesy, and the ability to instill trust and faith in the service provider from the customer's perspective. Tangibility pertains to the visual presentation of physical facilities, equipment, personnel, and communication materials. Empathy involves providing personalized and compassionate attention to customers. Reliability indicates the capability to deliver the promised service consistently and accurately.

Customer satisfaction is an important measure of a company's competitiveness. A previous study discovered a link between customer satisfaction and perceived service quality. Customer satisfaction comes after service quality factors such as responsiveness, assurance, tangibles, reliability, and empathy (Hammoud et al., 2018). The study by Hyken (2020) states that when responsiveness, certainty, reliability, tangibles, and empathy are adequately managed in the service, customers' happiness increases dramatically. Consumer satisfaction has emerged as one of the most critical notions in marketing research (Haq & Awan, 2020). It connects pre-purchase procedures with post-purchase phenomena such as attitude alterations, repeating to buy, and overall brand loyalty (Mansoor et al., 2020). Customer satisfaction in the banking industry is now more reliant on the ability of banks and other financial institutions to adapt their daily operations, transactions, and customer services to the new and online platforms due to the daily changes in banking systems and the decline of the traditional banking system today (Ramya et al., 2019).

Age is a significant factor in affecting customer expectations and impressions of the quality of online services, according to a study done in India. It also has an impact on the degree of client satisfaction (Singh, 2018). Strach and Kincl (2018) point out that men and women evaluate website quality differently. This implies that customer satisfaction with electronic banking or any other online service differs between men and women depending on the features and characteristics of the online platform. Yates (2019) indicated that financial literacy, income, education, and the number of credit cards boost the chance of online banking adoption. Adoption of electronic banking is correlated with socio-economic status. As online banking adoption increases with income, the low-income class is less likely to access or participate in the electronic banking system due to technological limitations (Seyal, 2018). According to the facts, the

electronic services industry is primarily accessed through devices such as smartphones, tablets, laptop computers, and so on. Therefore, having devices available to customers has a big influence on their pleasure. If a customer does not have a device, electronic banking is inaccessible, and thus customer satisfaction is nil due to a lack of service delivery (Singh, 2018). Nationality has little bearing on the need for electronic banking, and therefore, consumers' happiness does not depend on it, particularly after the pandemic. Yet, the accessibility of electronic banking in each nation has an impact on its utilization (Asad et al., 2018). Less likely to use electronic services like banking are nations with restricted access to technology.

The SERVQUAL framework (Kar, 2018) is a tool used to assess service effectiveness by examining the alignment between consumer expectations and their perceived service quality. This assessment hinges on how customers interpret the delivered service and relies on performance metrics utilized by businesses to gauge their ability to meet customer demands. This consistency in evaluating service quality remains vital to the financial industry's growth. It plays a role in consumer decision-making regarding product purchases and service usage. Parasuraman et al. define service quality as the link between customer criteria, their service experience, and understanding the value of the service. Reliability is a key aspect here, as meeting high customer expectations is crucial for a company's success. Understanding the level of customer service and the cost of goods and services provided by a bank is vital in this context, as it influences how customers perceive service quality and make purchasing decisions.

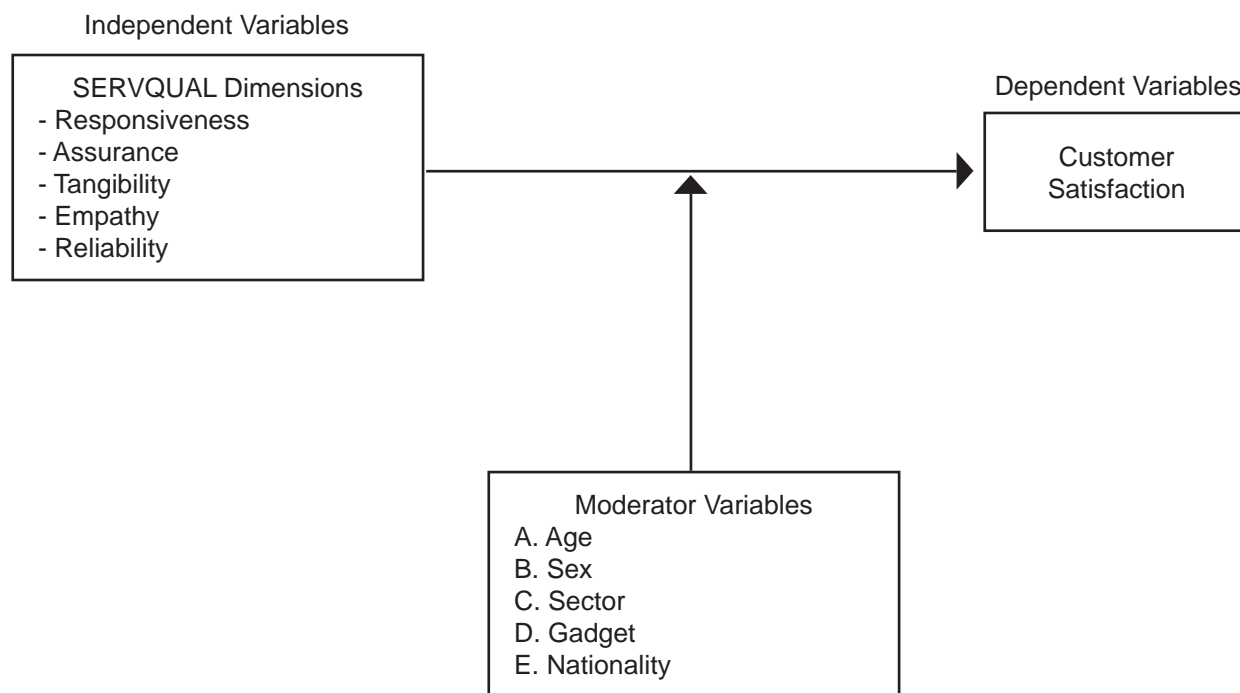
The expectancy-disconfirmation model, widely used to explain customer satisfaction, posits that customers make purchasing decisions based on their goals, attitudes, and expectations (Oliver, 1980). After experiencing a service, customers evaluate it, leading to a sense of performance. When customers assess the actual service against

their pre-experience expectations, the process is completed, resulting in confirmation, satisfaction, or dissatisfaction. This model consists of five stages: expectations, actual performance, confirmation, disconfirmation, and satisfaction. Confirmation occurs when performance matches expectations, disconfirmation when there's a gap, and pleasure when performance exceeds expectations, leading to customer happiness (Oliver, 1980). Pakuar et al. (2019) argue that positive differences between perceptions and expectations create happiness, while negative differences lead to dissatisfaction. Businesses can gain a competitive advantage by delivering exceptional customer service, with a clear correlation between service quality and customer satisfaction, especially in sectors like banking (Bawan et al., 2018).

The research paradigm in Figure 1 presents the correlation between SERVQUAL dimensions and customer satisfaction.

Figure 1

Research Paradigm of the Study



Methodology

Research Design

The study used a quantitative research approach, which focuses on collecting and objectively interpreting numerical data to define, forecast, or control elements of interest (McLeod, 2019). The researchers specifically used a descriptive correlational technique. A quantitative research approach seeks to increase knowledge and comprehension of a society. Higson (2020) asserts that it requires probing extensively into people's attitudes, sentiments, and preferences, frequently using surveys, focus groups, or interviews. It involves utilizing a numerical framework to calculate, examine, and report connections between variables. It deals with goals, logic, and statistics and emphasizes convergent reasoning and exact, immutable facts. The fact that this form of research is reproducible and replicable is a benefit.

Population and Sampling Technique

The international students at the faith-based university in Puting Kahoy, Silang, and Cavite are the target population of the study. The faith-based university's Records and Admission Office (2022) reports that there were 425 international students enrolled for the academic year 2021–2022. Only 201 of the 425 were residing in the Philippines, and it was from this group that the sample size for this study was determined. This population is the same regardless of the number of years their program or curriculum requires (a four-year, five-year, or six-year course).

Instrumentation

The questionnaire used in this study was modified and has undergone validity testing under the guidance of eight (8) field experts and went through pilot testing on a subset of the sample, specifically thirty (30) participants. After the pilot data collection, the data were analyzed to ensure their internal consistency using Cronbach's alpha (Cronbach, 1951). The pilot test result was very reliable, and it was accepted without any changes or questionnaire items being removed. The Cronbach's alpha is lower than 0.6 under the phase of perception of services, as shown in Table 9, and no revision is required because responsiveness is higher than the acceptable level during the phase of expectation of services. The respondents during the pilot test were counted and included in the final data gathering because the number of international students staying in the Philippines during the academic year 2021-2022 was only 201. Table 1 presents the results of the reliability test using Chronbach's alpha.

Table 1

Results of the Reliability Test using the Cronbach's Alpha

Phase	Cronbach's Alpha	Number of Items
Expectation of Services		
Responsiveness	.787	4
Assurance	.758	4
Tangibility	.857	4
Empathy	.825	5
Reliability	.880	5
Perception of Services		
Responsiveness	.581	4
Assurance	.710	4
Tangibility	.684	4
Empathy	.701	5
Reliability	.789	5
Customer Satisfaction	.895	5
Overall Reliability	.859	49

Analysis of Data

The researchers used the Statistical Package for Social Science (SPSS) software and Microsoft Excel (2019) to analyze all the collected data. The researchers used various statistical methods and analyses, such as the frequency distribution, to measure and analyze the demographic profile of the respondents. The weighted mean of perception of services (SERVQUL) was used to analyze research question number

one. Additionally, the mean and standard deviation were used to analyze the international students' level of customer satisfaction with electronic banking. To determine the relationship between the SERVQUAL dimensions of electronic banking and the degree of customer satisfaction among international students, Pearson's correlation was used. The regression analysis method was used to determine the predictors of customer satisfaction. The t-test and analysis of variance (ANOVA) were used to analyze the difference in customer satisfaction, considering the moderator variables. The sex variable was compared using a t-test, while the age, sector, gadget, and nationality variables were compared using an ANOVA.

Ethical Considerations

Instructions on how to conduct the study, its objectives, its future contribution to educational research, and its independence and partiality were provided. The instrument also informed respondents that participation is voluntary, so their consent was requested with the assurance that confidentiality and anonymity were strictly observed. The risks and discomforts associated with the respondents'

participation must be eliminated. It was made certain that the respondents' identities would be kept private. To avoid biases, survey questionnaires are strategically distributed rather than to an individual or a group of individuals as requested. To the best of the researchers' ability, any information that was disclosed to them by the participants was kept confidential. All reasonable precautions were taken to guarantee that the obtained data was kept as private as possible. The researchers are aware that incorrect disclosure and/or dissemination of participant data is banned and that such data were utilized strictly for study purposes.

Results and Discussion

International Students' Assessments of the SERVQUAL Dimensions in Electronic Banking on Customer Satisfaction

The assessments of the electronic banking services of international students at the faith-based university in Puting Kahoy, Silang, Cavite are presented in Tables 12–15 by each dimension of the SERVQUAL, which are responsiveness, assurance, tangibility, empathy, and reliability.

Table 2

Weighted Means and Verbal Interpretation of Responsiveness (SERVQUAL)

Dimensions of the International Students' Assessment of Electronic Banking Services

Items	Number of Respondents	Weighted Mean	Std. Deviation	Verbal Interpretation
1. E-banking service providers inform customers about possible interruptions, changes such as convenience fees, tax, etc.	130	4.53	0.484	Very Good
2. E-banking service providers are able to refer customers to the right department for a concern.	130	4.51	0.517	Very Good
3. Customer care service providers communicate clearly.	130	4.54	0.53	Very Good
4. Customer care service providers are readily willing to handle problems with seriousness.	130	4.50	0.529	Very Good
Overall Mean	130	4.52	0.515	Very Good

As presented in Table 2, the assessment of responsiveness on electronic banking services in the perception of SERVQUAL dimensions of responsiveness has an overall mean of 4.52 and a standard deviation of .515. As a result, the electronic banking service providers were able to provide the service at a “very good” level for their customers.

Table 3

Weighted Means and Verbal Interpretation of Assurance (SERVQUAL)

Dimensions of the International Students' Assessment of Electronic Banking Services

Items	Number of Respondents	Weighted Mean	Std. Deviation	Verbal Interpretation
5. Customers feel safe in their transactions with the service providers any time.	130	4.47	0.498	Good
6. Customers assure that the charges (convenience fee & taxes) are not exceeding their expectations.	130	4.43	0.583	Good
7. Customers service providers have adequate knowledge about their job responsibilities.	130	4.5	0.574	Very Good
8. Confidential customer bank information is provided by the e-banking service providers.	130	4.46	0.545	Good
Overall Mean	130	4.46	0.545	Good

Based on the results displayed in Table 3 above, assurance scored a total of 4.46 out of 5.0 on the perception weighted mean, and its standard deviation amounts to .545. This data indicates that with the higher option being very good, respondents classified the assurance on the electronic banking services as good only, leaving a need for improvement in the services in terms of assurance.

Table 4

Weighted Means and Verbal Interpretation of Tangibility (SERVQUAL)

Dimensions of the International Students' Assessment of Electronic Banking Services

Items	Number of Respondents	Weighted Mean	Std. Deviation	Verbal Interpretation
9. All online platforms are stable and innovate from time to time.	130	4.49	0.516	Good
10. Automated Teller Machine always works.	130	4.50	0.553	Very Good
11. The facilities of e-banking services are located strategically.	130	4.48	0.587	Good
12. There are more options in the transaction's services than currently available.	130	4.47	0.544	Good
Overall Mean	130	4.48	0.550	Good

The tangibility of the respondents was rated as good, as presented in Table 4. It has an overall mean of 4.48 out of 5.0 and a standard deviation of 0.550. With this information, researchers noted that there is a need for improvement in the delivery of electronic banking services in the context of tangibility to meet customer satisfaction.

Table 5*Weighted Means and Verbal Interpretation of Empathy (SERVQUAL)**Dimensions of the International Students' Assessment of Electronic Banking Services*

Items	Number of Respondents	Weighted Mean	Std. Deviation	Verbal Interpretation
13. E-banking service providers look into the best interest of the customers	130	4.45	0.507	Good
14. E-banking service providers allocate separate maintenance hours (updating of the system or website) convenient to all customers.	130	4.41	0.553	Good
15. Web error is immediately addressed by the E-banking service providers		4.47	0.532	Good
16. E-banking service providers have separate charges at lower rates for students, vulnerable, and elderly citizens.	130	4.44	0.597	Good
17. E-banking service providers have allowed pre-scheduled for transactions ahead of time such as send money tomorrow at 9am, etc.	130	4.46	0.513	Good
Overall Mean	130	4.44	0.540	Good

Table 5 shows the result of the data gathered from the respondents on the dimension of empathy, which demonstrates that electronic banking service providers are competent in terms of providing their services to customers with empathy. Inasmuch as empathy was rated as good by the respondents among the other SERVQUAL dimensions in this study, and there is a higher level of qualification, which is very good, electronic banking providers are expected to make improvements in their services in terms of empathy.

Table 6*Weighted Means and Verbal Interpretation of Reliability (SERVQUAL)**Dimensions of the International Students' Assessment of Electronic Banking Services*

Items	Number of Respondents	Weighted Mean	Std. Deviation	Verbal Interpretation
18. E-banking services providers are able to respond to queries of the customers	130	4.51	0.495	Very Good
19. E-banking service providers are not abruptly breakdown during the core office hours.	130	4.41	0.553	Good
20. It is easy for the customers to check transaction history.		4.47	0.516	Good
21. E-banking service providers are able to address any unexpected challenge.	130	4.51	0.516	Very Good
22. E-banking service providers provide consistent and dependable service.	130	4.47	0.526	Good
Overall Mean	130	4.47	0.540	Good

The result gathered from the respondents about reliability displayed in Table 6 shows that the respondents classified reliability among the other SERVQUAL dimensions as good, with an overall mean of 4.47 and a standard deviation of .521. Therefore, there is a need for improvement in electronic banking services in terms of reliability.

Table 7

*Overall Weighted Means of Perception of Services (SERVQUAL)
of the International Students' Assessment on Electronic Banking Services*

Indicators	Number of Items	Perception Services Weighted Mean	Std. Deviation	Verbal Interpretation
Responsiveness	4	4.52	.515	Very Good
Assurance	4	4.46	.545	Good
Tangibility	4	4.48	.550	Good
Empathy	5	4.40	.540	Good
Reliability	5	4.47	.521	Good
Overall Mean		4.47	.534	Good

As presented in Table 7, responsiveness has the highest perception service weighted mean of 4.52, in contrast to empathy, which has the lowest perception service weighted mean of 4.40 among the SERVQUAL dimensions. In addition, it connotes that among the five SERVQUAL dimensions in electronic banking, customer satisfaction is influenced mostly and consistently by responsiveness. According to the results displayed in the table, when availing of the e-banking services, responsiveness gives the highest satisfaction to the survey respondents, while assurance, tangibility, empathy, and reliability are the least satisfying. As presented in Tables 10–15, electronic banking services provided by banks and other financial institutions must improve their service quality, especially in the assurance, tangibility, empathy, and reliability dimensions, to meet higher customer satisfaction levels in the use of electronic banking services in their transactions.

Table 8

*Weighted Means and Verbal Interpretation of the International
Students' Satisfaction Level in Electronic Banking Services*

Indicators	(5) SA	(4) A	(3) MA	(2) D	(1) SD	Weighted Mean	Std. Deviation	Verbal Interpretation
1. I am satisfied with the e-banking services provided by the bank.	85	41	4	0	0	4.52	0.547	Very Satisfied
2. I am more satisfied when I use e-banking services rather than going to the branch physically for my transactions.	64	61	5	0	0	4.45	0.572	Satisfied
3. I am satisfied with the charges for e-banking services.	64	53	13	0	0	4.39	0.665	Satisfied
4. I will strongly recommend the use of online Banking.	75	47	7	0	0	4.53	0.6	Very Satisfied
5. I will continue to use e-banking services in the future.	85	38	7	0	0	4.52	0.592	Very Satisfied
Overall Mean						4.48	0.595	Satisfied

Based on the analysis results from Table 8 above, the e-banking user satisfaction as measured by the faith-based university students shows a total mean of 4.48 and a standard deviation of .595, which is in the satisfied category. Judging from the results of the research, overall, customers are satisfied with the e-banking services provided. This finding is also supported by the statement of Asiyanbi and Ishola (2018), which states that the satisfaction level of customers in the banking industry increases when using e-banking services that are able to provide convenience in transactions so that one can choose. Customers' knowledge about electronic banking, the availability of the service 24 hours a day, seven days a week, and their improvement in controlling their accounts are the important things that determine customer satisfaction in electronic banking. To put it in a nutshell, electronic banking has an impact on reducing customers' time for bank services, improving customer satisfaction, and increasing customers' understanding and utilization of electronic banking.

Table 9

Correlations Analysis on Perception of Services (SERVQUAL) and Customer Satisfaction Variables of the Study

Variables	C Satisfaction	P Responsiveness	P Assurance	P Tangibility	P Empathy	P Reliability
C Satisfaction	1					
Responsiveness	.687**	1				
Assurance	.305**	.162**	1			
Tangibility	.705**	.468**	.233**	1		
Empathy	.567**	.451**	.216**	.521**	1	
Reliability	.309**	.092**	.024**	.321**	.210**	1

** Correlation is significant at the 0.01 level (2-tailed)

Table 9 above shows the correlation analysis of customer satisfaction and perception of services on the five SERVQUAL dimensions that were found to be statistically significant. The correlation between customer satisfaction level (CS) and perceived (P) services of responsiveness, tangibility, and empathy dimensions was found to be very moderately positive and statistically significant ($r = .687$, $p < .001$; $r = .705$, $p < .001$; $r = .705$, $p < .001$). At the same time, customer satisfaction, perceived (P) assurance, and reliability were found to be positively correlated, but the degree of relationship is statistically significant ($r = .305$, $p < .001$; $r = .309$, $p < .001$). These findings revealed a significant relationship between the perceived SERVQUAL dimensions in electronic banking and the customer satisfaction levels of international students. As a result, the null hypothesis, which states that "there is no significant relationship between SERVQUAL dimensions in electronic banking and customer satisfaction levels of international students," is rejected. Other studies also support this affirmation by explaining how SERVQUAL dimensions have an impact on customer satisfaction. In the study entitled "Efficacy of city bus service in Thimphu and Thromde and service need assessment" by Waiba in 2019, the relationship between SERVQUAL dimensions and customer satisfaction is demonstrated.

Table 10

*Regression Analysis on SERVQUAL Dimensions
and Customer Satisfaction in Electronic Banking Services*

Perception of Services (SERVQUAL) Variables	Customer Satisfaction			
	<i>Beta Coefficient</i>	<i>R²</i>	<i>t-value</i>	<i>Sign.</i>
Responsiveness	.424	.473	7.314	.001
Assurance	.119	.093	2.333	.021
Tangibility	.372	.497	5.887	.001
Empathy	.131	.322	2.177	.031
Reliability	.120	.095	2.305	.023

According to the regression analysis, responsiveness was a significant predictor of customer satisfaction ($\beta = .424$, $p < .001$). Thus, responsiveness would lead to customer satisfaction. The value of R^2 for responsiveness is .473; it means that responsiveness is explaining the 47.3% variations in customer satisfaction. The results of the regression analysis showed that tangibility was a significant predictor of customer satisfaction ($\beta = .372$, $p < .001$), and R^2 is 49.7%. The beta value ($\beta = .131$) illustrates the impact of empathy. Here, the significance of R^2 is 32.2%, which means that empathy explains the 32.2% variations in customer satisfaction. Although the results of R^2 for assurance and reliability are below .1 or 10%, the numbers are still very close to .1 or 10% (.093 and .095; $\beta = .119$, $p < .021$; $\beta = .120$, $p < .023$). Thus, they still have an influence on customer satisfaction. In summary, Table 10 showed that all five perceived services in the SERVQUAL dimensions were found to be statistically significant predictors of customer satisfaction with electronic banking services. It implies that customer satisfaction is influenced by all the SERVQUAL dimensions. Therefore, the hypothesis that states “the SERVQUAL dimensions in electronic banking do not influence customer satisfaction” is rejected. In the study “The mediating effect of customer satisfaction on the relationship between electronic banking service quality and customer purchase intention” by Khatooon et al. (2020), it was also shown that the SERVQUAL dimensions have an influence on customer satisfaction.

Comparison of the International

Students' Assessment of the SERVQUAL Dimensions and Satisfaction Level in

Electronic Banking Considering the Demographic Profile

The study tested international students' assessments of SERVQUAL dimensions and satisfaction levels, considering their sex. ANOVA tested age, gadget use, sector or social class, and nationality. The statistical calculation of the electronic banking services in terms of their sex and the one-way analysis of variance (ANOVA) in terms of age, gadget, sector (or social class), and nationality. The results are related to the research question stating, “Is there a significant difference in the customer satisfaction level of international students in electronic banking considering their demographic profile?”

Table 11

Comparison of SERVQUAL Dimensions and Satisfaction Level in Terms of Respondent's Demographic Profile

Moderating Variables	Statistical test	Perception (SERVQUAL)		Customer Satisfaction	
		<i>t</i> -Test/ <i>F</i>	<i>Sig.</i>	<i>t</i> -Test/ <i>F</i>	<i>Sig.</i>
Sex	t-Test	-0.886	0.377	-0.724	0.470
Age	ANOVA	0.546	0.772	1.362	0.235
Sector / Social Class	ANOVA	1.191	0.318	3.433	0.071
Gadgets used	ANOVA	2.238	0.087	1.005	0.393
Nationality	ANOVA	1.386	0.110	1.223	0.220

Table 11 presents the results of the statistical analysis comparing the SERVQUAL dimensions on customer satisfaction level in terms of students' sex, age, sector or social class, gadgets used, and nationality. It showed no difference among each profile, therefore, the hypothesis that states "there is no significant difference in the customer satisfaction level of international students in electronic banking" is accepted.

Conclusion and Recommendations

The SERVQUAL dimensions and customer satisfaction in electronic banking services were assessed in a way to find the results based on the experiences of international students at the faith-based university in Puting Kahoy, Silang, Cavite who had bank accounts and mobile banking under their names during the academic year 2021–2022. The results of the study revealed that the service quality of electronic banking in the Philippines is good, and international students are generally "satisfied" with the use of electronic banking services. The researchers noted that the reasons international students are availing themselves of electronic banking services are that the system itself is more convenient, available 24/7, user-friendly, smoother, understandable, easier, better organized, systematic, faster, reliable, and simple. However, the international students' perception of services is considered only good, with some dimensions perceived as "very good." Moreover, the moderator variables of the study, which are sex, age, sector

(social class), gadget, and nationality, showed no significant difference in the ratings of international students on electronic banking services and customer satisfaction. That is, the level of satisfaction of customers does not change much based on the customer's sex, age, nationality, gadget use, and social class. The researchers recommend the application of SERVQUAL dimensions to enhance electronic banking services. Providers must ensure fair charges for customers (assurance), expand banking products on e-platforms (tangibility), schedule and communicate maintenance activities (empathy), and guarantee uninterrupted services during core business hours (reliability).

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Influence of Financial Stress and Financial Socialization on College Students' Financial Well-being

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This study aimed to investigate the influence of financial stress and financial socialization on college students' financial well-being. A total of 364 college students out of the 375 present at the selected schools participated in the study. The researchers employed a quantitative descriptive research design as their chosen methodological approach. Data analysis was conducted using JAMOWI, a statistical software that processed various measures, including mean, standard deviation, correlation, ANOVA, independent t-test, regression, and moderation. The findings reveal that participants experienced moderate levels of financial stress and worry about their financial condition. However, they also demonstrated positive perceptions and experiences of financial socialization, indicating the importance of financial education and discussions in shaping financial behaviors and attitudes. Furthermore, significant relationships were found between financial socialization, monthly family income, colleges, and year level with financial well-being. These factors were identified as key influencers in shaping students' financial well-being. Based on these findings, recommendations are made to enhance financial well-being among college students. By implementing targeted interventions and support systems, colleges and universities can empower students to make informed financial decisions, reduce stress, and enhance their overall financial well-being.

Keywords: *financial stress, financial socialization, financial well-being*

Many college students move away from home for the first time in college, meeting new people and attempting to achieve a delicate balance between education, relationships, employment, and finances. As college students mature into adults, they are confronted with additional financial concerns, such as paying rent and utilities, managing student debt, applying for credit cards, and developing adult-appropriate financial habits. Academic performance, life satisfaction, quality of relationships, physical and emotional well-being, and financial well-being can all be influenced by a person's financial behavior.

According to the Consumer Financial Protection Bureau (2015), financial well-being is a state of being wherein you have control over your day-to-day finances, have the capacity to absorb financial shocks, are on track to meet financial goals, and have the financial freedom to make the choices that allow you to enjoy life. Other definitions include feeling financially in control, being able to endure a financial setback, being on track to meet financial objectives, and having the freedom to make financial decisions. Achieving financial security is essential for individuals because it can negatively impact their physical, mental, and social health, resulting in poor job performance, an inability to concentrate, decreased productivity, and absenteeism. Currently, the majority of college students confront significant threats to their financial well-being, whereas the majority of adults anticipate overcoming these threats and achieving financial well-being but struggle to do so. Individual assets and opportunities had a significant impact on the success or failure of monetary prosperity. Regardless of disparities in opportunities and resources that result in differences in financial well-being, certain actions can improve the financial well-being of individuals. These behaviors contribute to more informed financial decisions by enabling better future budgeting and management (Fan, 2018).

The college years of students are celebrated as a time of opportunity and development. These

opportunities and expansions are not devoid of disadvantages. Since the majority of students now have a stronger sense of financial responsibility than in the past, finances are frequently one of these issues. As many college students report bearing the burden of college tuition on their own, financial stress has been shown to be highly correlated with anxiety and academic distress (Jones, 2018). Due to a lack of funds, high levels of complexity and general financial responsibilities are associated with financial stress. Additionally, it is the unfulfilled conviction that one is incapable of meeting financial needs, controlling living expenses, and having sufficient financial resources. Financial distress is the polar antithesis of financial well-being and is associated with significant financial shortfalls in meeting individual financial demands.

Finances are frequently one of these issues, as the majority of students are now more financially responsible than ever. Financial stress was noted as a worry among college students by the National Survey of Student Engagement (NSSE) in 2012, with 60% of over 15,000 polled students stating that it had an influence on academic performance. A few years later, financial hardship was also reported as a concern among college students. According to the National College Health Assessment, students ranked finances as the second most distressing or difficult obstacle they encountered during their undergraduate careers, behind academics (American College Health Association, 2018). As many college students report bearing the burden of college fees alone, it has been demonstrated that financial stress is highly susceptible to stress and is associated with academic decline. Therefore, it is essential to improve the financial well-being of young adults. Enhanced financial socialization is one approach (LeBaron et al., 2018) for achieving this objective. Financial socialization refers to the process of comprehending and enhancing beliefs, knowledge, norms, standards, attitudes, and behaviors associated with financial security and individual well-being. Financial socialization

entails the formulation of standards, beliefs, norms, and attitudes that either inhibit or promote the development of financial competence in individuals and enhance their financial well-being. Although financial socialization is essential for understanding the financial behaviors of young adults, literature on the financial socialization process from a young adult perspective is scarce. Due to a dearth of observation and qualitative evidence, it is frequently disregarded that these actions are known (Rea, 2017). This is particularly significant in light of the current financial crisis resulting from COVID-19-related restrictions and limitations, as previous research demonstrates that economic crises disproportionately affect the most financially vulnerable people (i.e., those living below the poverty line).

In reality, students' financial security is challenging to achieve. Initial observations from interviews indicate that the majority of students are occasionally concerned about their own finances. This is due to a lack of reserves for immediate needs and an absence of financial planning, which results in wasteful behavior among students. According to Sabri and Falahati (2012), those who don't know how to manage their money and don't have enough money to purchase fundamental necessities have a lower level of financial well-being.

This study examines how college students evaluate the impact of financial duress and financial socialization on their financial well-being. Financial stress is a condition of concern, anxiety, or emotional tension regarding money, debt, and impending or upcoming expenses. Money is one of the most prevalent causes of stress. Financial Socialization refers to the process by which individuals acquire the necessary skills, knowledge, and dispositions to participate in society as a group. This occurs when individuals interact in social settings to discover how others form their beliefs and conduct.

This study aimed to fill in knowledge gaps with the primary objective of gaining a more comprehensive and accurate understanding of

the financial duress and financial socialization influencing the financial well-being of college students. This study aims to determine whether financial stress and financial socialization have a significant impact on financial well-being. Moreover, this study is anticipated to shed light on the financial health of college students. This research aims to highlight the significance of financial stress and financial socialization to the financial well-being of college students. The students can make prudent financial planning and administration decisions in order to avoid future errors.

Methodology

Research Design

The study was correlational in nature. It quantified the relationship between financial stress, financial socialization, and college students' financial well-being.

Population and Sampling

The respondents of the study were 364 college students from the different colleges of a faith-based university, which were selected through a convenience sampling procedure. About 193 (53%) of them were male and 171 (47%) were female.

Instrumentation

The study utilized a questionnaire for data gathering, which was composed of four (4) major parts: Part 1 (demographic profile), Part 2 (financial well-being), Part 3 (financial stress), and Part 4 (financial socialization). The demographic profile includes age, sex, college, and year level. The questionnaire used a five-point Likert scale from 5 (always), 4 (often), 3 (sometimes), 2 (rarely), and 1 (never) for part 3; 5 (strongly agree), 4 (agree), 3 (slightly agree), 2 (disagree), and 1 (strongly disagree) for parts 2 and 4. The reliability results revealed an acceptable index of 0.912 for financial well-being, 0.931 for financial stress, and 0.856 for financial socialization.

Analysis of Data

Data were collected, encoded, organized, and analyzed using JAMOVI. Descriptive statistics, specifically mean and standard deviations, were used to quantify financial stress, financial socialization, and financial well-being. Pearson product-moment correlation was utilized to describe the relationship between financial stress, financial socialization, and financial well-being. Regression was used to verify predictors of financial well-being. One-way ANOVA, Independent Samples T-Test, and Dwass-Steel-Critchlow-Fligner Pairwise Comparisons were utilized to identify the degree of association between the demographic variables and financial well-being.

Ethical Considerations

Ethical matters were considered in the conduct of the study. The respondents were informed that participation is voluntary, so their consent is necessary with assurance that confidentiality and anonymity are strictly observed. The questionnaires were distributed to the participants personally by the researchers.

Results and Discussions

After gathering enough responses, data were encoded, organized, and analyzed using JAMOVI. Results of the different statistical analysis are discussed as follows:

Financial Stress and Financial Socialization, and Financial Well-Being

Descriptive results for the level of financial stress, financial socialization, and financial well-being of the respondents are presented in Table 1. It shows that the financial stress level of the respondents has a mean ($M = 3.02$) that is equivalent to a response scale of sometimes, and it is interpreted as moderately high. The extent of financial socialization of the respondents has a mean of 3.82, which is equivalent to a response scale of agree, which is interpreted as high. Lastly, the level of financial well-being of the respondents is high, with a mean of 3.84 that is equivalent to a response scale of agree.

Table 1

Descriptive statistics for financial stress, financial socialization and financial well-being

Variable	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
Financial Stress	3.02	.734	Sometimes	Moderate
Financial Socialization	3.82	.473	Agree	High
Financial Well-Being	3.84	.598	Agree	High

Scoring System: 4.51-5.00 = Strongly Agree/Always – Very High, 3.51-4.50 = Agree/Often – High, 2.51-3.50 = Slightly Agree/Sometimes – Moderate, 1.51-2.50 = Disagree/Rare – Low, 1-1.50 = Strongly Disagree/Never – Very Low.

The study indicates that the respondents showed moderately high levels of financial stress and worry about their financial condition in a variety of ways, like paying bills on time, having enough money for daily expenses, and supporting themselves financially during sickness. The results also showed that financial stress can have an impact on personal objectives and overall well-being, like sacrificing personal ambitions due to financial difficulties, believing that financial status has a negative impact on the quality of life, feeling relentless, and worrying about their financial future. Numerous studies have demonstrated the influence of financial stress on goal attainment and overall life satisfaction. Financial stress has been shown to

have a negative impact on overall quality of life, affecting both mental and physical well-being, impede goal achievement and decision-making processes, and decrease life satisfaction and subjective well-being among young adults (Chen et. al., 2019).

The respondents perceived the extent of their financial socialization as high. Their positive perceptions and experiences of financial socialization indicate that they have been exposed to a variety of financial knowledge, skills, and discussions that were primarily influenced by their parents. According to Thompson and Baker (2022), exposure to financial discussions, education, and experiences influenced individuals' financial decision-making and actions significantly. Individuals who were exposed to financial discussions and encouraged to save were more likely to engage in beneficial financial behaviors such as budgeting, debt management, and investing.

The financial well-being of the participants showed that they have strong financial management abilities, trust in their capacity to manage their resources, good financial habits, a proactive approach, and a positive outlook. All of these contributed to their efficient financial management and well-being. Card (2010) posited that people who had a better grasp of financial concepts were more likely to practice responsible financial behaviors like setting aside money for savings, adhering to a budget, and avoiding debt. People who received financial education were more likely to engage in beneficial financial behaviors such as budgeting, saving, and investing (Mandell and Klein, 2009).

Relationship of Financial Stress, Financial Socialization and Financial Well-Being

Table 2 shows the correlation between financial stress, financial socialization, and financial well-being. It reveals that financial socialization is significantly correlated with financial well-being ($r = 0.408$, $p = 0.001$), but financial stress does not correlate with financial well-being ($r = 0.019$, $p = 0.724$).

Table 2

Correlation Results of Financial Stress, Financial Socialization, and Financial Well-Being

	Coefficients	Financial Well-Being
Financial Stress	Pearson Correlation (r)	.019
	Sig. (p)	.724
Financial Socialization	Pearson Correlation (r)	.408**
	Sig. (p)	.001

** Correlation is significant at 0.01 level (2-tailed)

When financial stress and financial socialization were correlated with financial well-being, results showed that financial stress and financial well-being did not significantly correlate, indicating that experiencing financial stress does not necessarily impact one's overall financial well-being and vice versa. However, the correlation between financial socialization and financial well-being was significantly positive, which means that the higher the financial socialization of the participant, the better their financial well-being. Mäkinen & Puhakka (2019) examined the relationship between parental financial socialization, financial skills, and financial well-being in emerging adults, including college students. The findings revealed that financial socialization was positively associated with financial skills and subsequently influenced financial well-being.

Predictors of Financial Well-Being

The results of the regression analysis are shown in Table 3, indicating that the only significant predictor of financial well-being is financial socialization, with an R value of 0.4902 and a p-value of 0.001. Financial stress is not a significant predictor since the p-value is 0.226, greater than the acceptable p-value of 0.05.

Table 3

Regression Results to Determine the Predictors of Financial Well-Being

Predictors	R	SE	Sig. (p-value)
Financial Stress	-0.0512	0.0421	0.226
Financial Socialization	0.4902	0.0626	0.001

The study also showed that financial stress is not a significant predictor of financial well-being. However, financial socialization appeared to be a significant factor in predicting financial well-being. Lee (2020) sought to investigate the relative effects of financial socialization and financial stress on people's financial well-being. The results of their study indicated that financial socialization affected financial well-being more than financial stress. The results imply that the social environment, particularly financial knowledge, attitudes, and actions, determines financial well-being. Positive financial supervision and education during childhood increased financial literacy, money management abilities, and financial responsibility. They were better able to handle financial stressors and make informed financial decisions, improving their financial well-being. The study stressed the importance of early financial education and the role of family, peers, and educational institutions in forming financial attitudes and behaviors. Financial stress may certainly affect financial well-being.

Difference in the Financial Well-Being Considering the Respondents' Profile

The results of the study reveal that the respondents significantly differ in their level of financial well-being when they are grouped according to their income, colleges, and year level. However, financial wellbeing did not significantly differ when grouped by age and sex ($p > .05$).

Family Income

When student participants were classified according to their family income, Table 4 reveals that their level of financial well-being significantly differs across the income groups, with a chi-square value of 25.10 and a p-value of 0.001. The income bracket with the highest mean financial well-being score is the group earning P75,001 and above per month. This group had a mean score of 4.10. This indicates that, on average, families in this income range reported a relatively higher level of financial well-being compared to other income groups included in the data. On the other hand, the income bracket with the lowest mean financial well-being score is the group earning P10,000 and below per month. This group had a mean score of 3.71. This indicates that, on average, families in this income range reported a lower level of financial well-being compared to other income groups included in the data. The data indicates that families with higher incomes ranging from P75,001 and above per month tend to have a higher mean financial well-being score, indicating a relatively better financial situation. Conversely, families with lower incomes ranging from P10,000 and below per month tend to have a lower mean financial well-being score, indicating a relatively more challenging financial situation.

Table 4*Difference in the Level of Financial Well-Being in Terms of Family Income*

Family Income	N	Mean	Median	SD	χ^2	df	(p-value)	ϵ^2
10,000 and below	15	3.71	3.59	0.747	25.1	4	<.001	0.0693
10,001 – 25,000	75	3.87	3.82	0.816				
25,001 – 50,000	171	3.73	3.71	0.503				
50,001 – 75,000	48	3.96	4.09	0.488				
75,001 and above	54	4.10	4.24	0.467				

Respondents with higher family income rated their financial well-being higher compared to those with lower family income. According to Lusardi (2019), higher-income families were more likely to engage in positive financial behaviors such as emergency savings, investing, and retirement planning, resulting in better financial stability and wellbeing.

Sex

Table 5 shows the difference in financial well-being by sex. The data contains male and female categories. The table displays the number of participants for each category, as well as the mean, median, standard deviation, standard error, and p-value. The mean scores for males and females are 3.85 and 3.83, respectively, indicating a slightly higher level of financial well-being for males. Based on the table, the p-value associated with this analysis is 0.539, indicating that the difference in financial well-being between males and females is not statistically significant. The study conducted by Falahati (2011) yielded the same result as the current study. Males and females did not significantly differ in their financial well-being.

Table 5*Difference in the Level of Financial Well-Being in Terms of Sex*

Sex	N	Mean	Median	SD	SE	(p-value)
Male	193	3.85	3.94	0.501	0.036	0.539
Female	171	3.83	3.88	0.693	0.053	

Age

The data in Table 6 shows that there were 288 individuals aged between 18 and 23. They reported a mean financial well-being score of 3.86, with a median of 3.88. Additionally, there were 71 participants aged between 24 and 29. They had a slightly lower mean financial well-being score of 3.79, with a higher median of 3.94. Lastly, there were only 5 participants in the age group of 30 to 35. They reported a mean financial well-being score of 3.71, with a median of 3.71. With a p-value of 0.539, when the respondents were grouped by age, their financial well-being did not significantly differ. Smith (2019) analyzed the financial well-being of adults of varied ages in terms of their income levels, saving rates, debt-to-income ratios, financial contentment, and security. Results showed their financial well-being did not vary when they were grouped by age.

Table 6*Difference in the Level of Financial Well-Being in Terms of Age*

Age	N	Mean	Median	SD	χ^2	df	(p-value)	ϵ^2
18 – 23	288	3.86	3.86	0.608	0.571	2	0.751	0.00157
24 – 29	71	3.79	3.94	0.577				
30 – 35	5	3.71	3.71	0				

Colleges

The differences in financial well-being of the respondents based on colleges are shown in Table 7. According to the data in Table 7, when the respondents were grouped by colleges, their financial well-being differed significantly. According to Kumar (2023), who investigated the potential differences in the financial well-being of students from different colleges, the factors that were considered by students to have different levels of perception on their financial well-being are tuition and cost of living among colleges and universities, availability of financial aid and scholarships, job market and internship opportunities, level of financial literacy, and budgeting skills.

Table 7*Difference in the Level of Financial Well-Being in Terms of Colleges*

Colleges	N	Mean	Median	SD	χ^2	df	(p-value)	ϵ^2
College 1	49	3.71	3.71	0.465	17.7	7	0.014	0.0486
College 2	45	3.95	4.06	0.497				
College 3	68	3.95	3.85	0.770				
College 4	13	4.13	4.24	0.575				
College 5	65	3.84	3.94	0.538				
College 6	17	3.47	3.29	0.745				
College 7	75	3.77	3.82	0.582				
College 8	22	3.89	3.97	0.421				

Year Level

The provided data in Table 8 reveals the difference in financial well-being of the respondents based on year level. Among the participants, 72 were in year level 1. They reported a mean financial well-being score of 3.71, with a median of 3.71 and a standard deviation of 0.507. For respondents in year level 2, with 77 individuals, the mean financial well-being score was 3.85, with a median of 3.82 and a standard deviation of 0.81. Similarly, participants in year level 3 with 81 individuals had a mean financial well-being score of 3.87, a median of 4, and a standard deviation of 0.576. The data shows that for participants in year level 4 with 88 individuals, the mean financial well-being score was 3.82, with a median of 3.94 and a standard deviation of 0.53. Participants in year level 5 with 27 individuals reported a higher mean financial well-being score of 4.29, with a median of 4.29 and a lower standard deviation of 0.261. For participants in year level 6, with 19 individuals, the mean financial well-being score was 3.73, with a median of 3.71 and a standard deviation of 0.334.

Table 8*Difference in the Level of Financial Well-Being in Terms of Year Level*

Year Level	N	Mean	Median	SD	χ^2	df	(p-value)	ε^2
1	72	3.71	3.71	0.507	30.6	5	<.001	0.0844
2	77	3.85	3.82	0.81				
3	81	3.87	4	0.576				
4	88	3.82	3.94	0.53				
5	27	4.29	4.29	0.261				
6	19	3.73	3.71	0.334				

Based on Table 8, with a p-value of <0.001, it appears that there is a significant difference in financial well-being among participants at different year levels. Kumar (2023) also studied the potential difference in financial well-being among college students at various levels. The group discovered a statistically significant difference in the financial well-being of individuals at different year levels after a rigorous statistical analysis and longitudinal tracking of the subjects over numerous years.

Conclusion and Recommendations

The study concludes that the students who participated in the study experienced moderate financial stress and high levels of financial socialization and financial well-being. Financial socialization is correlated with and a significant predictor of financial well-being. This implies that the role of their families, peers, communication media, and education in shaping their financial attitudes and behaviors is very important.

The study recommends that parents should teach their children at an early age (elementary or high school) about financial planning and management to prepare them to handle financial stress, experience a high level of financial socialization, and enjoy a high level of financial well-being.

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Managing Financial Obligations: A College Student's Journey

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This study describes a student's strategies for managing financial obligations. It is based on the narratives of a self-supporting senior who graduated in May 2023 without school balances or debt, despite not receiving any financial support from his family. The specified areas to be identified are the participant's management skills, modes of payment or strategies, and the kind of mindset to solve his standing accounts. The study utilized a descriptive phenomenological research design and used thematic analysis to identify underlying themes. The participant managed his financial obligations through planning, budgeting, discipline, and hard work; in particular, his strategies were proactive problem-solving methods, paying in installments, and trusting in God. It was identified that poverty and laziness are contributing factors to not paying obligations on time. The participant viewed his financial obligations as a journey, a challenge, and a training opportunity. The results imply that paying financial obligations to obtain a college degree requires much planning, energy, determination, faith, and trust in God. Therefore, the study recommends the following: 1) train students in personal finance; 2) strengthen and give more impetus to Adventist educational institutions' work-study program as a confirmed training ground for lifelong skills such as debt management, resourcefulness, and spiritual growth essential to future success; and 3) provide a positive, supportive atmosphere in our educational institutions to sustain especially working students until they graduate and attain their degrees.

Keywords: *relational model, theory of planned behavior, budgeting*

It is not easy to attain a college education nowadays because of the increase in tuition fees brought about by inflation and other factors, but government colleges and universities are offering free tuition to many young Filipinos, though sadly, all of them cannot be accommodated. That is why some students are attending private institutions. But regardless of the tuition fee hike, the Philippines is now classified by the World Bank as a lower middle-income country in 2020, with the workforce termed globally recognized as competitive in the East Asia and Pacific region from its former status as one of the underdeveloped countries (Unido.org, 2023).

One private (adventist) higher educational institution (HEI) in the Philippines has been suffering from non-payment of the students for nearly three years. This private HEI was wholly dependent on the government subsidy known as the Tertiary Education Subsidy (TES). This TES is released to state universities and colleges (SUCs), primarily, but private HEIs can avail of such subsidies if there is no presence of SUCs in the locality (unifast.gov.ph). For several years, this private HEI, the only educational institution that offers many courses in the locality, received a TES subsidy and became wholly dependent on it. However, during the pandemic, the local government of the municipality allowed the opening of a branch of a state university, which disqualified the said HEI from receiving TES subsidies. With that, students of this private HEI can no longer study for free, and they must look for ways to pay their college expenses.

This study is on the side of a student of the private HEI mentioned above, and he will recount his experiences on his college journey and how he was able to pay his financial obligations in obtaining his bachelor's degree. It is an experience that will prove the common saying that poverty is not a hindrance to success, and according to Proverbs 16:3, if a person commits to the Lord everything he does, then God blesses his plans.

The theoretical framework of this study is based on the theories of relational models and planned

behavior, which will help explain the experiences of the participants. The theory of the relational model of decision making is that the decision maker uses facts and information to solve the problem instead of intuition and follows a procedure to finally decide or plan out solutions to address the issues (springer.com, 2016).

Below is Figure 1, showing how the relational model works. The relational model starts with defining the decision situation, then identifying the decision criteria, followed by allocating weights to the criteria, identifying alternatives, evaluating the alternatives, selecting the best alternative out of the possible solutions, implementing the chosen alternative, and evaluating the result.

Figure 1

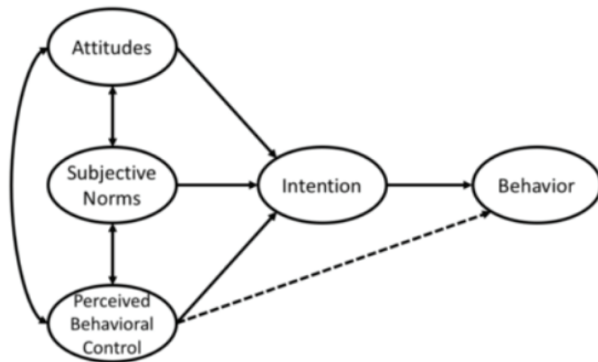
Rational Model of Decision Making



Theory of Planned Behavior

According to the theory of planned behavior in Figure 2, attitudes, subjective norms, and perceived behavioral control all play a role in determining intents, which in turn influence behaviors. Depending on the degree to which a behavior is controlled by the individual and the degree to which perceived behavioral control is an accurate measure of actual behavioral control, external factors may also directly force or prevent behaviors, regardless of the intention. Figure 2 depicts this relationship as a dashed line (Ajzen, 1991).

Figure 2
Theory of Planned Behavior



According to the Theory of Planned Behavior, people behave logically in accordance with their attitudes, arbitrary standards, and apparent behavioral control. Although not often actively or consciously considered, these elements serve as the framework for making decisions. In other words, even if a person does not express a certain attitude, it may still have an impact on their choices (Ajzen, 1991)

Debt Management

According to Calonia (2022), debt can be managed by planning and budgeting, which can be fixed by anyone who has discipline in making periodic payments to reduce the amount of debt over time. Investright.org said that debt is a good financial tool because if you use, for example, credit cards, you can earn points and may use them one day, but too much is not good for your financial health. This website also advises on how to pay debts by identifying all the debts, preparing a budget, and creating a strategy by selecting which one to pay first. If there are still some problems, a financial counselor can be sought for more advice.

It was suggested that universities hold seminars on personal finance to assist graduates in managing their debt so that employers would be delighted to have employees who are financially stable. In Nas Masrom's study from 2022, "Determinants of Debt Management Among Fresh Graduates,"

Lita Epstein (2023) wrote an article on how to pay student loans, which includes paying more than the minimum payments, staying on the budget plan, considering refinancing of loans, even looking for loan forgiveness, and finding different paying programs to slowly pay the debt.

O'Shea (2017) shared that to pay off debt, one needs to have discipline, an article based on real life experiences where individuals and families were able to overcome debt through perseverance, budgeting, and wise financial decisions.

According to Brown (2022), to enjoy the benefits of a secure and independent financial situation, financial discipline is essential. A person with discipline will always be able to manage their money so they don't accrue debt or deal with unforeseen bills.

G. Reid (2020) wrote an article entitled, "The Battle is the Lord's," in which he says that nobody has ever failed to trust God. Those who depend on Him are never let down by Him. We must be well prepared. But after that, we must own our frailty and fully rely on God's ability to deliver us. Although it may be tempting to put our faith in the strength of the government or the value of our retirement funds, in every crisis described in the Bible --- God repaid people's faith by providing for them.

Factors Causing Delayed Payments

In the study on the factors affecting clients on loan repayment for PRIDE microfinance institutions in Arusha, Tanzania, they discovered that a few personal factors, including respondents' education level, family size, loan application amount, and company experience, are positively correlated with loan repayment. Loan repayment was inversely correlated with age, interest rate, and gender change. (Adugna, 2022).

Companies from Eastern and Western Europe most frequently cited "insufficient availability of cash" as the cause of debtors' inability to complete payments on time in Atradius' 2017 survey on payment delays in domestic B2B models. Businesses

in Eastern and Western Europe cited a deliberate effort by the buyer to use “*unpaid bills as a source of financing (overdue liabilities)*” as the second most significant justification. It’s interesting to note that in Eastern Europe, “*formal buyer insolvency (bankruptcy)*” came in third place among the causes of late payments. In Western Europe, the same cause is listed in sixth place. Three more causes are essentially operational in nature and have to do with billing and mailing mistakes or excessively difficult payment processes. (Rogowski, 2017).

As mentioned by Timmer (2019) in his article, poverty often comes with a severe debt burden. In the US, many low-income families (those in the lowest 20%) spend more than 40% of their income on debt repayment alone. Numerous studies have demonstrated that having this much debt impairs people’s decision-making abilities, particularly their ability to prioritize short-term rewards over long-term ones. As a result, poverty itself may lead to alterations in behavior that encourage continued poverty.

Numerous correlates of poverty, such as health issues, violence, and poor economic choices, can both cause people to experience financial hardship and suffer hard from its results. There is general agreement that most people find it difficult to escape the poverty trap, and psychology has a wealth of therapies to help people do so. (Achtziger, 2022).

According to Correspondents and Correspondents (2019) in their article in Independent.ng, a newspaper in Nigeria, unfortunately, no other sickness on the planet is spreading as quickly as this one. The main factor causing poverty is laziness. Laziness is to blame for many of the world’s current significant issues, including food scarcity, the refugee and migrant crisis, the economic crisis, and the financial disaster.

The potential for innovation, contribution, and collaboration is destroyed by idleness. We are robbed of this person’s thoughts because of their

unwillingness to labor. Ideas have great power. Ideas have a greater impact when they are put into practice. Ideas become the programs, goods, and procedures that could benefit a huge number of people (Letford, 2018).

Views on Managing Obligations

A study by Bernardo (2018) revealed that financial stress is something that many Filipinos experience. According to government figures and reports from kids, a sizable portion of people in school-age households struggle financially. Insufficient financial resources were cited as the primary cause of school abandonment by nearly 20% of Filipino students who dropped out of elementary school. The likelihood of dropping out of school was highest among 17-year-olds, especially those from low-income families. Beyond the connection between students’ hope and wellbeing, research has shown that students with hope also exhibit higher levels of engagement, adaptive learning goal orientations, task performance, and academic achievement (Bernardo, Allan B. I. and Resurreccion, Katrina F., 2018).

Americans are accustomed to having debt; for many, it has just been a way of life. The average overall debt balance for all consumer products in 2021 was \$96,371, up 3.9% from the previous year, according to Experian statistics. (Holzhauer, 2023).

Life is a journey filled with lessons to be learned, challenges to face, heartbreak to endure, pleasures to celebrate, and special moments to cherish that will ultimately take us to our goal, our purpose in life. The journey will not always be easy; in fact, there will be many difficulties along the route. (motivateus.com, 2023).

Life challenges are problems and issues that affect your ability to attain goals in life or quality of your life. These include external factors that are beyond your direct control, like rising living expenses, and internal factors that are within your control, like unhealthy habits (Spacey, 2022).

A challenge is anything that demonstrates how you can develop coping and creative abilities personally. They promote personal growth and serve as a tool for self-improvement (Wooll, 2022).

Training is the process of imparting knowledge and abilities that pertain to certain practical capabilities, either to oneself or to others. The purpose of training is to increase one's ability, capacity, productivity, and performance (wikipedia.org, 2023).

Managing financial obligations as a college student is difficult, and this study reflects the experience of a student. This study sought to answer the following questions:

1. How does a student manage its financial obligations to the college?
2. What are the strategies for paying the obligations?
3. What are the contributing factors to not paying obligations on time?
4. How does a student view its financial obligations?

This case study is the experience of a college student and does not in any way represent the experiences of all college students in the HEI where the participant was enrolled. It may, however, be related to some experiences of the participant's classmates and friends in college, but it does not necessarily represent the whole community. Each of us is entitled to our own perception and interpretation of the events that are happening around us, so this research is based on the premise of the researcher's interpretation of the phenomenon. One of the limitations is the brief time of conducting the study; only four months were allotted for finishing it.

Methodology

Research Design

This study used a descriptive phenomenological research design that seeks to investigate the daily experiences of human beings in which

the researcher's preconceived assumptions or ideas are suspended. The researcher sought to understand and describe the college student's experiences.

Participant

The participant in this research, when interviewed, was a senior college student taking up a Bachelor of Science in Accountancy and was enrolled in a private, sectarian higher educational institution in the Philippines. He graduated from the said institution in May 2023.

Research Instrument

An interview guide was shared with the participant so that he could freely share his thoughts during the interview. The interview guide consists of a semi-structured questionnaire where a few specific questions are asked, and the participant can share his thoughts freely (Indeed.com, 2023).

Data Gathering Procedure

First, the consent of the participant was sought if he was willing to share his life's experiences with the assurance of his anonymity in this research. He consented to participate in the study and gladly shared his experiences. An in-depth interview was conducted and recorded, and his answer was transcribed and interpreted using codes and themes.

Validity and Credibility

To obtain the validity and credibility of the study, triangulation was obtained using data and methodological triangulation. Triangulation is the process of studying one phenomenon using several ideas, data, methodologies, and witnesses (Donkoh & Mensah, 2023). Data triangulation was done using interviews with the teachers of the participant if he missed taking his exams and sought the help of the Director of Student Finance by providing the statement of account of the participant during his stay at the college to verify

the credibility of his claims. Data triangulation is the use of various complementary data to study a phenomenon (Naeem, 2019). Meanwhile, methodological triangulation was done to determine if the participant's beliefs, feelings, and perceptions are the same as those of other working students who were in the same situation, with the participant having minimal or no support at all from parents or sponsors. Mixed methods are another name for methodological triangulation. It entails looking at a topic using both qualitative and quantitative research methods (djsresearch.co.uk, 2023).

Data Analysis

This study used “descriptive, thematic analysis,” which is intended to encapsulate and describe patterned meaning in the data. Thematic analysis has these six phases, which were used in the study: 1. Familiarization 2. Coding 3. Searching for theme 4. Reviewing theme 5. Defining and naming themes and 6. Writing the report (Delve, 2020).

The quantitative survey for triangulation purposes was analyzed using the mean, which is the sum of a collection of data divided by the total amount of data, and it implies the average. When comparing multiple sets of data, the mean can be a useful tool (Dudovskiy, 2022).

Results and Discussion

The participant in this research is a male, 23 years of age, who was enrolled in a private HEI. He graduated in May 2023 with a degree of Bachelor of Science in Accountancy and was awarded Cum Laude. He started studying at this private HEI in his senior high school and stayed at the institution for six years. His family dynamics are complicated because he has stepbrothers, stepsisters, half-brothers, and half-sisters. His mother died when he was only one-year old, and he is the youngest of three siblings. After some time, his father remarried a widow who had four children. This second marriage has added three more children. Being a farmer, his father supports his big family with the produce of a

small piece of land that they own, but his income is direly insufficient to send the participant to school. Although his stepmother is a microbusiness entrepreneur, she did not give financial support to the participants in his studies. The participant is a self-supporting student who solely manages his financial obligations to the school, such as tuition fees, books, board, and lodging. The participants stayed inside the private HEI's boarding premises.

The participant, fortunately, became a recipient of the Tertiary Education Subsidy when he was in his second year of college. The TES subsidizes his tuition fees up to P30,000 per semester. Any excess from tuition and other expenses is shouldered by the TES scholars and their families. This section presents the findings of the research problems:

Managing Financial Obligations

There were three identified themes in managing financial obligations by the participant. These include planning, budgeting, and hard work.

Planning

Planning this study is the participant's anticipation of his financial obligations to the college and foreseeing where to get the needed finances. Recollecting his reply to this question, he said, *ginalantaw ko na daan akon mga balayran Ma'am kag ginaisip ko na kon pila akon nga utang. Dayon ginaplanohan ko kon diin ko kuhaon. Labi na gid sadtong wala pa ko TES kay ako lang gid ang gapangita sang akon mga kinahanglanon. (I am foreseeing how much are my obligations and then, I set up plans on how to pay for it. I planned well during those times when I was not yet a TES scholar because I'm the only one looking for ways to finance all my school fees and needs.)*

Budgeting

Budgeting refers to the participant's allocation of his available funds to all his foreseen expenses while discipline refers to his strictly following the planned budget. The participant shared his

management style as follows: *kon may kuarta na ako Ma'am akon na gina allocate sa akon mga balayran dayon indi ko ina pagtandogon ang kuarta kag ibayad ko na lang dayon sa eskwelahan para indi ko magamit sa iban nga bagay. (When I have money, I allocate it to all my possible foreseen expenses and strictly follow my budget. As much as possible, I pay my obligations right away to avoid spending the money on other unintended expenses.)*

Hardwork

Hard work is the participant's way of paying his obligations to the HEI. He is a working student who finds ways to pay his obligations from being a casual worker on the college farm, student guard, working in the faculty homes, tilling the farm of his father, and cashier in a sari-sari store. The participant shared how he was able to pay his obligations to the college: *mangita gid ko pamaagi nga makabayad Ma'am. Sang wala pa ko TES kay nag casual worker ako sa farm, nag student guard, nag work sa mga faculty, dayon sang may TES na ko kinahanglan ko man gihapon ang kuarta para sa akon books kag iban pa nga kinahanglanon so nag bulig ko sa amon uma kag may time nga nagbantay ko sang tyangge sang akon auntie sadtong nagpauli na ko kay pandemic ato. (I find ways to raise money especially during the time when I was not yet a TES scholar. To raise funds, I worked in the college farm as a casual worker, as a student guard, and for my food I work in the faculty homes. When I already have the TES scholarship and that was the time I went home during the pandemic, I still worked for my book and food allowances by farming in our small land and managing a sari-sari store of my aunt.)*

The participant encountered challenges achieving his college degree and was able to hurdle it in the end. He managed his finances well and paid out obligations by careful planning, budgeting, discipline, and hard work. The participant solved his problems by following the theory of relational

model of decision making in which he carefully assessed his situation given that nobody was there to support his study financially. He looked at ways to find jobs and reduced his debts to the college as affirmed by Calonia (2022) where debt can be managed by planning and budgeting and later fully pay the debt over time.

Strategies in Paying Obligations

The participant shared his strategies in paying his obligations. These include proactive problem solving, paying in installment, and trusting in God.

Proactive Problem Solving

The participant did not wait for examinations to be asked by the director of student finance (DSF) to pay his obligations. He had no current obligations in the college for he always finds ways to pay his debt prior to the examination time. He had the initiative to look for jobs to help augment his funds for his tuition and personal expenses. The participant was proactive, rather than, reactive in solving his financial problems. Again, he recollected in answer to this question: *Wala ko ginahulat nga sukton ako sang DSF Ma'am kay nabal-an ko naman pila akon balayran. Ti gapangita na ko daan pamaagi nga makabayad wala pa ang pagkuha sang exam pass. Amo na nga nag-ubra ko bilang student guard sadtong grade 12 ako kag asta nga nag first year college ako kay para makapundo na ko nga daan sang dako sa akon pagpa enroll kag pag eskwela sang college. Dayon naga casual worker man ko sa uma sang school pra makakuarta ko pra sa akon pagkaon kag kon kulang pa gid, gaupod ko sa akon mga friends kag magkadto sa mga faculty homes mangayo sang work para dugang sa pondo. (I do not wait to be asked by the DSF to pay my obligations when I enter college. So, when I was in grade 12, I already started working as a student guard so that I could have more funds in my account until it was enough to pay for my obligations. I worked as a student guard until I finished first year college. I also worked in the college farm because we were*

paid in cash which would cover my food allowances. If I still need additional funds, we looked, with my friends, for work in faculty homes.)

Paying in Installment

Another strategy of the participant was to settle his school obligations before they are due. He articulated his plan in this way: *Sa nasiling ko na kaina Ma'am nga wala ko ginahulat nga sukton ako kay gusto ko nga wala pa ang balayran maamata-amat ko na daan. Kon may ara na ako sang kuarta akon na dayon ginabayad sa tuition or sa books nga akon gin utang. (As I mentioned a while ago, I do not wait for my account to fall due, so whenever I have money, I pay my tuition right away, including books and other fees. In this way, my liabilities are gradually paid out.)*

Trust in God

Trust in God is the participant's belief that God will supply all his needs. He believed that God would grant his prayers and that his plans would be blessed if he surrendered them all to Him. In this regard, his answer was: *Bisan ano pa nga strategy akon ubrahon, kon indi pag-e-bless sang Ginoo ang akon mga plano daw wala man gihapon sang pulos. Amo na Ma'am nga para sa akon, ang pagtugyan sa Ginoo sang tanan kag pagsalig nga iya sabton ang akon pangamuyo, isa gid ka maayo nga pamaagi nga mabayaran ko tanan ko nga mga utang. (Even if I have all the strategies to pay my obligations, if God does not bless my plans, it will amount to nothing. That is the reason why, Ma'am, I trust God that He will answer my prayers and for me, this is the best way of enabling me to pay my obligations.)*

It is also true that the participant was able to pay off his outstanding debt because he carefully planned his actions, which holds true about the theory of planned behavior. Although there were some outside factors, the intent was always to finish his studies. Financial discipline is important to manage debt, according to Brown (2022),

which speaks about the intent of a person to really extinguish their debt at the right time. The participant was able to finish college after four years, with very little help from his family. This is unusual because most working students would take more than four years to graduate from college. His success was attributable to the government subsidy (TES), diligence, and financial planning. When one really has the intention to reach one's goal, it can be achieved, as shared by O'Shea (2017).

It is true that debt can be repaid by proactive problem solving and paying in installments, as affirmed by Lita Epstein (2023), and aside from that, the participant said that planning and discipline amount to little or even fail without God's blessings. This view of the participant is also affirmed by Reid (2020), who says that God repays those who trust in Him rather than those who trust in their own wisdom.

Contributory Factors of Not Paying Obligations on Time

The participant identified the contributory factors that result in not paying the obligations on time. These include poverty and laziness.

Poverty

Poverty is the reason, according to the participant, that a student cannot pay his obligations on time. He believed that a person who was born into a poor family surely cannot pay his obligations on time considering that the income of the family is not even enough for food. His reply is as follows: *Natawo ako sa isa ka dako nga family nga may ara ako sang stepsiblings kag half-siblings dayon nahimo kami nga pulo ka mga bata sa pamilya. Ang kinitaan sang amon giniklanan kulang pa sa pagkaon kag indi na mahatag ang iban pa nga kinahanglanon kaangay sa bayo kag pag eskwela. (I was born in a big family, and I have step siblings and half-siblings and we are ten children all in all. The income of our parents is not enough to feed us so there is nothing left for our other needs such as clothing and education.)*

Laziness

Laziness is another contributory factor of not paying the obligations on time according to the participant. He believed that if a person is lazy, he or she is a procrastinator or does not think of finding ways to pay his obligations. The problem is lack of focus. This is his answer: *Kon ang tawo tamad wala na sya gapaminsar kon paano bayaran ang iya mga utang. Dayon mahambal na sya nga sa dason na lang ko mangita work ah kay kakapoy pa karon bisan wala na siya ubra. Amo na nga gadako na lang ang iya balayran. (If a person is lazy, he does not mind paying the obligations on time. He always says to himself that he will find ways next time because he is so tired from his work when the truth is, he did not have any work. Thus, the reason his debt is piling up or gets bigger.)*

The participants cited poverty and laziness as the contributory factors of not paying obligations on time and this is backed up by some literature. Timmer (2019) affirmed that poverty affects a person's ability to pay his debt and the same with the study of Achtziger (2022) where she mentioned that poverty is like a trap which it is hard to get out. Laziness on the other hand is described by Correspondents and Correspondents (2019) as a disease-causing problem in society including being unable to pay debts. Letford (2018) said that because of idleness, there should have been ideas developed on how to extinguish debt, but this was left undone.

Student Views on Financial Obligations

The participant's view of his financial obligations was collated. The generated themes were journey, challenge, and training.

Journey

The participant viewed his obligations similarly to a journey which will finally lead to something good in the future. At times, he shared that the journey was tough and painful, at other times joyful, but he was determined to look at the bright future. In this

regard, his answer was: *Ang pagbayad sang utang Ma'am kaangay na siya sang pagpanlakaton kag amo na nga part na siya sang akon journey. Kon kis-a masubo, kon kis-a sadya. May mga panahon nga ma experiensyahan ko ang miracles sang Ginoo. Ga expectar ako nga sa unhan may maayo nga palaaboton. (Paying obligations Ma'am is like a journey for me and this is my journey. At times it is sad, at other times, happy. There are times though that I experienced God's miracles. For me, I expect that at the end of the journey, there is a bright future.)*

Challenge

The participant viewed his financial obligations as a challenge instead of an obstacle to his success in studies. To him, as he paid his obligations, it made him mature and resilient and taught him to depend on the Lord even if the problems were tough and difficult. To this query, his answer was: *Ang mga balayran ginakabig ko nga isa ka challenge Ma'am nga gahatag sa akon sang pagsalig sa Ginoo kag gatubo ang akon nga buot kay sige ko paminsar sang pamaagi kon paano makabayad. (For me, obligations are challenges which help me to be more dependent on the Lord for it keeps me to keep thinking on finding ways to pay them and in the process, I grow to become a more mature and resilient person.)*

Training

The participant viewed his financial obligations as a training ground which enabled him to increase his knowledge and skills in solving financial problems. This dire circumstance shaped his positive outlook on life. This was his answer: *Nanamian na ko sang mga problema Ma'am kay para sa akon isa ka training kay sa sige ko ka pangita sang solusyon, damo na ko nabal-an nga mga skills sa ubra dayon sa palaaboton kon makatapos na ko eskwela kag mag-abot nga mga financial nga problema, makabalo na ko mangita sang solusyon. (I positively welcome problems that I encounter Ma'am, for I count them as a training*

opportunity. As I find solutions to my financial problems, I acquired life skills that I can use later in life when the same problems arise, I already have the idea or know-how of what to do.)

Four teachers, who taught major accounting subjects and whom the participant attended in class, were interviewed to verify if he missed any of his exams due to failure to get an exam pass. They were unanimous that the participant was always prompt in taking the exams, and not even one of them could recall an instance in which the participant was late in taking his exams. This happened not just in his first year but until his senior year. The statement of accounts of the participants throughout his stay in the college was also obtained from the Director of Student Finance, and it supported his claims that he paid his accounts by cash installments or got his exam passes on time, and the credits to his account came from his labor reports, especially before the examinations.

In paying off his debt, the participant likened it to a journey, which at times is tough and difficult but at the same time challenging and exciting, until he reaches the end of his journey. This is also affirmed by motivateus.com (2023), which says that there are plenty of ups and downs until reaching one's goals or purpose in life. When the participant views his obligations as a challenge, he is motivated to overcome them no matter the cost, for according to Spacey (2022), life challenges cause external or internal factors that really affect a person's ability to attain goals in life. Further, Wooll (2022) defines challenges as a way or a tool for self-improvement wherein the participant learned to trust in God when external factors seemed insurmountable, sustaining himself by his own efforts, paying what he owed to the school, and finishing college. Lastly, the participant considered his debt as a training ground where he could learn how to budget and develop self-discipline in managing his meager finances. According to Wikipedia.com (2023), training can increase one's capabilities and performance, especially in problem solving.

Conclusions and Recommendations

Arguably, attaining one's dream requires a lot of planning, effort, determination, faith, and trust in God, as experienced by the participant in this study. To manage financial obligations, the following are concluded: proper planning is needed to align activities to achieve a financial goal in extinguishing debt; anticipating the possible expenses and tracking our progress through comparing expenses with budgets so that a person knows what to do next; financial discipline is essential so that one can follow the desired plan. Without discipline, it is unlikely that a person can fully pay his obligations; poverty may be unavoidable, but it is never a reason not to pay obligations. Laziness is the real culprit of not paying obligations, not poverty itself; it takes a positive outlook in life, especially to managing finances and paying outstanding debt, through determination and initiative; the laudable work ethic imbibed and internalized by working students proves a positive blessing and asset to them as they become diligent workers and learn skills such as managing finances, paying debts, and coping with hard times—essential values to life's future success.

From experience and success of the participant, the following recommendations are proposed: business students can have the ability to manage financial obligations through the knowledge they learned during their study, but they also need more training in personal finance; the training will enhance the skills and personal values of students, such as handling finances and more so the value of paying outstanding debts; strengthen and give more impetus to Adventist educational institutions' work-study program as a training ground for lifelong skills such as debt management, diligence, resourcefulness, and spiritual growth as essential to future success; provide a strong moral support and consistent positive atmosphere in our educational institutions to sustain especially working students until they graduate and attain their respective degrees.

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Faith-Driven Success: A Case Study on Thriving Adventist Business Owners

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In today's dynamic and competitive business landscape, businessmen face numerous challenges that test their resilience, adaptability, and strategic thinking. For Adventist business owners, these challenges are further compounded by the unique intersection of their faith and business pursuits. Anchored on Dynamic Capabilities Theory and Sacrificial Dynamite Grounded Theory, this case study aims to explore the specific challenges encountered by Adventist business owners as they navigate the delicate balance between their religious beliefs and the demands of running a successful business. The setting of the study is located in the southern Philippines. Data was gathered through in-depth interviews, focus group discussions, and document analysis. This study was conducted among owners of businesses that have been established for a period of at least seven years or more. The participation of the participants is purely voluntary. Also, the researchers observed the confidentiality and anonymity of the participants. In analyzing, the analysis of Robert Yin is adopted. The challenges faced encompass a range of factors, such as varying beliefs and perspectives, conflicts arising from operating hours, competitors joining forces to undermine the business, and issues related to sales and payment processes. The coping strategies employed involved the "Let go and let God" approach, maintaining clear and consistent communication, recruiting employees who shared the same faith, and improving all aspects of management. In future studies, it would be valuable to investigate the factors that influence the success of businesses within an Adventist context. This exploration would provide insights to develop effective strategies and enhance overall management practices.

Keywords: *Adventist business owners, faith-based entrepreneurship, case study*

In every successful business, there is a vision that turns into a reality. According to Forbes (2018), business is both a science and an art. In the article by Peterson (2018), it is stated that the arts and sciences bring to bear a range of skills, including creative problem-solving, strong communication, and the ability to learn new things, that are critical for any entrepreneur. These skills can help transform a good idea into a great and successful company. According to the study of Griebel et al. (2013), it was emphasized that entrepreneurship is more than just starting and running a new business. Similarly, to the study of Bradley and Klein (2016), entrepreneurship is more than just starting small to medium-sized businesses and starting new businesses that make money. It also involves being independent, creative, and solving problems to improve the quality of life and make the world a better place.

In the article of Doe (2022), the practice of religion and conducting business are not two distinct things but rather the same thing. It also involves seeing opportunities, taking risks, and coming up with new ideas. It has been studied how various religions affect entrepreneurial activities (Audretsch et al., 2013; Griebel et al., 2013; Hoogendoorn et al., 2016; Parboteeah et al., 2015). According to BusinessInsider (2019), Chick-fil-A, a US-based fast food chain, managed to achieve \$10.46 billion in systemwide sales in the United States, despite the fact that the chain remains closed every Sunday.

However, the oversight of approximately 14% of potential business days is believed to have resulted in a financial loss exceeding \$1 billion for Chick-fil-A, as reported by 24/7 Wall Street. In his book "Eat Mor Chikin: Inspire More People," Chick-fil-A's founder, Truett Cathy, stated that closing the business on Sundays, which he referred to as the Lord's Day, was a means of expressing devotion to God and demonstrating loyalty to Him.

The Seventh-day Adventist Church around the world has a long history of business success and a large number of business entrepreneurs (Coleman, 2019). According to Freshbooks (2023), small

businesses require a minimum of 2 to 3 years to become profitable, and it is around a 7- to 10-year milestone that they tend to achieve true success. Based on an article in AdventistWorld.org (2023), The Grey House, a clothing and gift boutique in Estes Park, Colorado, United States, celebrated 10 years in business. This is a significant milestone for many businesses. Stafford, one of the owners, expressed astonishment at the fact that when customers notice the store's closure on Saturdays, they intentionally return the following day. Shoppers regularly comment on how The Grey House is different from many neighboring stores.

Realizing the importance of navigating the delicate balance between religious beliefs and the demands of running a successful business, it is crucial to delve into the unique obstacles faced by Adventist business owners. This study aims to provide valuable insights into the challenges faced by Adventist business owners and shed light on the strategies they employ to overcome these challenges.

Methodology

Research Design

This study utilized a case study research design. A qualitative case study is a research method that employs multiple data sources to investigate a phenomenon within a specific setting. (Baxter & Jack, 2008). In a case study, a real-world situation is examined within its natural setting, with the understanding that context matters (Kaarbo & Beasley, 1999).

Population and Sampling Technique

Purposive sampling is a non-probability sampling technique in which participants are selected based on specific characteristics or qualities that align with the research objective. (Chetty, Partanen, Rasmussen, & Servais, 2014). For this study, purposive sampling was employed to select participants. The sample consisted specifically of Adventist business owners who have

been operating for a minimum of seven years. Data was gathered through five in-depth interviews, one focus group discussion, and document analysis.

Analysis of Data

To ensure an accurate analysis of the data, the researchers, who were also responsible for collecting the primary data, consistently reflected on both the collected data and the data collection process. By employing qualitative data gathering methods like interviews and focus groups, the researchers were able to read, analyze, and organize the data effectively. Following Yin's framework for qualitative data analysis (Yin, 2014), the researchers utilized theme analysis to uncover meaningful patterns and themes within the collected data. Castleberry and Nolen (2018) emphasize that theme analysis is a descriptive framework that aids in the identification, analysis, and communication of major themes or patterns that emerge from the data.

Ethical Considerations

In every research project, ethical considerations play a crucial role in safeguarding the rights and well-being of human subjects by adhering to relevant ethical standards. In this study, the participation of the participants was entirely voluntary, ensuring that they had the freedom to decide whether or not to take part. Furthermore, the researchers prioritized the confidentiality and anonymity of the participants. To protect their identities, any potentially identifying characteristics such as names, addresses, company names, and other personal information were carefully omitted from the research findings. This approach ensured that the privacy and confidentiality of the participants were maintained throughout the study.

Results and Discussions

Establishment of Businesses among Adventist

Embarking on the journey of establishing a business is no easy feat, as it is filled with both challenges and opportunities that hold the potential

for great success. Whether it is a small startup or a large corporation, careful planning, unwavering dedication, and a strong entrepreneurial spirit are essential ingredients for success. With determination, innovation, and a willingness to adapt to changing circumstances, establishing a business can not only lead to personal fulfillment but also contribute to economic growth and the opportunity to make a positive impact in the world (Bhidé, 2022).

It is important to consider the purpose of business, and one significant purpose is to align with Jesus' work of teaching, preaching, and healing, ultimately contributing to the building of God's kingdom. As human beings created in God's image, we possess the potential to create, and when we utilize this ability to create goods and services that enhance the quality of life for others, we are reflecting God's image to others (Cafferky & Jacobs, 2016). By understanding and embracing this purpose, businesses can not only achieve financial success but also serve a higher calling of positively impacting the lives of individuals and society as a whole.

According to the USBA (n.d.), starting a business typically follows a standard process that involves several important steps. These steps include conducting market research to gain insights into the target market and competition, writing a comprehensive business plan to outline the company's goals, strategies, and financial projections, securing funding to support the business operations, selecting an appropriate business location, choosing a suitable business structure (e.g., sole proprietorship, partnership, corporation), selecting a unique and memorable business name, registering the business with the relevant government authorities, and applying for any necessary licenses and permits.

Starting a business requires careful planning, making informed financial decisions, and completing various legal activities to ensure compliance with regulations. By following this standard process, entrepreneurs can lay a solid foundation for their business and increase their chances of success.

This study placed a particular emphasis on exploring the experiences of Adventist business owners and their approach to establishing businesses. According to the participants, they highlighted three key factors in their journey: seeking God first, seeking counsel, and having the determination to start a business. These aspects were identified as crucial elements in their approach to entrepreneurship as Adventists.

Table 1*Data Analysis RQ1*

Categories	Theme
By Asking God's Guidance	Seeking God first
By Promising to God counsel	Seeking
By Giving Gratitude to God	Determination to start a business
By Making Actions	
By Employment Experience	
Consultation	

Challenges Faced by Adventist Businessmen and Businesswomen

According to research conducted by the Small Business Administration (SBA) in the United States, Adventists face a variety of challenges on their entrepreneurial journeys (SBA, n.d.). One of the major challenges they encounter is overcoming the misconception that business and religion are incompatible. Early Christianity mistakenly formed the idea that the pursuit of riches was intrinsically worldly and that true spirituality was associated with monastic poverty. However, the Protestant Reformation revealed that wealth can also be a powerful tool for good (Zwiker, 2018).

The challenges that Adventist business owners confront, according to the participants, are the varying beliefs and perspectives, conflicts arising from operating hours, competitors joining forces to undermine the business, and issues related to sales and payment processes.

Table 2*Data Analysis RQ2*

Categories	Theme
Employee Religious Belief	Varying Beliefs and Perspective
Employee Traits	Conflicts Arising from Operating Hours
Hiring Employees	Competitors joining forces to undermine the business
Rush Hour	Issues related to sales and payment processes
Work Schedule Conflicts	
Competitors Crab Mentality	
Sales and Financial Control	
Payment Policies	

Coping Strategies Utilized by Adventist in Managing their Businesses.

According to Drnovsek et al. (2010), coping is the act of making an effort to address personal and interpersonal issues as well as lowering stress brought on by unpleasant and demanding circumstances. Adventist business owners cope with the challenges by letting God be in charge, maintaining clear and consistent communication, recruiting employees who share the same faith, and improving all aspects of management.

Table 3
Data Analysis RQ3

Categories	Theme
Practice Giving Tithes and Offerings	Let God be Incharge
Commitment to God	Maintaining clear and consistent communication
Power of Prayer and Sharing	Recruiting employees who shared the same faith
Communication to Stakeholders	Improving all aspects of management
Organizing Organizational Structure	
Council to Capable Individuals	
Do Environmental Scanning	
By Adjustments	

Strategies Employed by Successful Adventist Business Owners to Sustain Their Businesses in the Long Term

According to Llopis (2015), many businesses aim to grow, but only a few know how to sustain that growth over an extended period, looking beyond short-term reports. To ensure long-term success, successful Adventist business owners employ the following strategies: faithful service to God, anchoring in Adventist faith, harmonious relationships with employees, embracing the right attitude, building intellectual assets, and strategic partnerships.

Table 4
Data Analysis RQ4

Categories	Theme
Prioritizing God	Faithful Service to God
Attend Sabbath Day	Anchoring on Adventist Faith
Do Tithes and Offerings Employees	Harmonious Relationships with Employees
Grasping to God's Greatness	Embracing the Right Attitude
Do Social Responsibility	Building Intellectual Assets
Connect with Employees	Strategic Partnerships
Employer and Employee Bond	
Strong Adventist Principle	
Resilient Characteristic	
Humbleness	

Sustaining growth requires imparting momentum to others and considering the best interests of the team and coworkers (Llopis, 2015). Successful Adventist business owners embrace diversity of thought to capitalize on original thinking and seize growth opportunities.

The results underscore the interconnectedness of various themes and categories, highlighting the holistic approach adopted by successful adventist business owners. It emphasizes that doing business is not just about financial success but also about ministry. By faithful service to God, anchoring in Adventist faith, having harmonious relationships with employees, embracing the right attitude, and building intellectual assets and strategic partnerships, Adventist business owners can achieve both financial prosperity and spiritual growth.

Conclusion and Recommendation

Therefore, the findings of this study suggest that Adventist business owners who have been in business for 7 years or more employ distinct strategies in managing their businesses, from establishment to sustainability. These strategies encompass various aspects, including seeking God's guidance, seeking counsel, and demonstrating determination to start a business. The categories under these themes include asking for God's guidance, making promises to God, expressing gratitude to God, taking action, considering employment experience, and seeking consultation.

Adventist business owners face various challenges, such as differing beliefs and perspectives, conflicts arising from operating hours, competitors joining forces to undermine their businesses, and issues related to sales and payment processes. The categories under these challenges include employee religious beliefs, employee traits, hiring employees, managing rush hours, resolving work schedule conflicts, addressing competitors' crab mentality, implementing effective sales and financial control measures, and establishing appropriate payment policies.

To cope with these challenges, Adventist business owners employ coping strategies such as letting God be in charge, maintaining clear and consistent communication, recruiting employees who share the same faith, and continuously improving all aspects of management. The categories under these coping strategies include practicing giving tithes and offerings, demonstrating commitment to God, harnessing the power of prayer and sharing, effectively communicating with stakeholders, organizing the organizational structure, seeking counsel from capable individuals, conducting environmental scanning, and making necessary adjustments.

In order to achieve sustainable competitive advantage, successful Adventist business owners prioritize faithful service to God, anchor their

businesses on Adventist faith, cultivate harmonious relationships with employees, embrace the right attitude, build intellectual assets, and form strategic partnerships. The fundamental structure of these strategies includes prioritizing God, observing the Sabbath day, practicing tithes and offerings, acknowledging God's greatness, engaging in social responsibility, establishing connections with employees, fostering a strong bond between employers and employees, upholding Adventist principles, demonstrating resilience, and embodying humbleness.

Further research exploring the factors influencing business success in an Adventist context would be relevant and beneficial. This would help us understand these factors more deeply, develop effective strategies, and enhance overall business management.

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INDRAJIT

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Quality Evaluation of Library Services in a University

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The evaluation of library services in educational institutions is vital for ensuring an optimal learning and research process. This study focused on the quality evaluation of library services at a university by using the Libqual+ method to assess library service quality and user satisfaction. The study aimed to measure and analyze the perceived service quality of the library in a university as perceived by the students as the users, so the management may identify areas for improvement. Understanding user perceptions and expectations of the services offered by university libraries is vital since they play a crucial role in assisting academic activities. The study involved collecting data from library users through a structured survey questionnaire based on the Libqual+ model, which contains three key dimensions: Affect of Service, Library as a Place, and Information Control, to determine users' views of service quality and pinpoint discrepancies between user expectations and actual experiences. Quantitative data from the survey responses were evaluated. The samples used were 149 students at Universitas Klabat. Preliminary findings indicate that there was a significant difference between expectations and service quality received, especially in the areas of service, library as a place, and information control that need further attention. In the future, longitudinal and cross-cultural cross-section groups can reveal variations in perceptions and needs, guiding more tailored service improvements. Furthermore, an impact analysis of the improved service quality can be done in the future to assess the desired outcomes.

Keywords: *libqual+, university library, service quality, perception, user satisfaction*

Education has become a basic need for every citizen, and it is an asset for the future of a country (HS & Irkhamiyati, 2007). Therefore, the government always emphasizes the importance of the quality of education. To support the learning process, adequate facilities and infrastructure are needed, one of which is to optimize the function of the library (Dharma, Budi, & Sugata, 2013). To support the activities of the academic community in the world of education, especially universities, the availability of libraries is very important (Kurniasih, 2018), and libraries are one of the most important sources of information since they are used to prepare information for the teaching and learning process (Nurkertamanda & Wirawan, 2009), improve skills, and add skill experience (Mery, 2015).

The image of the library is positively or negatively determined by the services provided because library users will form a perception, and finally, users will form an assessment of the library (Harisanty & Khotijah, 2016). According to Gustiyono (2016), the success of the library is evident in the high quality of services it offers. Because the expectations of library users are so complex, meeting information needs is not enough if it is not balanced with good service (Rohman & Yulianti, 2016).

In meeting the information needs of library users, library service is one of the keys to the success of library organizations because users will feel satisfied if the quality of the library is good (Iskak & Andriani, 2014). That is why it is deemed necessary for the university to improve the quality of service in order to create satisfaction for library users and enhance students' interest in visiting and using the library.

However, previous research shows that many students are not satisfied with the quality of library services at their universities (Aliza & Ardoni, 2017), especially the development of the era and technological advances have made students less interested in visiting the library because they are more likely to use their gadgets to search for books or readings on the internet compared to searching and reading books in the library (Jayanti & Arista,

2018), and based on the background of the problem, the author wants to conduct a research with the title "Quality Evaluation of Library Services in a University" to analyse if students from different backgrounds have different perceptions towards a library and to see whether there is a difference between their hope and expectations towards their library compare with the actual service experience that they have.

Efforts to measure the quality of service can be known by using several instruments to specifically measure the quality of service there, and the measuring instrument that is more appropriate is to use the library quality plus (Libqual+) method (Fatmawati, 2012), which is a method that measures based on what the users expect or hope for compared to the actual experience of the library users (Komariah, Rodiah, & Saepudin, 2016). Through this method, the library staff can determine the extent of services that have been provided so that they can provide satisfaction, flexibility, and comfort for users (Hasfera, 2018). The library quality method is divided into 3 indicators: the first is Affect of Service, which is the ability and attitude of library staff in serving users (Simahate, 2013); the second is Information Control to see the availability of adequate library materials, the strength of collection materials, or library materials owned (Aliza & Ardoni, 2017); and the last one is Library as a Place, which means the library's ability to display something tangible in the form of physical facilities (Wahyudin, Silvana, & Erwina, 2013) (Restuti, 2013).

According to Rifai (2015), hope is a situation where someone takes an attitude or does something because of motivation, and according to Siagian (2012), the essence of hope theory is that a person's actions and efforts depend on how strong the hope is that the action or effort will get results.

Foster (2004) mentioned that quality is a condition that changes over time to meet current expectations related to products or services. Meanwhile, quality, according to Solomon (2009), is an offer that consumers want in a service. Kotler and Armstorng (2010) state that service quality is

a customer assessment of the overall superiority of unique goods or services. In other words, if the service received or felt is in accordance with what library users expect, the service quality is perceived as good and satisfying (Nawawi & Puspitowati, 2015). And since the university has different students, the authors think that knowing the perceptions of each student might help the library better understand and serve students with different perspectives. Perception, according to Schiffmann & Wisenbult (2015), is the process by which people choose, organize, and interpret something into a meaningful picture. Everybody can have different perceptions even toward the same object, and that is why researchers have come up with the below hypothesis to fulfill this study:

Hypothesis:

- H01: There are no significant differences in perceptions of the quality of services provided by the library based on faculty.
- H02: There is no significant difference in perception of the quality of service provided by the library based on gender.
- H03: There is no significant difference between expectations and quality obtained.

Methodology

Research Design

This study used descriptive methods with a quantitative approach. According to Sudjana & Ibrahim (1989), descriptive research is research that describes a symptom, while the quantitative approach is to explain an event that occurs at this time in the form of numbers (Sudjana, 2004).

Population and Sampling Technique

The population of this study used proportional sampling. According to Sugiyono (2004), proportional sampling considers the elements or categories in the research population. The population of this study was all Klabat University students from each faculty using the Slovin formula.

$$n = \frac{N}{1 + Ne^2}$$

Based on this formula, 97 students will be sampled from a total of 3,558 Klabat University students who are actively enrolled; however, the researcher took 149 samples for precautionary measures.

Instrumentation

A survey questionnaire was used to gather data. There were two parts to the questionnaire. First is the respondent's profile which includes gender and their faculties. The second part is a 5-point scale to measure the hope and the actual experience the users feel in the area of Affect of Service, Information Control, and Library as a Place

Table 1

Reliability Statistics of the Scales Used

	Cronbach's Alpha	Number of Items
1. Affect of Service	.869	8
2. Information Control	.87	9
3. Library as a place	.847	5

Analysis of Data

Data gathered were analyzed through IBM SPSS Statistics, and from the questionnaires gathered from the respondents' below, results are found.

Ethical Considerations

Prior to the administration of the questionnaire, an application was submitted to the assigned reviewer from the research body of the Faculty of Economy and Business, and approval was obtained. Consent was secured for voluntary participation before the respondents answered the research questionnaires, and responses were not associated with their identity. All data was handled with confidentiality.

Results and Discussion

Table 2 presents the items measuring the quality of library services at a university. It is shown in Table 2 that the scores range from 3.27 to 3.4. The highest rated items are “*Smooth access to the information I need*” and “*Availability of devices/gadgets to access electronic reference books*,” while the lowest rated item is “*The library staff gives me their undivided attention*.”

Table 2

Quality of Library Services

Questions	Score
Affect of Service:	
The library staff gives me their undivided attention	3.17
Library staff understand my needs in the library	3.2
Information Control:	
Availability of library staff guidance in the library when needed	3.2
Easy access to relevant and accurate information through catalogue tools	3.2
Smooth access to the information I need	3.4
Library as a Place	
The design of the room as a discussion place that attracts users' interest	3.2
Libraries can inspire reading and learning	3.2
Availability of devices/gadgets to access electronic reference books	3.4

Table 3

Comparison of Perceptions of the Quality of Services Based on Faculty

Group Comparison	Sum of Squares	df	Mean of Squares	F	Sig
Between	.392	6	.392	1.081	.377
Within	51.518	142	363		
Total	53.871	148			

Based on Table 3, it is found that the ANOVA value is 0.377, which means that there is no significant difference in perception of the quality of service provided by the library based on faculty, so H01 is accepted. This result is similar to the study conducted by Mihanović, Batinić, and Pavičić (2016), which found that there is no relationship to student satisfaction based on level; it still depends on the total service quality provided by the university.

Table 4

Perception of Library Services in terms of Gender

	t	df	Sig.	Interpretation
Gender	.864	47	.064	Not significant

Based on the results of the t-test in Table 4, the result is 0.64, which shows that there is no significant difference in student perceptions of library services based on gender, so H02 is accepted. This result conforms to the research conducted by Mosahab, Mahamad, and Ramayah (2010), which concluded that there were no differences in perceptions between genders regarding the quality obtained.

Table 5

Comparison between expectations and the quality obtained by students.

	t	df	Sig.	Interpretation
Expectation vs Quality Obtained	2.96	48	.000	Significant

Based on the t-test (Table 5), it was found that there is a significant difference between expectations and the quality obtained by students, so hypothesis H03 is rejected. This is in accordance with research from Iftadi, Dumayanti, and Puspitasari (2012), which states that oftentimes students feel that there is a significant difference between expectations and the actual quality obtained.

Conclusion and Recommendation

According to the findings, there is no difference in the perception of students towards library services based on their faculties or gender, so there is no need for special treatment for different students' backgrounds since they all perceive libraries in the same way. However, there is a significant difference between expectations and the actual quality obtained, and this needs prompt attention from the management team. All three aspects of libqual+ play an important part in creating a great experience for library users, and the management team may start improving by focusing on the quality of library service items.

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Effect of Social Influence and Financial Literacy on the Saving Behavior of Individuals Across Generations

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Saving adequate money increases future spending and helps people face unexpected bills and financial worries. This study examined how social influence and financial literacy affect saving behavior among Millennials, Gen X, and Baby Boomers. The study employed a descriptive correlational design and utilized a random sampling technique for 173 university employees. The validated survey questionnaire was distributed after getting the approval of the Ethics Regulatory Board. The findings of the study indicate that social influence from family and media was significantly correlated with saving behavior. This study also suggested that an individual's propensity to save is significantly impacted by their exposure to media and the values instilled by their family. Furthermore, the findings indicate that there is no significant correlation between saving behavior among individuals, irrespective of their level of financial literacy. Similarly, there is no difference in the saving behavior among individuals within the same generational cohort. Furthermore, it has been disclosed that the saving behavior of individuals remains unaffected, irrespective of sex and marital status. Based on the results, the practice of saving money should be incorporated into one's lifestyle, irrespective of generational affiliation. To gain a comprehensive understanding of intergenerational saving behavior, further investigation may be warranted regarding the various saving experiences and challenges encountered by individuals.

Keywords: *financial literacy, social influence, saving behavior*

Developing strong saving habits is crucial for adults, as it plays a fundamental role in effectively managing their financial resources for day-to-day expenses. This underscores the imperative of promoting financial literacy among individuals of all age groups and cultivating a favorable social milieu that can shape their propensity to save (Widjaja et al., 2020; Amari et al., 2020; Alshebami & Al Marri, 2022). The saving behavior of individuals is influenced by both social factors (Dangol & Maharjan, 2018; Kamarudin & Hashim, 2018) and their level of financial literacy (Khoirunnisaa & Johan, 2020; Hidayat & Paramita, 2022).

The development of effective saving habits is not inherently ingrained but can be cultivated through the facilitation of promotion, mentoring, and the dissemination of information on financial management via the collective influence of family, friends, and colleagues (Mpaata et al., 2020). Social influence (SI) plays a significant role in shaping an individual's saving behavior, as it entails the process by which individuals observe and emulate the saving practices of those in their social environment (Lotto, 2020). Social influence (SI) can manifest through various mechanisms, including a cyclical process of conformity, the influence of peers, socialization processes, leadership dynamics, loyalty to a group, persuasive tactics, and the promotion of social change (Owusu, Ansong, Koomson, & Addo-Yobo, 2020). Furthermore, Sedera et al. (2017) and Alshebami and Aldhyani (2022) have highlighted that the act of saving can have a transformative impact on an individual's cognition, attitudes, and conduct as a result of their interactions with various individuals or collectives.

According to Chalimah et al. (2019), financial literacy is characterized by an individual's possession of comprehensive knowledge and skills, enabling them to effectively utilize the resources at their disposal to achieve specific goals. Furthermore, Lusardi (2019) conducted a study that revealed the objective of financial literacy is to facilitate the development of financial literacy among

forthcoming cohorts of financial market participants, workers, and the general populace. Additionally, Contreras and Bendix (2021) emphasized that the issue of financial literacy has emerged as a noteworthy challenge within society. The empirical examination of extant literature substantiates the correlation between inadequate financial literacy and suboptimal expenditure, planning, and financial vulnerability in diverse geographical areas and nations. Sabri et al. (2020) posit that a contributing factor to financial distress among individuals and families is their limited financial literacy.

Even the most educated individuals are not always financially prudent (Amari, Salhi, & Jarboui, 2020; Alshebami, & Al Marri, 2020). Financial literacy is low around the world, according to their global comparison, and relatively high-income levels do not directly correlate to a more financially literate population (Mpaata et al., 2020). Therefore, this research aims to examine the effect of social influence and financial literacy of individuals across different generations (Millennials, Generation X, and Baby Boomers) on their saving behavior.

Methodology

This study employed a descriptive-correlational design. Data was collected and analyzed using the survey method to obtain quantitative data on frequencies, means, and standard deviation. Furthermore, inferential statistical tests like Pearson correlation, multiple regression, the T-test, and the Kruskal-Wallis test were also used to determine relationships, influences, and differences.

Population and Sampling Technique

This study was participated by 173 regular employees of a faith-based university who were identified as coming from different generational cohorts, including Millennials, Gen X, and Baby Boomers. Of the 173 who participated, 68 (39.3%) belonged to the group of Millennials, 80 (46.2%) belonged to the group of Gen X, and 25 (14.5%) belonged to the group of Baby Boomers.

Instrumentation

Table 1

Reliability Test Results

Variables	Cronbach's Alpha
Family	.790
Colleagues	.928
Media	.949
Saving Behavior	.880
Financial Literacy	.813

The questionnaire had three parts. The first part contained the demographics of the respondents. The second part included questions about the social influence on working individuals across generations, using family, colleagues, and media as subdimensions. The Likert scale was used to answer the questions, ranging from *Strongly Disagree* (1), through *Disagree* (2), *Moderately Agree* (3), *Agree* (4), up to *Strongly Agree* (5). The third part of the questionnaire includes objective-type questions that gauged the respondent's financial literacy through 15 cognitive-type questions about financial literacy, which were answered with "yes" or "no.". The respondents were asked to encircle the choice that corresponded to their answer. The correct answers were numerically assigned to 1, and the wrong answers were 0. This scoring guide was adapted from Potrich et al. (2020).

Analysis of Data

The mean and standard deviation were used to determine the extent of social influence, the level of financial literacy, and the extent of saving behavior among the Millennials, Gen X, and Baby Boomers. Pearson's correlation was used to determine the relationship between social influence and financial literacy to saving behavior. A significance level of 0.05 with a 95% confidence level was used in the statistical test. Multiple regression was used to determine the influence and predictability of social influence and financial literacy on saving behavior. Further, a T-test was used to determine the differences in the saving behavior of employees

when they were grouped according to sex and marital status.

Ethical Considerations

The researchers seek the approval of the University Ethical Board Committee before the distribution of the questionnaire to the respondents. Also, consent was requested from the respondents to ensure their voluntary participation in the study.

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Results and Discussion

Social Influence

According to Spadine and Patterson (2022) and Beshears et al. (2018), social influence is the change in an individual's thoughts, feelings, and behavior after interacting with individuals or groups of individuals.

Table 2 shows the extent of social influence on the saving behavior of Millennials in terms of family, colleagues, and media. The results show that families have a high extent of social influence when it comes to the saving behavior of millennials, generation X, and baby boomers. When it comes to social influence in terms of colleagues, the results are moderate, low, and moderate, respectively, for the millennials, generation X, and the baby boomers. Furthermore, the results indicate a high extent of social influence in terms of media across all generations.

Table 2

Social Influence of Millennials, Generation X, and Baby Boomers in terms of Family, Colleague, and Media

Generation	Dimensions of Social Influence	Mean	SD	Scaled Response	Verbal Interpretations
Millennials	Family	4.13	.554	Agree	High
	Colleague	2.72	.854	Moderately Agree	Moderate
	Media	3.29	.783	Moderately Agree	Moderate
Generation X	Family	4.13	.620	Agree	High
	Colleague	2.36	.750	Disagree	Low
	Media	2.64	.857	Moderately Agree	Moderate
Baby Boomers	Family	4.2	.735	Agree	High
	Colleague	2.61	.671	Moderately Agree	Moderate
		2.63	1.010	Moderately Agree	Moderate

Scoring System: 1.00-1.50 = Strongly Disagree, 1.51-2.50 = Disagree, 2.51-3.5 = Moderately Agree, 3.51-4.50 = Agree, 4.51-5.00 = Strongly Agree

The result indicates that the respondent's financial decision-making is heavily influenced by their families, their colleagues, and the media as well. Kim, et. al. (2017) and LeBaron et al. (2018) stated that financial decisions made by individuals are not made alone but are affected and made in consideration of their respective families.

As shown in Table 2, the family garnered an overall response of agree (M=4.13, SD=.620) which is interpreted as a high extent of social influence. The result implies that family is regarded as a source of

inspiration when it comes to the saving behavior of the respondents. According to Angela and Pamungkas (2022) parental socialization, financial literacy, peer influence, and self-control are among the factors that positively and significantly influence an individual's saving behavior. Furthermore, parental modeling is regarded as a strong source of influence when it comes to saving behavior (Rosa et al., 2018). Additionally, studies also revealed that the reasons for saving include saving to be prepared for emergencies or unforeseen changes in expenses (West et al., 2017; Maroto, 2018).

The results also showed that colleagues have a moderate extent of social influence when it comes to the saving behavior of the Millennials and the Baby Boomers. The result indicates that the respondents' financial decisions and financial behavior are influenced by their colleagues in a moderate level only. Millennials value relationships formed in the workplace in which they can share support, confidence, and care (Yap & Zainal Badri, 2020). According to Keeter (2010) and Badri, et al. (2021), millennials are the first "always connected" generation in history. On the other hand, Baby Boomers developed financial independence because during the time they were developing their in-depth understanding of their finances, the economy was still developing, they also tended to be extremely conservative and cautious (Anastasia et al., 2019). It is also affirmed by Firli and Hidayati (2021) that boomers do not require constant feedback from others and have a different mindset when it comes to flexible retirement planning.

The findings of the study also showed that Generation X sees colleagues as having a low extent of social influence when it comes to saving behavior ($M = 2.36$; $SD = .750$). The result implies that Gen X is not influenced by their colleagues when it comes to their saving behavior. According to Klipfel (2020), due to many members of Generation X who grew up with both parents working, learned to be resourceful, responsible, and self-sufficient, which is why they are viewed as independent.

As shown in Table 2, the respondents across all generations moderately agree that media is a form of social influence when it comes to saving behavior. This is interpreted that the Millennials, Generation X and the Baby Boomers moderately agreed that media plays a vital role in their saving behavior. According to Cao et al. (2020) and Florendo & Estelami (2019), numerous financial institutions have begun emphasizing the provision of educational programs that integrate a vast array of social media platforms to reach consumers who are interested in acquiring financial knowledge.

Financial Literacy

Financial literacy pertains to the set of knowledge, attitudes, and behaviors that are significant for making financial decisions. It consists of the combination of knowledge and abilities that enable someone to make sensible financial decisions as a result of their understanding of financial matters (Viera, 2012).

Table 3 below shows the summary of the results of the respondents' responses. The results are classified according to the generation they belong to.

Table 3

Financial Literacy of Individuals Across Generations

Generation	N	Mean score	SD	Verbal Interpretations
Millennials	68	7.6	1.79	Moderate
Generation X	80	7.9	1.64	Moderate
Baby Boomers	25	8.28	1.31	Moderate
Financial Literacy of Individuals Across Generations	173	7.84	1.66	Moderate

Scoring System: 1-4 = Low, 5-9 = Moderate, 10-13 = High

All generational cohorts were in the same range of scores. The results imply that each generation has a moderate level of financial literacy. As shown in the table, the generation with the highest mean is the Baby Boomers ($M=8.28$, $SD=1.31$) followed by Generation X ($M=7.9$, $SD=1.64$) and Millennials ($M=7.6$, $SD=1.79$). This is consistent with the findings of the studies of Henager and Cude (2016) and Dewi et al., (2020) in which they concluded that with time and experience an individual's financial knowledge improves suggesting that exposure to different financial matters helps one grasp it better and have a better understanding of it.

Saving Behavior

Saving may be perceived as a positive financial behavior that results in the financial security and well-being of households and individuals. Savings for a short period or emergency funds can cover urgent or unexpected costs. While long-term savings provide possibilities for people to prepare for future needs (Brochado & Mendes, 2021; Zaimovic et al., 2023).

Table 4

Saving behavior of Individuals Across Generations

Generation	N	Mean	Std. Deviation	Level of SB
Millennials	68	3.98	0.88	Good
Generation X	80	3.56	0.95	Good
Baby Boomers	25	3.85	0.94	Good
Saving behavior of Individuals across Generations	173	3.80	0.93	Good

The results show that all generational cohorts were in the same range of scores. The results imply that each generation has a good level of saving behavior. As shown in the table, the generation with the highest mean is the Millennials ($M=3.98$, $SD=.88$) followed by the Baby Boomers ($M=3.85$, $SD=0.94$) and Generation X ($M=3.56$, $SD=0.95$). In a study conducted by Bona (2019), millennials are more interested in what will happen to them over the long term than in the immediate future, and they save money to achieve financial freedom. Gen X are cautious with their financial decisions. They tend to consider varied things before making their financial choice.

Social Influence and Saving Behavior

A person's interaction with other individuals can influence their actions, beliefs, and habits. They can be influenced into developing good habits, and sometimes bad ones. Social influence from various sources has been seen to shape and alter their thoughts, feelings, and attitudes, as a result of their interactions with other individuals (Hu et al., 2019). Table 5 presents the correlation analysis between social influence and saving behavior.

Table 5

Correlation Between Social Influence and Saving Behavior

		Saving behavior	Verbal Interpretation
Social Influence	Pearson Correlation	.415**	Significantly Correlated
	Sig. (2-tailed)	.000	
	N	173	

[table continues on the next page]

Family Influence	Pearson Correlation	.478**	Significantly Correlated
	Sig. (2-tailed)	.000	
	N	173	
Colleague Influence	Pearson Correlation	.141	Not Significantly Correlated
	Sig. (2-tailed)	.063	
	N	173	
Media Influence	Pearson Correlation	.308**	Significantly Correlated
	Sig. (2-tailed)	.000	
	N	173	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The results revealed that the social influence generally is correlated with the saving behavior ($r=.415$, $p=.000$) of the participants of the study. Furthermore, the different indicators of social influence such as family influence ($r=.478$, $p=.000$) and media influence ($r=.308$, $p=.000$) were positively correlated with the saving behavior of the participants of the study. The degree of relationship is moderate and low, respectively. However, colleague influence ($r=.141$, $p=.063$) is not statistically correlated with the saving behavior of the participants. From these results, family influence has a higher degree of relationship compared to the other indicators of social influence. Studies have shown that parental influence on the financial behaviors of individuals extends beyond childhood and is associated with the financial outcomes of emerging adults (LeBaron et al., 2020). Additionally, Homan (2016) emphasized the crucial function of different parental teachings received during childhood, such as parental modeling, financial discussion and guidance, and habit formation mechanisms, on an individual's development of saving and borrowing behavior. Furthermore, Sari et al. (2021) studied the effects of parental socialization and peer influence on the saving behavior of millennial generation workers and discovered the role played by parents to be substantially greater.

Financial Literacy and Saving Behavior

Table 6 presents the correlation analysis between financial literacy and saving behavior.

Table 6

Correlation Between Financial Literacy and Saving Behavior

		Saving behavior	Verbal Interpretation
Financial Literacy	Pearson Correlation	.415**	Not Significantly Correlated
	Sig. (2-tailed)	.000	
	N	173	

The results revealed that the relationship is not statistically significant at the .05 level. Therefore, the null hypothesis that states there is no significant relationship between financial literacy and saving behavior is accepted. This means regardless of the respondents' financial literacy level, the saving behavior remains the same.

Predictors of Saving Behavior

Table 7 summarizes the variables that influence the saving behavior of the respondents. The results show that among the social influence indicators, family and media influences significantly influence the saving behavior of the respondents in various generations ($F(2,170)=34.21$, $p=0.000$). The total variance accounted for by the significant predictors is 28.7%. Of these variances accounted for, 22.9% is accounted for by family influence and 5.8% by media influence. The positive beta coefficients imply a direct relationship between the predictors and the criterion variables.

Table 7

Predictors of Saving Behaviors of the Respondents for Various Generations

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R-square	R-squared change
		B	Std. Error	Beta				
1	(Constant)	27.884	4.062		6.865	.000		
	Family Influence	6.904	.970	.478	7.121	.000		
2	(Constant)	23.121	4.120		5.611	.000		
	Family Influence	6.395	.945	.443	6.769	.000	.229	.229
	Media Influence	2.372	.636	.244	3.727	.000	.287	.058
		$F(2,170)=34.21$		$P=.000$				

a. Dependent Variable: Saving behavior

According to a study done by Deenanath et al. (2019), it has been observed that even if they are not talking about it directly, parents can communicate their beliefs, expectations, and attitudes toward money to their children. Hence why the influence of family is greater than media and colleagues.

Differences in saving behavior

Table 8 shows the differences in saving behavior of the respondents when grouped according to sex. The results revealed that there is no significant differences in the saving behavior of the respondents from the different generations when sex is considered. The results implied that saving behavior do not actually vary with sex. Therefore, the null hypothesis stating that there is no significant difference in the saving behavior of individuals when grouped according to sex is accepted.

Table 8

Differences in Saving Behavior according to sex

Generation	Sex	N	Mean	Sig (2-tailed)	Interpretation
Millennials	Male	26	58.50	0.331	Not Significant
	Female	42	60.38		
Gen X	Male	35	55.31	0.086	Not significant
	Female	45	51.96		
Baby Boomers	Male	14	58.93	.0478	Not significant
	Female	11	56.27		

Table 9 shows the differences in saving behavior of the respondents when grouped according to marital status. The results revealed that there is no significant differences in the saving behavior of the respondents from the different generations when marital status is considered. The results implied that saving behavior do not actually vary whether one is single or married. Therefore, the null hypothesis stating that there is no significant difference in the saving behavior of individuals when grouped according to marital status is accepted.

Table 9*Differences in Saving Behavior According to Marital Status*

Generation	Sex	N	Mean	Sig (2-tailed)	Interpretation
Millennials	Single	30	60.13	0.656	Not Significant
	Married	38	59.28		
Gen X	Single	4	51.25	0.610	Not significant
	Married	76	53.54		
Baby Boomers	Single	1	42.00	0.075	Not significant
	Married	24	58.42		

Conclusion and Recommendation

A person's saving behavior might be influenced by a variety of factors. Among them is social influence, which comes from different sources including family, colleagues, and media. According to the study, the financial decision of each generation is highly influenced by their family. Parental teaching plays an important role in an individual's development as saving money is an important lesson they can learn as a child. Such learnings serve as the foundation for managing their finances. This aligns with social cognitive theory which highlights the important connections between a person's environment and behavior. This theory contends that as these components interact with each other it establishes the basis for behavior and possible modifications to it. Moreover, many individuals consider their family first in managing their financials. Results also indicate that their family serves as one of their motivations to save. Individuals belonging to Millennials and Baby Boomers have also a moderate tendency to be influenced by their colleagues to save. For instance, if a person's social circle values saving and frugality, they may be more inclined to save and invest their money. All generations showed a moderate level of media influence with Millennials as the highest among the generations. Through media, they can learn information regarding financial management and various saving options. However, certain individuals, specifically the older generations like Baby Boomers and Generation X, tend to be more careful with their finances and how they take information and financial advice they receive from the media.

As for the other factor discussed in this study, all generational cohorts showed a moderate financial literacy level. Although many believed that financial literacy is directly attributed to an individual's saving behavior, the results of the study showed differently. The findings of the study suggest that the saving behavior of each generation does not differ significantly from each other.

Needing to save is consistent with the three generations (millennials, generation X, and baby boomers). The findings of the study disagreed with the generation cohort theory which supports the premise that saving behaviors vary due to generations. A common trait they all possess is how they compare the prices of the items they want to purchase. This is a big part of having sound saving behavior because once an individual establishes that they can get something for a cheaper price, they can get more savings out of that transaction.

Based on the study, social influence in general is correlated with the respondents' saving behavior. The family and media influence showed a positive correlation with saving behavior with family influence being higher. The colleague influence, however, does not have a significant correlation. The study reveals that there is also no significant relationship between an individual's financial literacy level and saving behavior. This implies that the saving behavior of an individual remains the same regardless of the level of financial literacy.

Among the factors used in this study, the results indicate that family and media influences are the social indicators that are considered predictors of saving behavior. There is a direct relationship between the predictors and the saving behavior of respondents.

According to the results of the study, the moderator variables used in this study, sex, and marital status, have no significant influence on an individual's saving behavior. Although a difference between the mean scores of males' and female's saving behaviors was shown, it is not significant, similar to the respondents' marital status. This means that regardless of the participant's sex and marital status, their saving behavior remains the same.

Based on the results, the practice of saving money should be incorporated into one's lifestyle, irrespective of generational affiliation. To gain a comprehensive understanding of intergenerational saving behavior, further investigation may be warranted regarding the various saving experiences and challenges encountered by individuals.

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I Will Stay: A Case Study of Employee Longevity in Davao Mission

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The difficulty of retaining talented employees is global and is also common in the Philippines. Employers find that the best ones are leaving for better job opportunities. Several studies on employee longevity find that there is a knowledge gap on topics related to dynamics that influence employee retention. This qualitative case study delved into the dynamics influencing employee retention in Davao Mission, an institution known for its long-term employees who had been serving the organization for more than a decade. Results of in-depth interviews with participants revealed that the enduring commitment of these employees is attributed to various dynamics, namely, collaborative work settings, intimate communion with God, compensation and benefits, a structured organizational system, an employee-friendly workplace, God's calling, and physical fitness initiatives—echoing the principles of Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory of Motivation. Furthermore, the employees' retention stemmed from their profound sense of comfort in the workplace, a deep feeling of belonging and camaraderie with colleagues, bolstered confidence in their duties owing to the religious environment, and a sense of familial support. Ultimately, the employees of Davao Mission remained focused on their continued pursuit of God's calling, ministerial growth, and the strengthening of their relationship with God. Thus, it is important to create a work environment that fosters belongingness and familial support, as well as a strengthened relationship with God, to establish retention among employees. Conducting a quantitative analysis to measure the results obtained is recommended for future studies.

Keywords: *employee longevity, turnover, motivation, qualitative case study*

An organization is an entity such as a company, an institution, or an association comprising one or more people, having a particular purpose, and where the employees exist (Dubey & Al., 2016). Employees have been important resources for any organization. Based on their critical character, they can be called the lifeblood of an organization. According to the study of Hughes et al. (2000), employees stay in the organization due to job satisfaction, the company environment, and the degree of comfort an individual employee feels within. The wide range of implications of the quality of service of any organization, which basically comprise the loyalty, commitment, dedication, trust, and coordination within the workplace and on the work of functions that the employees perform, is the result of employees' longevity (Reyes, 2018). There are many reasons why employees stay in the organization, such as the location of the workplace, job security, employee-employer relationship, and working conditions (Salcedo, 2016).

Nowadays, retaining talented workers is a global problem in an economy that is becoming more and more globalized. The manufacturing sector worldwide is one of those that is currently experiencing a shortage of workers. In the US, the number of people leaving their jobs surged in August, reaching 2.9 percent of the workforce (in 2020, the monthly quit rate ranged from 1.9 to 2.4 percent). Additionally, the Workforce Learning Report of LinkedIn's survey result last year shows that 94% of workers say they would stay with the same company longer if their employer helped them get more learnings (Hess, 2019). But basically, if an organization does not have a balanced degree of turnover, it will result in a monotonous system, and that company will lack access to innovative ideas, change, dynamism, and innovation. Turnover effects profitability and employee's satisfaction (Koys, 2001).

In the Philippines, employee longevity is a reality that has to be dealt with seriously. It is a common occurrence in the Philippines that employers find

it too difficult to find and retain the right people for the simple reason that the best ones are leaving for better-paying jobs abroad (Schulze 2002).

According to the study by Laya (2014), among the 165 faculty members in selected higher education institutions (HEIs), 21% of the reasons for turnover intention are due to organizational climate, emotional competence, and organizational commitment. Also, the study by Dela Peña (2018) discovered that leadership conduct has a substantial impact on employees' intentions to leave their employment and that turnover intention provides a novel viewpoint on how even satisfied workers may opt to leave their positions. Furthermore, according to the study of Mendoza and Gempes (2018), is that leadership behavior, management policy, and personal relations are always monitored to ensure the well-being of the employees.

The purpose of this study was to determine why workers remained within the organization. This study uses a qualitative case study research design to look into and provide a detailed insight and analysis of what workers brought to the table and the reasons why they stayed within the organization. The researchers gathered information on how the experiences of the workers affected their 10 or more years of employment within the organization. Finally, this study investigates why workers remain within the organization for a longer period of time. The researchers explored and responded to the participants' experiences with workers' longevity in the organization using a case study approach. More precisely, the researchers in this study concentrated on looking at potential explanations for workers' longevity.

Methodology

Research Design

A case study is qualitative research that entails a thorough, contextualized scientific investigation (Burawoy 2009; Stake 2005; Yin 2014). A case study can require the interaction between self and environment and the collection of data from at least

two sources, such as observation, interviews, and documents (Garcia & Gluesing, 2013; Lunney et al., 2015). This study uses a case-study research design. A qualitative case study is a research method that employs multiple data sources to investigate a phenomenon within a specific setting. (Baxter & Jack, 2008). In a case study, a real-world situation is examined within its natural setting, with the understanding that context matters (Kaarbo & Beasley, 1999).

Population and Sampling Technique

The researchers have chosen 13 participants in this study. The participants chosen are workers who are still working at Davao Mission. In the selection of participants among the workers, the following criteria will be adopted: (1) participants must be bona fide workers at the Davao Mission; (2) they work full-time at the pastoral department and in the business office; (3) the participants must have 10 years or more of working experience (Doyle, 2021). (4) their first employment must be in the Davao Mission; and (4) they must be qualified to meet the mentioned criteria and have the willingness to participate. According to Prieto (2014), purposeful sampling, a non-probability sampling strategy in which researchers specify a certain size for the sample and employ a set of criteria for how study participants were picked, was used to select participants. This strategy enables researchers to select participants with greater specificity than probability sampling. The researchers chose these individuals because they have enough valuable knowledge and experience when it comes to the phenomenon tackled in this study.

Analysis of Data

Data analysis, according to Guo (2016), is an analytical assessment of data. For effective application of efficient data analysis, researchers rely on empirical reasoning (Yin, 2017). Researchers utilize data analysis to organize, and report acquired data from a research study (Lewis, 2015).

In qualitative research, data analysis is defined as the act of carefully finding and organizing interview transcripts, observation notes, or other non-textual resources accumulated by the researcher in order to gain a better understanding of the phenomenon (Bogdan & Biklen, 1982). The researchers in this study performed a thematic analysis to derive meaning from the data collected. Thematic analysis, according to Braun and Clarke (2006), is a method for studying qualitative data that involves searching over a data collection to locate, interpret, and report repeating patterns. It is a data description approach, but it also requires interpretation in the processes of selecting codes and generating themes.

Ethical Considerations

Ethical considerations can be specified as one of the most important parts of the research (Bryman & Bell, 2007). Issues such as privacy, honesty, openness, and misinterpretation are subject to different ethical matters in the interaction between the researchers and the participants (Condit et al. 2015). The use of ethical considerations in a study assures the credibility of the research (Hammersley, 2015). It is essential to show respect to each other in accordance with one's ethical manner to prevent any misunderstanding during the interview. Researchers must make every possible effort to mitigate any potential harm to participants by ensuring confidentiality, obtaining informed consent, and protecting the participants' rights to privacy (Wall & Pentz, 2015). Richards and Schwartz (2002) state that anonymity, confidentiality, and informed consent are ethical considerations.

Results and Discussion

Motivations that made a worker stay

Motivation is considered a force that drives employees toward attaining specific goals and objectives of the organization (Shahzadi, 2014). A meaningful construct is a desire to satisfy a certain want and is a central pillar at the workplace. Thus, motivating employees adequately is a challenge, as

it has what it takes to define employee satisfaction at the workplace. Hence, it has always been at the apex of the national agenda and is evident in the number of strike actions in the public service (Forson, 2021). Motivation is considered one of the most imperative matters in all organizations, no matter whether it is in the private or public sector (Baldoni, 2005b). "Motive" means the wants, desires, and needs of an individual. Therefore, employee motivation refers to a procedure where organizations inspire their employees with bonuses, rewards, increments, etc. to achieve organizational goals.

Table 1*Data Analysis RQ1*

Formulated Meanings	Formulated Themes
Collaborative Work Setting	Relationship and Communication Environment and Atmosphere Work Ethic
Divine Assignment	Divine Calling and Direction Ministry and Service Sacred Duty and Purpose Personal Relationship with God
Intimacy with God	Provision and Security from God Strengthen Faith and Relationship to God Community and Service

Organizational Practices that make a Worker to stay

Organizational practices are vital to making a worker stay. Additionally, the study of Reyes (2018) shows some practices that makes workers stay in the organization and these are implementing a flexible work schedule and remote work options allows employees to better balance their personal and professional lives, fostering a sense of work-life balance and job satisfaction second is recognition and appreciation programs that acknowledge employees' contributions and milestones create a positive and motivating work environment, increasing employee loyalty and last is providing opportunities for skill development and career growth within the organization demonstrates a commitment to employees' professional advancement, making them more likely to stay with the company long-term. Employees tend to prefer working for an organization that is aligned with their own values. Additionally, organizations that have a strong, positive culture and promote inclusivity, diversity, and ethical practices tend to better retain their employees (Gallup, 2016). Hence, organizational culture helps improve workflows and guides the decision-making process. It also helps teams overcome barriers of ambiguity. Team members who are informed and knowledgeable about certain processes are often more motivated to finish projects.

Table 2*Data Analysis Summary*

Categories	Themes
Advantageous Benefits	Compensation and Benefits Healthcare Benefits Education and Training Personal and Professional growth Travel and Outings Organizational Activities

[table continues on the next page]

Structured Organizational System

Organizational Structure
Program Planning and Execution
Work Distribution and Delegation
Overall satisfaction and Success
Employee-Friendly Workplace
Positive Work Environment
Strong Relationship
Teamwork and Collaboration
Employee Support and Appreciation
Positive Attitude and Mindset
Prayer and Devotional Practice

Spiritual Enrichment

God's Relationship and Work
Spiritual Growth and Enlightenment
Employee Well-being and Holistic Practices
Employee Physical Enhancement

Physical Fitness Initiatives

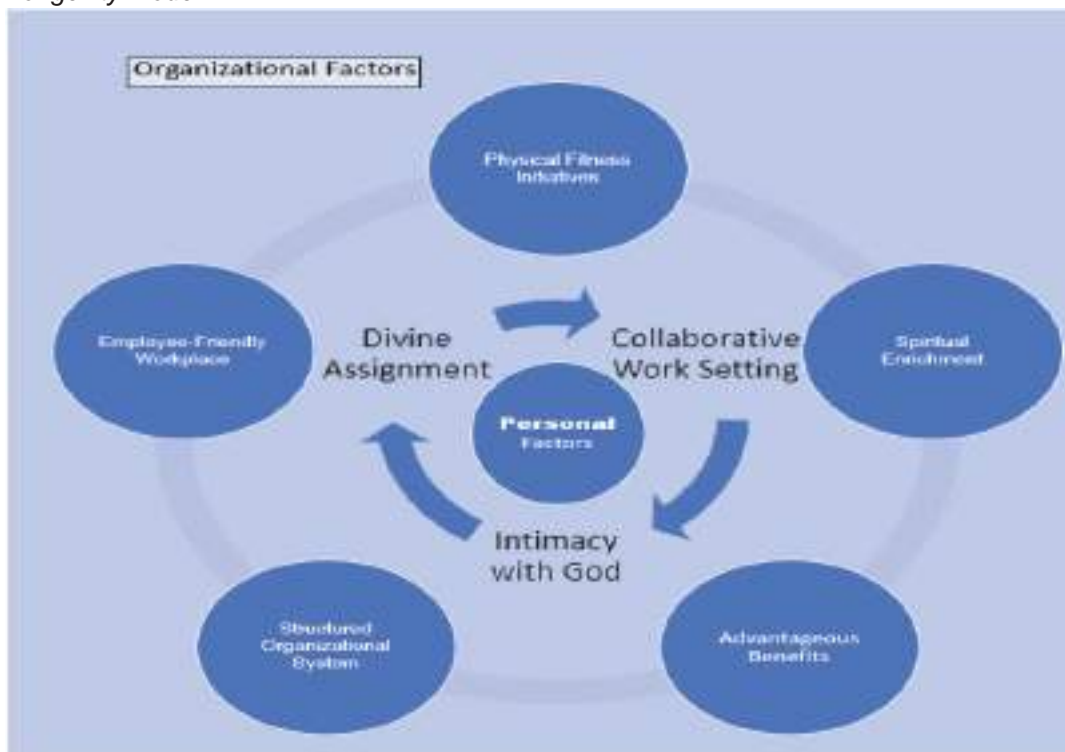
Wellness Challenges

Longevity Model Generated in this Study

Longevity in the workplace refers to the extended duration of an individual's career within a single organization or industry. It's often associated with employees who remain with a company or in a particular field for an extended period of time, typically several decades (Mahajan, 2017). Knowing the factors that contribute to employee longevity is essential for creating a stable, productive, and positive work environment, which ultimately benefits both the organization and its employees.

Figure 1

Longevity Model



Conclusion and Recommendation

The findings of this case study revealed that the workers stayed for 10 years and more in Davao Mission because of the working environment, family, employee relationships, spirituality, and administration. Based on the employees' experiences, the administration should make sure that the reasons stated above are constant to keep their employees working in the organization. The findings of this study also indicated that by applying strategies that emerged from the participants' responses, organizational leaders can increase productivity and organizational commitment. Since reducing employee turnover improves productivity and profitability, knowing the reasons for the workers will help the organization decide what to do in order to keep them.

When organizations have high employee turnover rates, the future of the organization is at risk because employee turnover can lead to reduced profits as a result of decreased productivity and a lack of knowledge. Workers are important parts of an organization, so it makes sense that their welfare should be one of the priorities. Having committed workers is without a doubt an asset to an organization.

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Influence of Personal Financial Knowledge and Attitude Towards Electronic Payment Systems on Financial Satisfaction Among Working Adults

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Satisfaction in life is the crowning achievement of any result. One form of satisfaction is the achievement of financial contentment. However, financial satisfaction has become an essential global issue that has accumulated considerable attention from researchers, federal agencies, and private foundations over the last few decades, as it plays a major role in enriching an individual's life and stability. As a result, it should not be resisted, but rather dealt with and given adequate attention. Thus, the purpose of this study is to determine the influence of personal financial knowledge and attitude towards electronic payment systems on financial satisfaction among working adults aged 25 to 64 in the province of Silang, Cavite. The study used a correlational design and a non-probability sampling method with 110 respondents. A modified Likert-type scale was utilized to determine the demographic profile data, level, and influence of personal financial knowledge, attitude toward electronic payment systems, and financial satisfaction of working adults. The findings of this study revealed that personal financial knowledge has no significant influence on working adults' financial satisfaction. In terms of attitude toward electronic payment systems, the perceived ease of use of credit and debit cards influences their financial satisfaction. It is therefore recommended that further studies be considered to assess the changes in the financial satisfaction level of individuals over time and to test whether financial management mediates the relationship between financial problems and satisfaction.

Keywords: *financial satisfaction, personal financial knowledge, attitude, electronic payment systems, financial management*

Finance is a significant life domain in modern civilization. While individual satisfaction is a psychological well-being predictor,. For the last few decades, the concept of financial satisfaction has received considerable attention from federal agencies and private foundations. As a result, it should not be overlooked; it must be addressed and given adequate attention.

According to Joo (2008), financial satisfaction has become a critical global issue, as indicated by a growing amount of population survey data and research organizations that allow researchers to examine national financial satisfaction levels in specific nations or across time periods. Financial satisfaction indicates that a person's financial situation is devoid of personal financial anxiety and is more likely to be good and happy. Several studies have also focused on identifying the variables that are associated with financial satisfaction or well-being. In a similar vein, Xiao et al. (2013) discovered that socioeconomic and demographic characteristics, financial attitudes, financial behaviors, and financial knowledge are all linked to financial satisfaction or well-being.

The World Bank Blogs (2020) reported that technology is making an incredible impact on service companies generally, and therefore, the financial services sector is not an exception. The widespread adoption of digital financial services is being hailed as a silver lining in the ongoing COVID-19 pandemic. Financial technology is a financial service innovation that makes financial products and transactions accessible to people. Financial technology users are delighted when their performance increases, according to a study by Hieminga et al. (2016). As a result, financial technology can improve users' financial satisfaction.

Financial knowledge, according to Bowen (as cited in Arifin, 2018), is the cornerstone of society's relevant ideas and their knowledge on financial matters. Everybody can have financial knowledge; it is only a matter of how profound their individual comprehension is. Moreover, personal financial

knowledge, based on the recent study of Xiao and O'Neill (2018), could be understood as a person's technical knowledge on how resources can be managed in different situations.

Financial knowledge can also affect financial satisfaction, as cited by Henager and Anong (2014). As for Hira, Favslow, and Mugenda research, more financially knowledgeable people appear to be more responsible in making financial decisions and are more likely to feel less stressed and unhappy in dealing with their financial status and money management. Furthermore, Robb and Woodyard's (2011) report on the results of their analysis showed a significant influence of financial attitude on financial satisfaction since financial attitude may be assessed based on attitude, which is a key component of financial satisfaction. Moreover, it was indicated in various research studies about electronic payment, which provides help and easy access, that its convenience factors have been essential in achieving successful financial satisfaction. As a result of these findings, it is suggested that attitudes regarding electronic payment be examined in terms of security, privacy, and convenience (Linck et al., 2006).

The most important industry that engages in financial transactions is the electronic payment system, which allows for quick and convenient monetary transactions (Roozbahani et al., 2015). However, the World Bank estimates that over 42% of Filipinos have no bank accounts. It had established a division between rural and urban financial services providers for these reasons. Furthermore, cashless transactions have been on the rise in the Philippines due to the increased popularity of online shopping among Filipinos. Nonetheless, despite the BSP's top-down support, the Philippines remains reliant on cash and check payments due to a lack of satisfaction (Nair, 2016).

Based on the article by Singapore Management University (2021), electronic payment systems were introduced to CSISG research in the current year. This included e-wallets and payment apps, with

55.6% of e-payment respondents using the platform at least once every week, with the foremost frequent users, i.e those individuals who spend at least four e-payments on average weekly, particularly in comparison to less frequent users, appearing to have higher levels of satisfaction, loyalty, and spending. As a result, electronic payment systems are required to implement successful monetary policies based on money market transactions and their effects on financial satisfaction and the country's economic activity. Furthermore, the recommendation of the study on attitudes about mobile payment by Blomme and Lindback (2010) for future research is to have a broader view of electronic payment and look at more variables.

With the research gaps on financial satisfaction, this study is done since there has always been a significant growth concern in terms of financial satisfaction research, either as a construct or as a component of total subjective well-being or life satisfaction in general.

The main thrust of this study was to determine the influence of personal financial knowledge and attitude towards electronic payment systems on financial satisfaction among working adults. This treatise is deemed to be of importance to the following sectors: financial advisors, bank managers, government leaders, libraries, parents, and researchers. This study aims to determine the influence of personal financial knowledge and attitude towards electronic payment systems on the financial satisfaction of working adults in Silang, Cavite. Specifically, this seeks to answer the following questions:

1. What is the level of personal financial knowledge of working adults?
2. What is the attitude towards electronic payment systems among working adults in terms of:
 - a. perceived ease of use
 - a. perceived usefulness
3. What is the level of financial satisfaction among working adults?

4. Is there a significant relationship between the following?
 - a. personal financial knowledge and financial satisfaction
 - b. attitude towards Electronic Payment System and financial satisfaction
5. Do the following variables significantly influence the financial satisfaction of a working adult?
 - a. personal financial knowledge
 - b. attitude towards electronic payment system
6. Is there a significant difference in the financial satisfaction of working adults when the following variables are considered: age, sex, educational background, employment status, and income level?

Methodology

Research Design

The study used a correlational design and a non-probability sampling method with 110 respondents. A modified Likert-type scale was utilized to determine the demographic profile data, level, and influence of personal financial knowledge, attitude toward electronic payment systems, and financial satisfaction of working adults.

Population and Sampling Technique

This study involved working adults from Silang, a first-class municipality located in the province of Cavite, who are between 25 and 64 years old. The researchers used the Formula of Unknown Population through G*power software to compute the minimum population of the respondents. The study utilized purposive sampling to select the 110 respondents. Their demographic profile, including age, sex, educational background, employment status, and income level, were considered moderating variables.

Table 1 presents the distribution of the respondents in terms of their employment category. It also includes the number of questionnaires distributed and retrieved.

Table 1*Distribution of the Respondents*

Working Adults	Population	%	Number of distributed survey questionnaire	Number of survey questionnaire retrieved	Percentage of survey questionnaire retrieved
Employee	59	53.64%	64	59	92.19%
Self-employed	26	23.64%	28	26	92.86%
Part-time Worker	8	7.27%	9	8	88.89%
Full-time Worker	17	15.45%	19	17	89.47%
Total	110	100%	120	110	91.67%

Instrumentation

This study utilized a modified questionnaire that was derived from related literature, including previous studies like published and unpublished theses. The instrument has gone through experts' validation. The questionnaire was administered in the English language. Part I of the questionnaire is made up of questions about the respondents' demographic profile. Part II measures personal financial knowledge; Part III assesses the attitude towards electronic payment systems, and Part IV assesses the financial satisfaction of working adults.

Data Gathering Procedures

Due to the strict implementation and guidelines COVID-19 has caused, researchers have faced challenges in conducting the study. Thus, for the data collection, the researchers were not permitted to have a face-to-face distribution of the questionnaire, so they conducted it online using Google Forms and distributed it through Messenger and emails. On the other hand, some of the major challenges the researchers faced were the following: (1) communication; being placed in different parts of the country limits the communication access of the researchers conducting the study; (2) unstable network; researchers might face unstable network connections in some areas of the region due to the range of cell towers. (3) Natural disasters: the country is faced with an average of 20 typhoons per year. Some parts of the region can experience its might, which could affect some of the researchers.

(4) Power interruptions in some parts of the Philippines.

Analysis of Data

Descriptive statistics such as frequencies, percentages, means, and standard deviations are employed to describe the demographic profile and determine the levels of personal financial knowledge, attitude toward electronic payment systems, and financial satisfaction of the respondents. Furthermore, correlation and regression are employed to assess the relationship between the variables and determine the significant predictors of financial satisfaction. T-tests and Mann-Whitney tests were used to compare the differences in the respondents' financial satisfaction with respect to sex. Finally, Kruskal-Wallis was used to determine the difference in the working adult's financial satisfaction considering employment status.

Ethical Considerations

In conducting research, the researchers consider ethical issues specifically when gathering data. Therefore, prior to data gathering, to ensure the quality of the research, the proposal had been reviewed and approved by the Ethical Review Board (ERB), a body tasked with ensuring the safety of study participants. Afterwards, permission to conduct the study was secured, and the researchers notified the target respondents that the given survey was for educational purposes only. The survey and questionnaire were not compulsory for everyone. The decision to partake in this study

Influence of Personal Financial Knowledge and Attitude Towards Electronic Payment Systems on Financial Satisfaction Among Working Adults was optional. The researchers informed the participants about the methods used to ensure their identity and confidentiality, as well as a contact person with whom they could discuss the study.

Results and Discussion

The analysis, interpretation, and discussion of the influence of personal financial knowledge and attitude towards electronic payment systems on financial satisfaction among working adults are presented in this chapter. The interpretation and discussion presented here are well supported by research findings and are presented in the order of the study's specified research questions.

Level of Personal Financial Knowledge of Personal Working Adults

Table 2 describes the level of personal financial knowledge of working adults. The result showed that the mean of the working adults' level of personal financial knowledge was 11.80, with a standard deviation of 2.20, which was verbally interpreted as high.

Table 2

Level of Personal Financial Knowledge of Working Adults

	Mean	SD	Verbal Interpretation
Level of Personal Financial Knowledge	11.80	2.20	High

The results imply that most of the working adults exhibited a high level of personal financial knowledge; they had the ability to understand basic economics and financial concepts and analyze and manage their financial resources effectively. Theoretically, knowledge is important for its role in the decision-making process. "Personal financial knowledge has the ability and confidence to understand the most important financial concepts and manage personal finance through appropriate short-term decisions. It's a measure of degree in making a solid, long-term financial plan, recognizing life events, and changing economic conditions" (Remund, 2010). The finding was supported by Ali et al. (2015), as it was stated that an individual who gained higher financial knowledge positively influenced financial behavior for individuals to enhance their financial capabilities that lead to significant financial satisfaction, such as managing income, constantly getting used to saving, planning pension funds and investments, and budgeting.

Attitude Towards Electronic Payment System of Working Adults

Attitude on Perceived Ease of Use

Table 3 illustrates the mean and standard deviation of the attitude on perceived ease of use towards electronic systems. These include digital wallet, credit card, net banking, mobile point system,

Table 3

Attitude on Perceived Ease of Use of Electronic Payment System

Payment System	Mean	SD	Scale Response	Verbal Interpretation
Digital Wallet	4.3000	.71613	Agree	Positive
Credit Card	3.2044	.76286	Partially Agree	Moderately Positive
Net Banking	4.2202	.70969	Agree	Positive
Mobile Payment System	4.5101	.50807	Strongly Agree	Very Positive
Debit Card	4.1651	.62825	Agree	Positive

Five statements were used to assess the attitude of working adults towards digital wallets in terms of ease of use. Statement 1, "The structure and contents are easy to understand," has the lowest mean of 4.11, yet it is still positive, whereas Statement 5, "Easy to Use," got the highest mean of 4.41. Overall, the results indicated a positive attitude toward each statement ($M = 4.30$, $SD = .71613$), which shows that working adults believe it is easy to use, just like a physical wallet. The study by Ghrbeia (2020) emphasized that as much as the user can easily make use of these electronic payment systems, they will utterly prefer them over traditional procedures.

The attitude of working adults towards credit cards in terms of perceived ease of use was moderately positive. In statement 1, "The structures and contents are easy to understand." It obtained a mean score of 3.90 and $SD = 1.050$, which revealed a moderately positive attitude when it comes to understanding the structure and contents of the credit card. The result became consistent as item 5, "Easy to use, showed the lowest score of 3.37 and $SD = 1.060$. The result does not universally support this line of thought, as credit cards are initially viewed as convenient for most valued customers as they are easy to use and generally serve as a quick means of establishing one's transaction (as cited by Robb, 2011).

For the attitude of working adults towards net banking in terms of perceived ease of use, Statement 4, "The system saves time and cost," has the highest mean ($M = 4.39$, $SD = .721$) that is verbally interpreted as positive. Moreover, all items in attitude in net banking have been regarded as positive, which signifies that overall, the respondents

have a positive attitude when it comes to perceived ease of use. The study by Szymanski and Hise (2000) found that most people were concerned about ease of use, not only to save effort but also to reduce social risk. In the views of the authors, they posited that "convenience" is like the attribute "ease of use." Thus, convenience looks to be an essential factor of attitude with net banking.

The overall attitude of working adults towards mobile payment systems in terms of perceived ease of use was very positive ($M = 4.5101$, $SD = .50807$). This means that initially, these individuals perceive the use of Mobile Payment systems as convenient and easy, as indicated in items with highest mean score, such as 4 (The system saves time and costs, $M = 4.56$ and $SD = .659$) and 5 (Easy to use, $M = 4.56$ and $SD = .615$).

Overall, in the attitude of perceived ease of use, it is clearly indicated that respondents have a Positive attitude towards debit cards, as it has a high mean score ($M = 4.1651$, $SD = .62825$). Approximately, 32% of users reported using debit instead of checks, and 19% reported using debit as a substitute for credit cards. These figures show that debit card holders see debit cards mainly as a replacement for "paper" payment methods because they are convenient to use, as indicated in a study conducted by Borzekowski et al. (2006).

Attitude on Perceived Usefulness

Table 4 illustrates the mean and standard deviation of the attitude on perceived usefulness towards electronic systems. These include digital wallet, credit card, net banking, mobile point system.

Table 4

Attitude on Perceived Usefulness of Electronic Payment System

Payment System	Mean	SD	Scale Response	Verbal Interpretation
Digital Wallet	4.0236	.70995	Agree	Positive
Credit Card	3.9514	.75328	Partially Agree	Moderately Positive
Net Banking	4.0183	.68775	Agree	Positive
Mobile Payment System	4.1218	.66255	Agree	Positive
Debit Card	4.1651	.62825	Agree	Positive

The table above depicts the overall positive attitude toward the perceived usefulness of digital wallets ($M = 4.0236$, $SD = .70995$). Accordingly, the risks associated with the use of digital wallet is low, signifying that the respondents have a moderate level of attitude towards risks. This is supported by the statement of Kannan and Kavitha (2020) in a study they conducted, which revealed that perceived usefulness as having risk moderately influences the attitudes of the users.

Table 4 also shows the attitude of working adults towards credit cards in terms of perceived usefulness, which was moderately positive ($M = 3.9514$, $SD = .75328$). Schierz, Schilke, and Wirtz (2010) supported the result that when electronic services are used, it has been found that among consumers, the threat of security is a huge concern. Meanwhile, the result of this study was found to somehow contradict the conducted cross-cultural study on cardholders' attitudes among Canadians and Americans, where Kaynak and Ugur (as cited by Ramayah et al., 2002) concluded in their results that both populations of cardholders perceived credit cards as very useful because cards were safer than cash.

Table 4 also shows that the attitude of working adults towards net banking in terms of perceived usefulness was positive ($M = 4.0183$, $SD = .68775$). Guriting (2006) examined the determinants of the usefulness of net banking in Malaysia. The result found that "the perceived ease of use and perceived usefulness factors are considered to be fundamental in determining the acceptance and use of various information technologies. However, supporting the lowest mean result, the study by Cunningham (2003) indicated that one of the most future challenges facing individuals or customers of a bank is the fear of higher risks associated with using the Web for banking and financial transactions.

Table 4 also illustrates that working adults also have a positive attitude ($M = 4.1218$, $SD = .66255$) towards mobile payment systems in terms of perceived usefulness. The finding was supported by Evans (2014), who stated that the upsurge in the utilization of mobile payments has been extensive, particularly in rural areas, due to the fact that mobile payment transactions are low-cost and convenient. Moreover, in another study, it was shown that more than 90 percent of mobile payment users are somewhat or very concerned about both their personal privacy and their information's security (KPMG 2010).

Table 4 also presents the mean, and standard deviation of the attitude of working adults towards debit cards in terms of perceived usefulness. In general, the result obtained a high mean score ($M = 4.1651$; $SD = 6.2825$), which indicates a positive attitude towards perceived usefulness of debit cards. According to Klee (2006), consumers prefer debit cards because they provide rapid payment to vendors and convenience to consumers who purchase in smaller amounts to minimize the time they have to wait to process transactions. In addition, in the study conducted by Borzekowski et al. al. (2006), about 61 percent of respondents who cited payment method acceptance as a reason for preferring debit (5 percent of all debit card users) reported a desire for debit cards as a substitute for cash, as this was viewed as time saving and convenient.

Level of Financial Satisfaction of Working Adults

Table 5 shows the mean and standard deviation of the level of financial satisfaction of working adults. Overall, the level of financial satisfaction of working adults was moderately satisfied ($M = 3.8436$, $SD = .60267$).

Table 5*Level of Financial Satisfaction of Working Adults*

	Mean	Std. Deviation	Scaled Response	Verbal interpretation
Financial Satisfaction	3.8436	.60267	Partially Agree	Moderately Satisfied

Financial satisfaction also relates to an individual's income, ability to cope with financial emergencies, debt, savings, and money saved for future needs (Hira and Mugenda, 1998). Therefore, based on the results, working adults in Silang, Cavite, are moderately satisfied with their own income and able to cope with financial emergencies, debt, savings, and funds for future needs.

Correlation Between Personal Financial Knowledge and Financial Satisfaction

Table 6 shows the significant correlation between personal financial knowledge and financial satisfaction. The degree of relationship is not significant at the 0.05 level ($r = -.006$, $p = .953$). Therefore, the null hypothesis that states there is no significant relationship between personal financial knowledge and financial satisfaction is not rejected.

Table 6*Correlation Between Personal Financial Knowledge and Financial Satisfaction*

		Knowledge	Financial Satisfaction
Knowledge	<i>r</i>	1	-.006
	<i>p</i>		.953
Financial Satisfaction	<i>r</i>	-.006	1
	<i>p</i>	.953	

For personal financial knowledge and financial satisfaction to be significantly correlated, the result must have a significant correlation that is not higher than 0.05. The result from table 17 shows that the significant correlation between personal financial knowledge and financial satisfaction is above the significant correlation of 0.005. Therefore, personal financial knowledge and financial satisfaction are not correlated with each other. The null hypothesis, which states there is no significant relationship between knowledge and financial satisfaction, is not rejected.

Furthermore, it also supports Dita's (2016) findings, which contradicted the prior study's conclusion that having financial knowledge has no significant impact on one's financial satisfaction. In addition, Dita (2016) had undertaken a study on the possible correlation between acquiring financial knowledge and financial satisfaction. Dita ran a poll in which 255 people actively participated. However, after reviewing the findings of her research, it was discovered that a person's financial knowledge and attitude have a significant impact on financial planning, which includes financial satisfaction.

Correlation Between Attitude Towards Electronic Payment System and Financial Satisfaction

Table 7 shows the significant correlation between attitude on ease of use of digital wallet, attitude on ease of use of credit card, attitude on ease of use of net banking, attitude on ease of use of mobile payment system, and attitude on usefulness of debit card and financial satisfaction.

Table 7*Correlation Between Attitude on Ease of Use Towards Electronic Payment System and Financial Satisfaction*

		Attitude on ease of use of digital wallet	Attitude on ease of use of credit card	Attitude on ease of use of net banking	Attitude on ease of use of mobile payment system	Attitude on usefulness of debit card	Financial Satisfaction
Attitude on ease of use of digital wallet	r	1	.534**	.520**	.622**	.446**	.101
	p		.000	.000	.000	.000	.295
Attitude on ease of use of credit card	r	.534**	1	.610**	.434**	.386**	.235*
	p	.000		.000	.000	.000	.015
Attitude on ease of use of net banking	r	.520**	.610**	1	.594**	.279**	.081
	p	.000	.000		.000	.003	.405
Attitude on ease of use of mobile payment system	r	.622**	.434**	.594**	1	.486**	.045
	p	.000	.000	.000		.000	.643
Attitude on usefulness of debit card	r	.446**	.386**	.279**	.486**	1	.291**
	p	.000	.000	.003	.000		.002
Financial satisfaction	r	.101	.235*	.081	.045	.291**	1
	p	.295	.015	.405	.643	.002	

The result in Table 7 shows the outcome of the survey distributed to working adults in Silang, Cavite. To be correlated, the significant correlation must not be greater than the .05 level of significance. The result in the table above shows that attitudes toward ease of use of digital wallets, attitudes toward ease of use of net banking, and attitudes toward ease of use of mobile payment systems are not correlated with financial satisfaction. However, attitude towards ease of use of credit cards and attitude towards usefulness of debit cards are significantly correlated with financial satisfaction, which means that the better the person's attitude towards the use of credit and debit cards, the more they are financially satisfied. The null hypothesis that states "there is no significant relationship between attitude towards electronic payment system and financial satisfaction is rejected on the use of credit card and attitude on usefulness of debit card and financial satisfaction, particularly.

According to Altobishi et al. (2018), who detailed their findings in their study, the use of electronic

services has a favorable association with many customers' financial satisfaction. Furthermore, they stated that their demonstrated attitudes regarding using online payment systems have a substantial and positive correlation with their financial satisfaction. In addition, Krishna and Shanmugam's (2020) study made it clear that perceived ease of use, which is the reported attitude of an individual towards an electronic payment system, has a profound influence on financial satisfaction. However, it contradicts the result shown in the table above. It does not correlate with financial satisfaction except for the attitude toward ease of use of credit cards and attitude toward the usefulness of debit cards. They are both significantly correlated with financial satisfaction.

Table 8 shows the significant correlation between attitude on usefulness of digital wallet, attitude on ease of use of credit card, attitude on usefulness of net banking, attitude on usefulness of mobile payment system, and attitude on usefulness of debit card and financial satisfaction.

Table 8*Attitude Towards Usefulness of Electronic Payment System and Financial Satisfaction*

		Attitude on ease of use of digital wallet	Attitude on ease of use of credit card	Attitude on ease of use of net banking	Attitude on ease of use of mobile payment system	Attitude on usefulness of debit card	Financial Satisfaction
Attitude on ease of use of digital wallet	r	1	.655**	.794**	.794**	.706**	.159
	p		.000	.000	.000	.000	.097
Attitude on ease of use of credit card	r	.655**	1	.761**	.665**	.670**	.305**
	p	.000		.000	.000	.000	.001
Attitude on ease of use of net banking	r	.794**	.761**	1	.844**	.738**	.132
	p	.000	.000		.000	.000	.172
Attitude on ease of use of mobile payment system	r	.794**	.665**	.844**	1	.786**	.170
	p	.000	.000	.000		.000	.075
Attitude on usefulness of debit card	r	.706**	.670**	.738**	.786**	1	.291**
	p	.000	.000	.000	.000		.002
Financial satisfaction	r	.159	.305**	.132	.170	.291**	1
	p	.097	.001	.172	.075	.002	

The survey results distributed to working adults in Silang, Cavite, are shown in the table above. The significant correlation must not be higher than .05 in order to be correlated. The results in the table above show that attitude toward the usefulness of digital wallets, attitude toward net banking, and attitude toward mobile payment systems are not correlated with financial satisfaction. However, attitudes toward the ease of use of credit cards and the usefulness of debit cards are significantly correlated with financial satisfaction.

Arifin's (2018) study found that an individual's financial attitude toward the use of electronic payment systems has a significant influence on their level of financial satisfaction. However, the findings shown in the table above contradict the said study. Attitude toward the usefulness of digital wallets, net banking, and mobile payment systems is not correlated with financial satisfaction. Except

for the attitude toward the ease of use of a credit card and the attitude toward the usefulness of a debit card, which are both correlated to financial satisfaction.

Influence of Attitude Towards Electronic Payment System on the Financial Satisfaction of Working Adults

Table 9 revealed that attitudes toward ease of use of credit cards significantly predict financial satisfaction of working adults. As per the findings of the regression analysis, it was divulged that the attitude on ease of use of credit cards has a positive significant relationship with the financial satisfaction of working adults ($B = .281$, $p = .001$). Consequently, the attitude on ease of use of credit cards accounts for 10.1% of the variance in financial satisfaction $F(1,103) = 11.460$, $p = .001$. With this, the null hypothesis is rejected.

Table 9

Attitude on Ease of Use of Credit Card as Predictor of Financial Satisfaction of Working Adults

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R	R-square
		B	Std. Error	Beta				
1	(Constant)	2.737	.334		8.185	.000	.318	.101
	Attitude on ease of use of a credit card	.281	.083	.318	3.385	.001		
F (1,102)=11.46, p= .001								

a. Dependent Variable: Financial Satisfaction

Furthermore, the results were strongly connected to a study undertaken by Farida et al. (2021) that found that financial technology, including attitudes toward ease of use of credit cards, positively influences one's financial satisfaction as it provides digital services and transactions that can help them keep track of their expenses. Consequently, by using credit cards, users can save, invest, and authorize debits to set up automatic electronic loan payments. Given this notion, it is reasonable to infer that attitudes toward electronic payment systems, specifically attitudes toward the ease of use of credit cards, can have a significant impact on the financial satisfaction of working adults.

Comparison of Financial Satisfaction of Working Adults*Age and Financial Satisfaction of Working Adults*

Table 10 presents the quantitative variation and correlation on the financial satisfaction of working adults considering age. The results showed that there was no significant correlation between the financial satisfaction of working adults and their age ($r = .090$, $p\text{-value} = .351$).

Table 10

Difference in the Financial Satisfaction of Working Adults in Terms of Age

		Age	Financial Satisfaction
Age	r	1	.090
	p		.351
Financial Satisfaction	r	.090	1
	p	.351	

It supports Joo and Grable's (2004) conclusion that demographic factors such as age may not have a direct impact on people's financial satisfaction. These findings suggested that there is no significant difference regardless of working adults' age, as financial satisfaction would be the same. This research is backed by the Hira and Mugenda (1998) study, where it was discovered that age has no correlation with financial satisfaction. Age is not significantly related to Financial Satisfaction. Fundamentally, this indicates that a person's age does not significantly influence their financial satisfaction level.

Comparison of Financial Satisfaction Between Male and Females

Table 11, indicates the difference in the financial satisfaction of working adults in terms of sex. An independent sample t test showed that the difference in financial satisfaction between the male with 51

respondents having a mean of 3.9353 (SD =.56065) and the female with a total of 59 respondents with a mean of 3.7644 (SD =.63075) was statistically not significant in terms of financial satisfaction. The p-value of 0.139 was greater than the significance level of 0.05, with 108 degrees of freedom, indicating that there was no significant difference between males and females in the levels of financial satisfaction.

Table 11

Independent Sample t-test for Difference of Financial Satisfaction Between Male and Female

	Sex	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Interpretation
Financial Satisfaction	Male	3.9353	.56065	1.491	108	.139	Not Significant
	Female	3.7644	.63075				

Prior research by Hira and Mugenda (1998) revealed differences in financial satisfaction by gender, though there were differences depending on which aspects of personal finance were measured. In terms of gender, females are more financially satisfied than males, contrary to most empirical findings, which conclude that males are typically more financially satisfied than females (Kirbis et al., 2016; Hira and Mugenda, 1998). Hira and Mugenda (1998), for instance, draw the conclusion that most women are dissatisfied with their financial situation because of indiscriminate spending.

The current result of the t-test in table conducted for difference in Working Adult's Financial Satisfaction between males and females did not conform to the earlier study of Kirbiš et al. (2016) and Hira and Mugenda (1998) in terms of the association between the demographic variables and financial satisfaction. The fact that there were no significant differences in financial satisfaction for this sample is an interesting finding given the observed differences in Financial Satisfaction and demographic variables among working adults. Also, the current result was supported by Woodyard and Robb (2011), wherein their study revealed and proved that no significant differences were noted by gender and financial satisfaction does not differ between male and female.

Comparison in the Financial Satisfaction of Working Adults in Terms of Educational Background

Table 12 shows the difference in the financial satisfaction of working adults in terms of educational background. Only two groups, with a total of 110 respondents, are compared. With a mean rank of 56.01, 73 respondents belong to the Tertiary level, while 37 respondents belong to the postgraduate level with a mean rank of 54.50.

Table 12

Differences in the Financial Satisfaction of Working Adults in Terms of Educational Background

	Educational Background	Mean Rank	Sum of Ranks	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Financial Satisfaction	Tertiary	56.01	4088.50	1313.500	2016.500	-.235	.814
	Postgraduate	54.50	2016.50				

The primary study used the Mann-Whitney test to compare the respondent's financial satisfaction by educational background. The study's findings show no significant difference with a higher p-value of .814 than significant level of .05. This revealed that the financial satisfaction of the respondents was the same regardless of their educational background. They have the same financial satisfaction, whether they are

Influence of Personal Financial Knowledge and Attitude Towards Electronic Payment Systems on Financial Satisfaction Among Working Adults in tertiary or postgraduate education. Current findings were supported by earlier findings by Kirbiš et al. (2016), who stated that the financial satisfaction of men and women did not differ significantly in educational level.

Comparison in Financial Satisfaction Considering Employment Status

Table 13 describes the significant difference in the working adult's Financial Satisfaction considering employment Status. The Kruskal-Wallis H test showed that there is a significant difference in the levels of financial satisfaction ($p = .009$). This study used pairwise comparison (Table 14) to identify the specific differences in working adult's financial Satisfactions considering Employment status.

Table 13

Independent-Samples Kruskal-Wallis Test-Financial Satisfaction across Employment Status

Independent-Samples Kruskal-Wallis Test	
Summary	
Total N	110
Test Statistic	11.677 ^a
Degree of Freedom	3
Asymptotic Sig. (2-sided test)	.009

a. The test statistic is adjusted for ties.

Table 14

Pairwise Comparison for Financial Satisfaction by Employments Status

Pairwise Comparisons of Employment Status					
Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig. ^a
Employee-Part-time Worker	-13.110	11.978	-1.095	.274	1.000
Employee-Self-Employed	-13.956	7.483	-1.865	.062	.373
Employee-Full Time Worker	-28.198	8.751	-3.222	.001	.008
Part-time Worker-Self-Employed	.846	12.853	.066	.948	1.000
Part-time Worker-Full Time Worker	-15.088	13.630	-1.107	.268	1.000
Self-Employed-Full Time Worker	-14.242	9.916	-1.436	.151	.905

Further analysis, as shown in Table 14, revealed that there is a significant difference between the financial satisfaction of employees and full-time workers ($p = .001$). The current evidence shows that a A working adult with a higher employment status could indicate higher financial satisfaction. One of the underlying root factors that must be carefully considered to attain financial satisfaction is an individual's employment status. This idea was supported by the study stated by Aysan and Aysan (2020) that a person's employment status has a significant impact on life satisfaction, which includes financial satisfaction. Medgyesi and Zolyomi (2016) found that if a person's employment earns greater compensation, he or she is more likely to be financially satisfied. Hence, their satisfaction at work could lead to satisfying their financial needs as well. Referring to these findings, a person who has a higher income can buy and purchase the things that they want as well as pay for their financial bills since they gain satisfaction with their employment status. A person with a higher income may buy and purchase the things they want as well as pay their financial expenses since they are satisfied with their employment status.

Difference in Working Adult's Financial Satisfaction Considering Income level

Table 15 presents an analysis of the relationship between working adults' financial satisfaction and income. According to the findings of this study, financial satisfaction is not significantly related to the income or income level of working adults.

Table 15
Correlations of Financial Satisfaction by income

		Financial Satisfaction	Income
Financial Satisfaction	r	1	-.036
	p		.709
Income	r	-.036	1
	p	.709	

Financial satisfaction is unaffected by income levels, whether low, medium, or high. As shown in Table 27, the primary study used Pearson Correlation to determine the correlation between the financial satisfaction of working adults and their income and income level. With a p-value of .709 greater than .05, and 110 respondents, the study's findings failed to reject the null hypothesis, indicating that there is no significant difference in the financial satisfaction of working adults based on income level. Thus, the null hypothesis, which states that there is no significant difference in the Financial Satisfaction of working adults considering their income, is accepted.

One of the underlying root causes impacting an individual's financial satisfaction is their demographic characteristics, and one of the cited demographic characteristics is a working adult's income level. An individual's income level plays a significant role in sustaining his or her needs and satisfaction. An individual can be financially satisfied if his or her income is sufficient. As presented in his study, Coskuner (2016) discovered that income level, as one of the demographic characteristics, does not appear to be the primary reason why an adult achieves such financial satisfaction. To put it another way, the purpose of this study is to explain that a person's

income level has nothing to do with their financial satisfaction. Furthermore, in their experimental investigation of individual investors in Pakistan, Azad and Sadiq (2018) found that their income level has no significant influence on their financial satisfaction. The findings of this study showed that an adult's income level, regardless of whether it belongs to any of the expected income ranges for every social position, has no bearing on their financial satisfaction.

Conclusion and Recommendation

Working adults were found to possess a high level of personal financial knowledge, particularly in financial concepts. Hence, this refers to the fact that working adults in Silang, Cavite, are well-versed in economic and financial principles. Moreover, in terms of perceived ease of use and perceived usefulness, working adults' attitudes toward credit cards were found to be moderately positive, while attitudes toward the mobile payment system were found to be very positive. This indicates that most respondents conveniently prefer to use a mobile payment system for all types of financial transactions. Furthermore, working adults are moderately satisfied with their financial well-being, show concerns about financial issues causing stress or strain in relationships, their level of debt carrying, and, lastly, their level of savings. While personal financial knowledge and financial satisfaction were not found to be significantly related, attitudes toward the ease of use of credit and debit cards were found to be significantly related to financial satisfaction. Among the attitudes toward electronic payment systems, credit cards' ease of use has a significant influence on working adults' financial satisfaction. Lastly, it was demonstrated that only employment status, a full-time-worker or employee—shows a significant difference. To put it bluntly, the overall findings of this study give a stable result that working adults' personal financial knowledge has no influence on their financial satisfaction. In terms of attitude toward electronic payment systems, the use of credit cards and debit cards influences their financial satisfaction, as these resulted in a moderately positive.

The researchers would like to recommend various seminars, programs, or even book engagements for working adults to help their financial knowledge become deeper and broader, given that they only know a few of the basic information in financial-related topics. The results of the study will assist practitioners in improving their adoption strategies and the quality of their credit card services. In addition, since using the mobile payment system is highly favored by many, non-mobile payment users must be provided with ample knowledge and information about the positive effects of adopting it, particularly in terms of needing a hassle-free service, through credible research and relevant social media platforms. It is also recommended that to help the community achieve financial satisfaction, influential and authoritative individuals like financial advisors conduct and organize programs virtually or face to face to promote and provide the right education and assistance when it comes to managing finances as it is so important. In this way, it significantly promotes the attitude of an accountable person when it comes to finance. Other assistance to consider would be a program about effective financial planning. These programs may generate strategies for coping with financial hardship and improve financial satisfaction.

For further studies, despite the considerable limitations of this paper, the findings from this study are restricted in some areas. The people involved as respondents to this study were working adults who were assumed to be financially knowledgeable. Future research could focus on both organizations and other institutions, or the same study could be conducted in different parts of the Philippines.

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The Antecedents of Effective City Branding: A Comprehensive Systematic Review

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City branding has gained paramount importance as global cities vie for recognition and investment in an increasingly competitive landscape. Despite current city branding efforts focusing on superficial elements like logos and slogans, this study seeks a deeper understanding of the core drivers of successful city branding. Conducting a systematic literature review, the researchers meticulously screened and selected fifty scholarly papers from the Scopus and Web of Science databases, adhering to inclusion criteria such as empirical research and publication dates no earlier than 2015. Through thematic analysis, the study identifies pivotal antecedents for effective city branding, which encompass factors such as cultural identity and community engagement, environmental and natural elements, governance and safety, as well as infrastructure and services. Cultural heritage contributes to the city's unique identity, adding a dimension of authenticity. Community engagement fosters a sense of ownership among residents, infusing vitality into the brand narrative. Effective governance ensures coherence in the branding message. Infrastructure serves as a foundational element, shaping the physical and functional attributes of the city. Tourism initiatives capitalize on the city's attractions, while strategic marketing shapes perceptions. Crucially, the study probes into the intricate interplay and collective influence of these diverse factors on the overall efficacy of city branding campaigns. Ultimately, the findings empower decision makers with informed insights, facilitating the cultivation of proficient city branding practices within the fiercely competitive urban landscape. By transcending superficial attributes and adeptly navigating complex interrelations, cities can craft resonant branding strategies, positioning themselves for success in the global arena.

Keywords: *brand, city brand, city branding, place brand; destination branding*

City branding has become a strategic imperative for local governments and municipal authorities worldwide as cities increasingly compete on a global stage for talent, investment, tourism, and recognition. Understanding the antecedents of effective city branding is crucial for devising successful strategies that can enhance a city's image and reputation (Shirvani & De Luca, 2019). One of the foremost justifications for the expeditious pursuit of research in this domain resides in the heightened competitive landscape prevailing among cities (Mandagi et al., 2021). As the process of urbanization undergoes an accelerated trajectory, cities are confronted with multifarious predicaments encompassing issues such as urban congestion, environmental degradation, and resource scarcity (Singh & Singh, 2017). City branding's effectiveness is crucial for attracting businesses, tourists, and residents, fostering economic growth, and promoting sustainability. In a competitive era where cities vie to be top destinations, understanding the key elements of successful city branding is essential.

Moreover, the COVID-19 pandemic has underscored the significance of city branding. Many cities have had to adapt rapidly to the new normal, and effective branding has been instrumental in conveying crucial information, building trust, and promoting resilience (Bereitschaft & Scheller, 2020; Lai et al., 2020; Sharifi & Khavarian-Garmsir, 2020). This crisis has shown that a well-branded city can respond more effectively to emergencies and maintain the confidence of its residents, investors, and prospective investors (Lai et al., 2020).

Furthermore, the scholarly rationale for this research endeavor is underscored by its potential to offer empirically substantiated counsel to urban planners, marketing practitioners, and policymakers. A systematic review of extant literature in this domain affords the prospect of delineating salient antecedents, encompassing elements such as cultural attributes, infrastructural development, governance frameworks, and community engagement strategies that constitute pivotal

determinants of efficacious city branding (Ambalao et al., 2022; Mandagi et al., 2022). Armed with the insights gleaned from such a scholarly pursuit, cities are poised to optimize the allocation of resources, facilitating the judicious tailoring of their branding initiatives to harmonize with their unique strengths and challenges (Sharifi & Khavarian-Garmsir, 2020).

The concept of city branding extends beyond conventional marketing. It encapsulates the process of crafting and disseminating a narrative about a city, encompassing its culture, history, infrastructure, governance, and overall quality of life. An effectively branded city can influence perceptions, engender pride among its residents, attract investors, tourists, and residents, and ultimately foster economic growth and sustainability (Ambalao et al., 2022; Mandagi et al., 2022; Walean et al., 2023).

This research endeavors to explore the multifaceted antecedents that underpin effective city branding. It aims to identify the key determinants that contribute to the successful construction of a city's brand image, encompassing elements such as cultural identity, physical infrastructure, governance structures, and community engagement. By conducting a systematic review of existing literature, this study seeks to provide evidence-based insights that can guide city planners, marketers, and policymakers in enhancing their cities' brand image, thereby fostering sustainable development and global competitiveness.

The study of the antecedents of effective city branding represents a critical area of research due to the existence of several significant theoretical gaps in the current literature. Firstly, existing research often lacks a comprehensive and systematic examination of the various factors that influence city branding. While some studies have focused on specific dimensions such as infrastructure or cultural identity, there is a dearth of research that synthesizes these factors into a holistic framework (Oguztimur & Akturan, 2016; Górska-Warsewicz, 2020). Understanding how these different antecedents interact and collectively contribute to effective

city branding remains an underexplored territory (Oguztimur & Akturan, 2016). Secondly, there is a lack of consensus and clarity in how effective city branding is conceptualized and measured, leading to difficulties in comparing findings across studies. Developing a unified theoretical framework for assessing city branding effectiveness is crucial for advancing the field. Moreover, the impact of external shocks like the COVID-19 pandemic on city branding strategies and their effectiveness remains underexplored, highlighting a critical theoretical gap (Bereitschaft & Scheller, 2020; Lai et al., 2020; Sharifi & Khavarian-Garmsir, 2020).

This systematic investigation into the antecedents of effective city branding offers both practical and theoretical implications. On a practical note, it provides valuable insights for city planners and marketers to tailor branding strategies according to identified factors, enhancing a city's image and competitiveness. Understanding the influence of digital technologies and social media enables more effective online engagement. Theoretical implications involve the development of a comprehensive framework that unifies diverse perspectives, fostering a coherent body

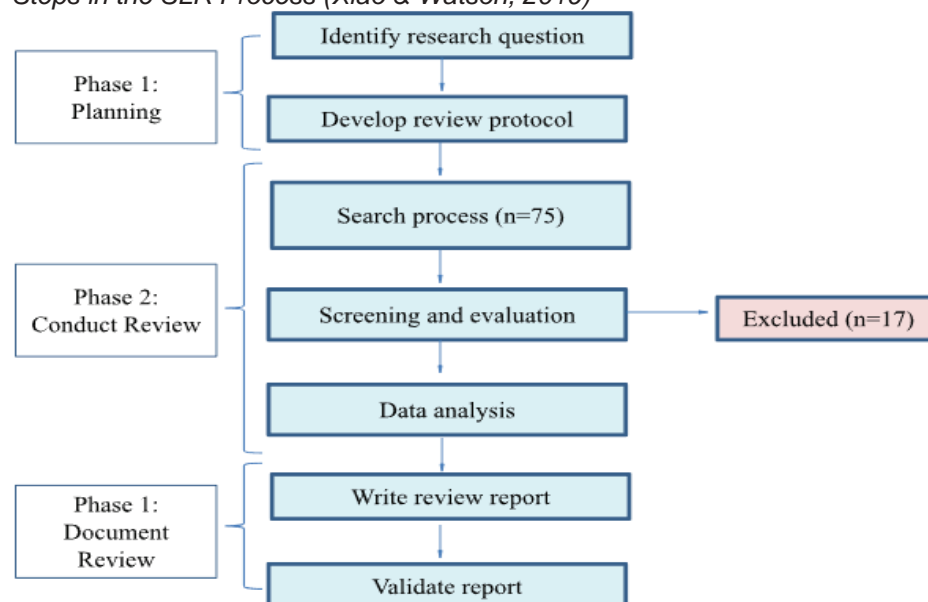
of knowledge. This framework can guide further empirical research and enrich our understanding of city branding, crisis management, and cross-cultural factors, ultimately contributing to the sustainable development and global recognition of cities in an interconnected world.

Methodology

This study utilized the Systematic Literature Review (SLR) method, which refers to a rigorous research approach employed to collect and evaluate studies related to a specific topic within a particular field or discipline (Xiao & Watson, 2019). This method is utilized to systematically identify and analyze pertinent literature with the ultimate goal of advancing a more profound understanding of the selected subject matter. The SLR process involves conducting a comprehensive investigation that encompasses various objectives, such as identifying, examining, evaluating, and interpreting all existing research within a captivating domain of interest, with a specific focus on relevant research inquiries (Okoli & Schabram, 2015). Figure 1 summarizes the stages in the SLR employed in this study.

Figure 1

Steps in the SLR Process (Xiao & Watson, 2019)



The first step involves identifying the research question (RQ) that will guide the investigation. In this study, careful consideration has been given to crafting research questions that align with the specific requirements of the chosen topic. The research question formulated for this study is: "What factors contribute to successful city branding?" This well-constructed RQ aims to delve into the extensive effects and results of transformational leadership practices in today's rapidly changing digital landscape. By focusing the study on this precise research question, the systematic literature review aims to shed light on and offer a thorough understanding of this critical aspect of contemporary leadership within the digital age.

The second step involves the development and refinement of a review protocol. This protocol serves as a structured plan that outlines the methods and procedures that will be followed throughout the review process. Creating a well-defined protocol is crucial for maintaining transparency, rigor, and replicability in the review.

During the third stage, an extensive search was conducted to gather relevant sources addressing the research question and related references on the chosen topic. The primary objective was to obtain high-quality and pertinent materials, ensuring the credibility and strength of the research. This phase involved a thorough exploration of respected databases, such as Scopus, to identify valuable literature from renowned journals. Scopus proved advantageous due to its wide-ranging coverage of scholarly publications in diverse fields, enabling a comprehensive retrieval of crucial literature. The search process required meticulous attention to detail, aiming to pinpoint the most appropriate and informative resources. This effort significantly bolstered the scholarly rigor of the Systematic Literature Review (SLR) and enriched the depth of understanding regarding the selected subject matter. Currently, 75 relevant articles have been extracted from the database at this stage.

The fourth stage consists of reviewing and selecting articles to confirm their alignment with the defined inclusion and exclusion criteria. This step is essential for assessing the suitability of the gathered data for the systematic literature review. The selection of articles is guided by distinct criteria that help decide if a study should be included. The criteria for article inclusion are outlined in Table 1. By applying these criteria, the researchers intend to gather a thorough and appropriate collection of studies that match the goals of the systematic literature review.

Table 1
Article Inclusion Criteria

Criteria	Description
Type of article	Scientific articles
Source	Scopus Database
Time frame	2015-2023
Research design	Quantitative
Language	English
Keywords	City brand, City branding, Place brand, destination brand

The final stage focuses on the crucial aspect of analyzing data, which holds significant importance. At this pivotal juncture, the meticulously collected data undergoes thorough examination and assessment to comprehend the subject comprehensively and derive meaningful insights concerning specific aspects being studied. The primary goal of this analytical effort is two-fold: firstly, to present the outcomes and findings arising from the practical observations, and secondly, to uncover any evident trends and patterns within the amassed dataset. By conducting this rigorous analysis, researchers can illuminate the inherent relationships, correlations, or causations that may be present, thereby enhancing the overall understanding in the respective field. After the screening and selection process, 50 articles were identified as the final sample for the analysis.

Results and Discussion

The results of a comprehensive and systematic analysis of related literature underscore the multifaceted and intricate determinants that contribute to effective city branding. These encompass factors such as cultural identity and community engagement, environmental and natural elements, governance and safety, as well as infrastructure and services. The following sections delve into an in-depth exploration of each of these facets that shape the foundations of city branding.

Cultural Identity and Community Engagement

Cultural identity is a complex and multifaceted concept that plays a pivotal role in shaping the branding and image of cities around the world. A city's cultural identity is the sum of its history, traditions, art, cuisine, language, and the unique characteristics that set it apart from other urban centers (Ziyae, 2018). This identity is not only a source of pride for residents but also a powerful tool for city branding. It provides a unique narrative that distinguishes one city from another (Mandagi & Sondakh, 2022). For example, Jakarta is often celebrated for its rich cultural diversity. It's a melting pot of different ethnicities, languages, and traditions. This diversity is reflected in its people, food, and cultural events. The city often promotes itself as a place where various cultures coexist and thrive, making it an exciting and vibrant destination for tourists. As a home to numerous museums, galleries, and cultural institutions, the city actively promotes its art scene, hosting exhibitions, performances, and cultural events. It brands itself as a cultural hub where traditional and contemporary art forms thrive. Bandung, on the other hand, is celebrated for its vibrant and youthful atmosphere, romantic ambiance, creative scene, and culinary excellence. These distinctive cultural identities form the foundation of each city's brand, attracting tourists, investors, and residents. Bandung's fashion designers and creative entrepreneurs are gaining international recognition, and the city hosts

various fashion events and art exhibitions, adding to its reputation as a creative and artistic hub. Surrounded by picturesque landscapes, it is an attractive destination for eco-tourism and outdoor enthusiasts.

Community engagement is a vital component in shaping the branding of a city. It goes beyond slogans, logos, and advertising campaigns, as it involves active participation, collaboration, and interaction with the local residents, businesses, and stakeholders (Mandagi & Aseng, 2021). When effectively executed, community engagement can significantly influence a city's identity and reputation. Firstly, community engagement fosters a sense of belonging and pride among residents (Ambalao et al., 2022). When residents feel heard and valued in decision-making processes, they are more likely to have a positive perception of their city (Wulyatiningsih & Mandagi, 2023). Engaged communities contribute to a vibrant local culture, which can become a defining characteristic of the city's brand (Shirvani & De Luca, 2019). For example, Bali, as a global tourism destination that actively involves its citizens in cultural events, public art installations, and local initiatives, often develops a reputation as a culturally rich and diverse place to live and visit.

Secondly, community engagement helps identify and address local issues. Through open dialogue and feedback mechanisms, cities can better understand the concerns and aspirations of their residents (Ambalao et al., 2022). By proactively addressing these issues, such as traffic congestion, environmental sustainability, or affordable housing, cities can enhance their image as responsive and forward-thinking. Consequently, they become known for their commitment to quality of life, further shaping their brand.

Environmental and Natural Factors

Environmental and natural factors are integral antecedents of effective city branding. A city's natural surroundings, environmental initiatives,

cultural activities, and community engagement all contribute to its unique identity and appeal (Katsikeas, 2016). As cities increasingly compete for attention and investment in a globalized world, those that harness their natural assets and prioritize sustainability are better positioned to build strong and lasting brands (Parkinson et al., 2017). In the age of conscious consumerism and responsible tourism, cities must recognize the vital role that their environmental and natural factors play in shaping their brand and driving their success.

Firstly, a city's natural environment, including its landscape, climate, and biodiversity, greatly influences its brand (Mandagi et al., 2022). A city blessed with natural beauty, such as stunning landscapes, pristine beaches, or lush greenery, has a distinct advantage in attracting tourists and residents. For instance, cities like Bandung, Manado, and Ubud have leveraged their breathtaking natural surroundings to build strong brands associated with outdoor activities, adventure, and a high quality of life. Bandung, the capital of West Java, is nestled amid lush green mountains, and its beautiful landscapes have earned it a reputation as the "Paris of Java." Located on the island of Flores, Labuan Bajo has embraced its role as the starting point for adventure seekers looking to explore the park's unique wildlife and pristine waters. Manado, in North Sulawesi, has developed a brand associated with underwater exploration, marine conservation, and a high quality of life for divers and marine enthusiasts (Walean et al., 2023).

Moreover, a favorable environmental record and sustainability efforts can enhance a city's brand. In today's environmentally conscious world, cities that prioritize clean energy, efficient transportation, green spaces, and waste reduction projects are seen as forward-thinking and progressive (Singh & Singh, 2017). For example, Yogyakarta, often referred to as Jogja, has made efforts to become a more sustainable and environmentally friendly city, attracting eco-conscious travelers and businesses. The city has been working on waste management

programs and aims to reduce its carbon footprint through public transportation improvements and green urban planning. Sustainability initiatives not only improve a city's image but also contribute to its long-term appeal and competitiveness.

Furthermore, natural factors can inspire cultural and recreational activities that define a city's brand. A city's natural assets often serve as the backdrop for various cultural events and recreational opportunities. Festivals and cultural celebrations held in beautiful natural settings create memorable experiences for residents and visitors alike. For instance, the Tomohon International Flower Festival (TIFF), set against the backdrop of its lush green mountains and stunning landscapes, has become synonymous with the city's distinctive features and characteristics (Mandagi, 2023; Mandagi & Aseng, 2021).

Additionally, environmental conservation efforts can foster a sense of pride and belonging among residents. When a city prioritizes the preservation of its natural heritage, it fosters a strong sense of identity and community (Ambalao et al., 2021). Residents are more likely to participate in branding initiatives and promote their city as a desirable place to live, work, and visit (Mandagi et al., 2021). Bali, often referred to as the "Island of the Gods," is famous for its stunning beaches, lush rice terraces, and vibrant marine life. Bali's commitment to preserving its natural beauty has not only shaped its brand as a green and environmentally conscious city but has also instilled civic pride among its residents. Central to Bali's brand and its commitment to preserving this natural beauty is the Subak system, a traditional water management system that has played a crucial role in shaping the island's landscapes and sustaining its agricultural practices for over a thousand years. As Bali continues to grapple with tourism-related challenges and environmental conservation, the Subak system serves as a model for sustainable land use and community-based natural resource management. It not only sustains Bali's brand as

a haven of natural beauty but also exemplifies the harmonious coexistence of culture and nature, making it a significant contributor to Bali's global appeal as a unique and culturally rich destination.

Governance and Safety

Good governance plays a pivotal role in city branding. When a city is well-governed, it tends to have efficient public services, transparent decision-making processes, and policies that promote sustainable development (Shirvani & De Luca, 2019). These attributes are highly appealing to potential investors and residents, as they create an environment conducive to business growth and a high quality of life. For instance, a city with well-maintained infrastructure, reliable public transportation, and a commitment to environmental sustainability will undoubtedly attract positive attention.

Political stability plays a pivotal role in shaping city branding, influencing perceptions, attracting investments, and fostering sustainable development (Górska-Warsewicz, 2020). A stable political environment within a city provides the foundation for effective governance, economic growth, and overall societal well-being (Oguztimur & Akturan, 2016). Firstly, political stability instills confidence and trust among residents, businesses, and investors. A stable government ensures consistent policies, regulations, and long-term planning, giving businesses the confidence to invest and operate within the city (Górska-Warsewicz, 2020). This stability is a fundamental aspect of a city's brand, reflecting reliability and predictability in its functioning. Secondly, a politically stable city is more likely to project a positive image globally. It becomes an attractive destination for international investments, tourism, and talent. A city known for its stability is perceived as a safe and secure place for people to live, work, and visit. This positive perception directly contributes to the city's brand, attracting a diverse range of stakeholders and promoting growth (Sijabat et al., 2022).

Furthermore, political stability facilitates effective governance by enabling the implementation of sustainable development strategies (Mandagi et al., 2023). Policies focused on infrastructure development, environmental sustainability, and social welfare can be pursued with consistency and dedication, enhancing the city's overall image. A city with a strong brand identity based on stability and good governance can leverage this image to negotiate partnerships, collaborations, and funding for various initiatives.

However, it's important to note that branding is not merely about projecting a positive image but also about aligning the city's brand with its unique identity, values, and aspirations (Waworuntu et al., 2022). While political stability forms a critical aspect of city branding, it must be complemented by inclusivity, transparency, and the involvement of various stakeholders to create a holistic and genuine brand that resonates with both the local population and the international community (Wulyatiningsih & Mandagi, 2023). Overall, political stability is a cornerstone in shaping a city's brand and influencing its trajectory towards prosperity and sustainability.

City branding strategies are designed to highlight a city's unique characteristics, and the cost of living is a fundamental aspect. Governments and city planners play a vital role in shaping policies that influence the cost of living, directly impacting the city's image and branding (Lebo & Mandagi, 2023). Striking a balance to ensure a reasonable cost of living while maintaining or enhancing the city's attractiveness is a critical governance challenge in urban development and branding (Rondonuwu & Mandagi, 2023). Cities with a reasonable cost of living are often branded as attractive places for residents, professionals, and businesses. A lower cost of living implies affordability in housing, daily expenses, and overall lifestyle, making a city appealing for those seeking a good quality of life without excessive financial strain. Conversely, cities with a high cost of living may position themselves as centers of luxury, sophistication, or exclusivity.

These cities often target high-income individuals and businesses, promoting a premium lifestyle and services. However, managing a high cost of living is a delicate balance, as it must align with the perceived value and amenities offered.

Safety is another crucial aspect of effective city branding. People are naturally drawn to places where they feel secure and can enjoy their lives without constant worry about crime or accidents. A city that prioritizes safety not only enhances the well-being of its residents but also appeals to tourists and investors. Low crime rates and effective emergency services contribute to the perception of a city as a desirable destination for both leisure and business.

The hospitality sector, as part of governance, significantly impacts city branding by creating a welcoming environment that amplifies the city's unique identity, promotes economic growth, and fosters a positive image in the eyes of the world (Rondonuwu & Mandagi, 2023). City branding involves cultivating a unique identity and positioning a city in the global marketplace. Exceptional hospitality services are a fundamental aspect of this identity, showcasing the city's culture, heritage, and values. Visitors' experiences with local hospitality, including accommodations, dining, and cultural events, directly influence their perception of the city. Satisfied visitors become advocates, promoting the city's brand through word-of-mouth and social media. When cities prioritize and enhance their hospitality offerings, they create a positive and lasting impression on visitors, residents, and businesses. A welcoming and well-serviced environment reflects a city's commitment to inclusivity, economic growth, and tourism development.

Infrastructure and Services

Physical infrastructure is an integral part of governance in city branding, influencing how a city is perceived globally and locally. Well-planned and aesthetically pleasing infrastructure can project an image of modernity, efficiency, and progress, crucial for a positive city brand (Mandagi et al., 2021). Cities

strategically design and invest in their infrastructure to convey specific messages to residents, visitors, and investors. Iconic landmarks, sustainable buildings, and smart transportation systems highlight a city's commitment to sustainability and innovation. Conversely, neglected or outdated infrastructure can tarnish a city's image, implying inefficiency or a lack of progress. Moreover, accessibility and connectivity, facilitated by a well-maintained infrastructure, are critical for a city's economic development and tourism (Shirvani & De Luca, 2019). Efficient transportation systems and easily navigable layouts showcase a city's convenience and livability, enhancing its brand as an attractive destination for both residents and businesses (Oguztimur & Akturan, 2016).

Healthcare facilities are a crucial component of a city's infrastructure which are instrumental in crafting a city's brand and image. A city's healthcare system reflects its commitment to the well-being of its residents and visitors, influencing the perception and reputation of the city (Górska-Warsewicz, 2020). Accessible, efficient, and high-quality healthcare services contribute to a positive city image, attracting businesses, tourists, and residents. Firstly, a well-functioning healthcare infrastructure establishes trust and confidence in the city's governance. It assures people that the city prioritizes their health by providing essential services and fostering a sense of security. This trust translates into a favorable perception of the city, impacting its brand image (Abin et al., 2022). Secondly, healthcare facilities are often considered a vital part of a city's economic development strategy. Advanced medical facilities and research centers can attract healthcare professionals, researchers, and medical tourism, boosting the city's economy and branding it as a hub for medical excellence. Furthermore, healthcare facilities can act as cultural ambassadors, reflecting a city's commitment to diversity and inclusivity. Inclusive healthcare services resonate with a city's values, promoting a positive brand that appeals to a wide audience.

In the modern era, a city's digital presence is a significant determinant of its image and reputation (Waworuntu et al., 2022). City branding, a strategic process to establish a city's unique identity and appeal, is heavily influenced by the extent and effectiveness of its digital connectivity. Through digital connectivity, cities can highlight sustainable practices, innovation, and smart urban development initiatives, contributing to a positive brand image (Wulus et al., 2022). Conversely, inadequate digital connectivity or a poorly managed online presence can hinder a city's branding efforts, leading to misrepresentation and missed opportunities for growth and development. In essence, digital connectivity is an integral tool for cities to craft and amplify their brand, fostering economic growth, attracting stakeholders, and enhancing overall livability.

Cities utilize digital platforms and technologies to showcase their cultural, economic, environmental, and social attributes. Websites, social media, interactive maps, virtual tours, and multimedia content allow cities to exhibit their strengths and distinctiveness (Poluan et al., 2022; Wulus et al.,

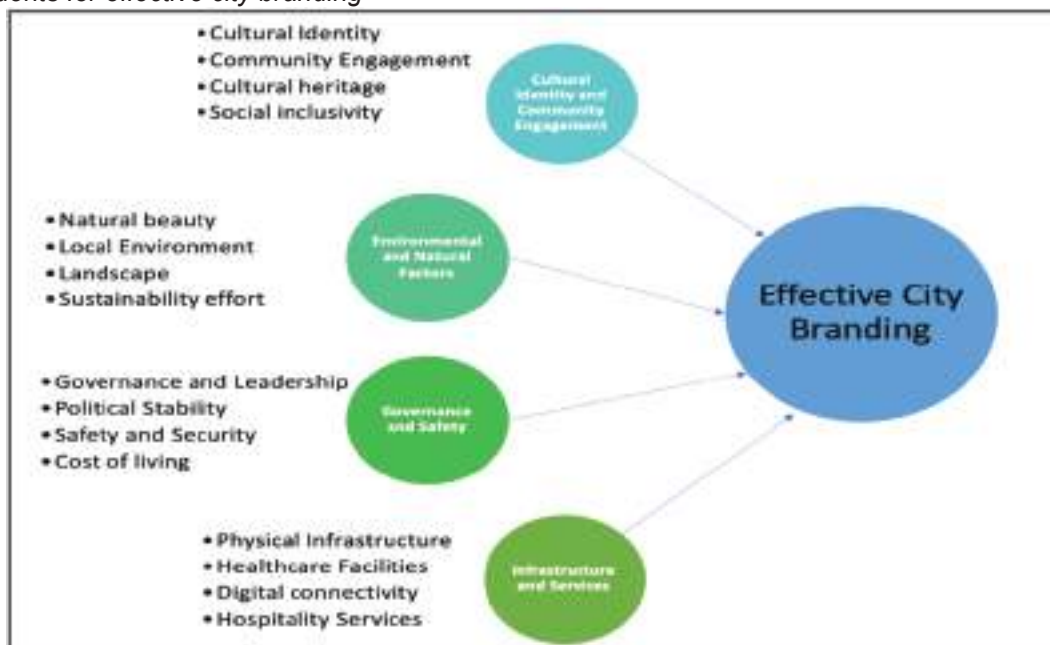
2022). Efficient digital infrastructure enables cities to engage with a diverse audience, attracting tourism, investment, and talent. Moreover, online platforms enable real-time communication and feedback, facilitating citizen engagement and participation in governance processes (Sijabat et al., 2022).

Through digital connectivity, cities can highlight sustainable practices, innovation, and smart urban development initiatives, contributing to a positive brand image. Conversely, inadequate digital connectivity or a poorly managed online presence can hinder a city's branding efforts, leading to misrepresentation and missed opportunities for growth and development. In essence, digital connectivity is an integral tool for cities to craft and amplify their brand, fostering economic growth, attracting stakeholders, and enhancing overall livability (Poluan et al., 2022).

Figure 2 encapsulates the antecedents and elements vital for effective city branding, illustrating the multifaceted nature of this process. The elements of effective city branding, showcased in this figure, encompass various interconnected components.

Figure 2

Antecedents for effective city branding



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Yaningkamot Makalingkawas Sang Kapit-Os: A Case Study on Microfinance Borrowers

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Microfinance has emerged as a powerful tool for providing financial services to individuals who are traditionally excluded from formal banking systems. By examining the stories and journeys of microfinance borrowers, this case study seeks to shed light on the effectiveness of microfinance in empowering individuals, promoting entrepreneurship, and fostering economic development. Through an in-depth analysis of the challenges, successes, and lessons learned by microfinance borrowers, this study aims to contribute to the understanding of the role and impact of microfinance in improving the lives of underserved communities. This study is anchored on the theories of Yunus, the Grameen Model, and Maslow's Hierarchy of Needs. The setting of the study is in two municipalities located in Davao Region. Yin's model of qualitative data analysis was adopted. This study was participated by six business owners. Results showed that borrowers are engaged in microfinance because of the need for a better life, the need for accessibility and opportunity, the need for financial assistance, and the need for non-financial assistance. They also faced challenges such as repayment pressure and difficulties with financial stability. Lastly, microfinance impacted the lives of the borrowers in terms of financial resiliency, life improvement, non-loan benefits, and asset empowerment. It is recommended to develop market channels for the entrepreneurs' products, to offer proper information management and thoroughly examine potential clients, to use this tool to review and learn about others' challenges and solutions, to find more adaptive ways to enhance their program, and for future researchers to utilize this data and information.

Keywords: *microfinance, financial assistance, case study*

Microfinance in the Philippines has played a significant role in promoting financial inclusion and poverty alleviation. It refers to the provision of financial services, such as small loans, savings, insurance, and financial education, to low-income individuals and microenterprises who lack access to traditional banking services (Quinones, 2012). The concept of microfinance gained traction in the Philippines in the 1980s, with the emergence of various microfinance institutions (MFIs) and non-governmental organizations (NGOs) dedicated to serving the poor and marginalized communities.

In today's world, financial inclusion has become a critical goal for societies worldwide. Access to financial services is not only a matter of convenience but also a pathway to economic empowerment and poverty reduction, particularly for individuals in low-income communities. Microfinancing has emerged as a powerful tool in this regard, providing financial services such as small loans, savings, and insurance to individuals who are typically excluded from traditional banking systems (Lapitan, 2015). According to Thai-Ha Le (2021), microfinance has gained significant attention due to its potential to address the needs of the financially underserved. By offering access to credit, microfinancing enables individuals to start or expand microenterprises, invest in education and healthcare, and improve their standard of living.

The Philippines, like many other developing countries, faces the challenge of financial exclusion, where a significant portion of the population lacks access to formal financial services. However, in recent years, microfinance has emerged as a powerful tool to address this issue and promote financial inclusion in the country. (Suansing, 2017). Microfinance in the Philippines has gained considerable traction, thanks to the efforts of numerous microfinance institutions (MFIs) and non-governmental organizations (NGOs) dedicated to serving the financially underserved. These institutions offer tailored financial products and services to individuals who lack collateral, credit

history, or access to formal financial institutions. By providing access to credit, microfinancing enables individuals to start or expand their microenterprises, generate income, and improve their overall standard of living. (Suansing, 2017).

This case study will examine successful microfinancing initiatives and their impact on poverty reduction, job creation, and overall economic development. It will also explore the challenges and opportunities faced by MFIs, such as ensuring sustainability, managing risks, and expanding to remote areas. By understanding the importance and role of microfinancing, policymakers, financial institutions, and development practitioners can design targeted strategies to further promote financial inclusion and empower individuals and communities.

Methodology

Research Design

This study utilized a case-study research design. The case study research design offers strengths such as providing rich qualitative data, facilitating a contextual understanding, enabling a holistic examination, allowing for longitudinal analysis, and offering practical implications. These strengths make case studies a valuable approach for studying microfinance and generating insights that can inform policy and practice in the field. A qualitative case study is a research method that employs multiple data sources to investigate a phenomenon within a specific setting. (Baxter & Jack, 2008). In a case study, a real-world situation is examined within its natural setting, with the understanding that context matters (Crowe, 2011).

Population and Sampling Technique

Purposive sampling is a non-probability sampling technique in which participants are selected based on specific characteristics or qualities that align with the research objective. (Chetty, Partanen, Rasmussen, & Servais, 2014). For this study, purposive sampling was employed to select participants. In the selection of participants,

the following criteria were carefully adopted: (1) participants were specifically chosen from Cateel, Davao Oriental, and Maragusan, Davao De Oro, Philippines, to ensure a representative sample from the target regions; (2) participants were required to have a minimum of five years of engagement with microfinancing, ensuring their substantial experience and familiarity with the microfinance system; (3) it was essential that participants had successfully utilized microfinancing to operate their microbusinesses, emphasizing the direct impact of microfinancing on their entrepreneurial ventures; (4) participants were specifically sought who could demonstrate a positive influence of microfinancing on both their business growth and overall well-being, underscoring the transformative potential of microfinance; and (5) participants were required to express a willingness to actively participate in this study and meet the necessary qualifications, ensuring their commitment and suitability for the research objectives. These rigorous criteria were employed to ensure the selection of participants who could provide valuable insights and experiences related to the importance and role of microfinance. Data was gathered through in-depth interviews and document analysis.

Analysis of Data

To ensure an accurate analysis of the data, the researchers, who were also responsible for collecting the primary data, consistently reflected on both the collected data and the data collection process. By employing qualitative data gathering methods like interviews and focus groups, the researchers were able to read, analyze, and organize the data effectively. Following Yin's framework for qualitative data analysis (Yin, 2014), the researchers utilized theme analysis to uncover meaningful patterns and themes within the collected data. Castleberry and Nolen (2018) emphasize that theme analysis is a descriptive framework that aids in the identification, analysis, and communication of major themes or patterns that emerge from the data.

Ethical Considerations

Ethical considerations play a crucial role in research studies, ensuring the protection of human subjects and maintaining scientific integrity (Orb et al., 2001). This study adheres to the ethical principles outlined by Bhandari (2021) and aims to meet the participants' needs and interests. The following ethical considerations were observed: voluntary participation, informed consent, anonymity, confidentiality, potential for harm, and results communication. By adhering to these ethical considerations, the study aimed to protect the rights and well-being of the participants and maintain the integrity of the research process.

Results and Discussions

Reasons Microfinance Borrowers Engaged in Microfinancing

This study placed a particular emphasis on exploring the experiences of microfinance borrowers and their approach to microfinancing. According to the participants, they highlighted four key reasons why they engaged in microfinancing: need for a better life, the need for accessibility and opportunity, the determination to start a business, and the need for non-financial assistance.

Table 2

Data Analysis RQ1 Reasons Microfinance Borrowers Engaged in Microfinancing

Categories	Themes
Escape the cycle of poverty	Need for a better life
Tool to break free from poverty's grip	Need for accessibility and opportunity
Microfinance microloan opportunities	Determination to start a business
Microfinance's non-loan solution	Need for non-financial assistance

Several studies support the results in Table 2. Kagan (2023) highlighted that microfinance services play a crucial role in providing financial

assistance to unemployed or low-income individuals who face challenges accessing traditional financial institutions due to their limited financial resources. These services enable people to borrow money for their small businesses in a secure manner, ensuring adherence to ethical lending standards.

Microfinance can be used for self-employment and other income-generating activities, and microloans provide the poor with an opportunity to raise their revenues as an alternative to traditional financing (Ahlin & Jiang, 2008; Banerjee & Jackson, 2017; Castells-Quintana et al., 2019; Roodman & Jonathan, 2014). By offering microloans, the world's poor people have access to money they can use to either keep up their present level of living and economic activity or start new ones (Ahlin & Jiang, 2008; Banerjee et al., 2015). Participants entered microfinancing thinking that microfinance would lead them to prosperity and improve their livelihood.

According to Le-Thai (2021), with the assistance of microfinance, households can expand opportunities for more income accumulation, thus allowing people to provide for their families. Access to credit can help rapidly stop poverty, disrupt the cycle of poverty by making money available, and facilitate potential business opportunities. Families may save and invest in better housing, healthcare, and education, making the positive impacts more sustainable and lasting. Microfinance provides financial resources to low-income and poor households without involvement in conventional financial systems (Addai, 2017). Through microfinancing programs, grants, deposits, and other forms of funding for small businesses are made available to people with low incomes and other disadvantages (Alabdullah et al., 2018).

Challenges Faced by Microfinance Borrowers

The challenges that microfinance borrowers confront, according to the participants, are repayment pressure and difficulties in financial stability. Rapidly increasing energy and food prices,

leading to high inflation, significantly impact the income and loan repayment capabilities of micro borrowers. This is particularly evident in the case of micro borrowers, nearly 80% of whom rely on income generated from farming. The sharp surge in fertilizer prices, which are closely tied to energy prices, has adversely affected their financial stability (Asian Development Bank, 2023).

According to Leka et al. (2021), pressure is quite common in microfinance to achieve their quotas. Participants said they sometimes felt pressure to repay the loan because it would reflect their repayment performance. If they are reasonable, they may become much more significant in the next release than then. Also, if it is not paid on the exact day, it can be doubled next time. In microfinance, financial stability is essential; it can regularly provide for the family's demands. It also implies that one is living within their means. This enables putting away a small amount for potential emergencies (Nordqvist, 2020).

Table 3

Data Analysis RQ2 Challenges Faced by Microfinance Borrowers

Categories	Themes
Microfinance payment policy	Repayment pressure
Uncontrollable circumstances	Difficulties in financial stability

Impact of Microfinancing in the Lives of the Microfinance Borrowers

The impact of microfinance on the lives of borrowers includes financial resiliency, life improvement, non-loan benefits, and asset empowerment (Table 3).

Microfinance solutions play a crucial role in addressing the credit needs of borrowers, ensuring that they have access to loans when they need them the most. Unlike traditional banks, microfinance institutions specialize in providing small loans, filling a significant gap in the financial

market. By increasing the availability of funds to the underprivileged, microfinance solutions facilitate capital growth. Littlefield et al. (2003) assert that services such as microcredit have been proven to elevate living standards, boost income, and foster entrepreneurship, leading to job creation in developing nations. Moreover, these services help smooth out seasonal consumption patterns in various societies. Research by Appah et al. (2012) and Leatherman et al. (2012) further suggests that individuals experiencing poverty can utilize increased incomes to acquire assets, improve their living conditions, elevate consumption levels, and enhance overall health.

Table 3

Data Analysis RQ3 Impact of Microfinancing in the Lives of the Microfinance Borrowers

Categories	Themes
Journey towards progress	Financial Resiliency
Sustains welfare	Life Improvement
Benefits from the non-loan assistance	Non-loan Benefits
Obtained Assets	Asset Empowerment

Microfinancing has emerged as a crucial tool for promoting financial inclusion and driving economic development. By providing access to financial services, particularly to the financially underserved, microfinancing empowers individuals, reduces poverty, and fosters sustainable economic growth.

The thematic analysis underscores the interconnectedness of various themes and categories, highlighting the holistic approach adopted by microfinance borrowers. By understanding the importance and role of microfinancing, policymakers, financial institutions, and development practitioners can design and implement strategies that maximize the potential of microfinancing to promote financial inclusion and improve the lives of individuals and communities.

Conclusion and Recommendation

As stated (Gaille, 2017), the poverty issue is that it is a self-perpetuating cycle. When there is not enough money, there is not enough food. When there is an absence of clean water, living circumstances are unsanitary. When individuals are malnourished, they are less inclined to work. A lack of cleanliness increases the likelihood of disease, resulting in lost work days. This is changed by microfinance, which makes more money accessible. When fundamental necessities are satisfied, families can invest in improved wells, sanitation, and health care and afford the time it may take to get them.

According to the participants, they highlighted four key reasons why they engaged in microfinancing: need for a better life, the need for accessibility and opportunity, the determination to start a business, and the need for non-financial assistance. The categories under these themes include: escaping the cycle of poverty; tools to break free from poverty's grip; microfinance microloan opportunities; and microfinance's non-loan solutions.

Microfinance borrowers face various challenges, such as repayment pressure and difficulties in financial stability. The categories under these challenges include microfinance payment policies and uncontrollable circumstances.

The impact of microfinancing on the lives of microfinance borrowers includes financial resilience, life improvement, non-loan benefits, and asset empowerment. The categories under these themes are journey towards progress, sustains welfare, benefits from non-loan assistance, and obtained assets.

It is recommended to develop market channels for the entrepreneurs' products, to offer proper information management and thoroughly examine potential clients, to use this tool to review and learn about others' challenges and solutions, to find more adaptive ways to enhance their program, and for future researchers to utilize this data and information.

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Working Condition and Reward Management Practices Influencing Work Satisfaction of Hotel Industry Employees

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The hotel industry has long struggled to discover what truly inspires and makes hotel employees happy and satisfied in their occupations. Staff turnover in the hotel industry is regarded as high due to the nature of the work, low pay, and long working hours. To address some of the issues in the hotel industry, this study was conducted to determine if work condition and reward management practices influence the work satisfaction of hotel industry employees. A total of 148 hotel employees were given questionnaires. The majority of these employees were male, with ages between 21 and 30 years old, earning a monthly income of Php10,000 and below, and with two to three years of working experience. The results revealed that the psychological and physical working conditions of the employees were good, as were the monetary and non-monetary reward practices. The level of work satisfaction among hotel employees was high. It is further revealed that there is a strong positive correlation between the respondents' working conditions and their work satisfaction. Similarly, there is a highly positive correlation between the employees' reward management practices and their work satisfaction. Lastly, in comparison to the hotel industry workers' satisfaction considering their demographic profile, there is no difference in the work satisfaction of the workers considering their sex, age, and years of service.

Keywords: *Working condition, reward management practices, work satisfaction, hotel industry employees*

Employee work satisfaction is a measure of how happy employees are with their jobs. It has cognitive, emotional, and behavioral components that may be quantified. The hospitality industry has spent years determining what inspires and satisfies hotel employees. The nature of the labor, the low compensation, and the long hours needed by hospitality personnel all contribute to the industry's high turnover rate. As a direct consequence, hotel managers may be forced to contend with maintaining their workers' satisfaction over the long term (Suttikun, Chang, & Bicksler, 2018).

The hospitality industry has an exceedingly high employee turnover rate. While it is typical for a 10-15% turnover rate for an annual work year in most industries, the hospitality industry's turnover rate is closer to 70-80%. Understanding the factors of work satisfaction is crucial for enhancing management practice and organizational success, given the high turnover rates in hospitality industries (Andrade et al., 2021). The hotel industry has long struggled to discover what truly inspires and makes hotel employees happy and satisfied in their occupations. Staff turnover in the hotel industry is regarded as high due to the nature of the work, low pay, and long working hours.

Abraham Maslow proposed a hierarchy of human needs, suggesting that individuals have five levels of needs: physiological, safety, social, esteem, and self-actualization. As lower-level needs are satisfied, individuals move up the hierarchy, seeking higher-level needs. Job satisfaction is influenced by the extent to which the job fulfills these needs. Employees need to develop their self-actualization for a rise in productivity, the implementation of rules, laws, and discipline, as well as an improvement in morale and satisfaction. Employees must cultivate their creativity and ethics, which will, in turn, help them build problem-solving skills. According to Maslow, self-actualization is the need to become more of what one can become. Maslow explained that

when humans are at this level, and all other needs are satisfied, restlessness and disconnect will soon develop if people are not doing what they are meant to do (Demil, 2021).

Working conditions may affect the work satisfaction of employees. The term "working condition" refers to the non-financial factors that contribute to the formation of an atmosphere in which workers can successfully carry out their duties. Relationships with co-workers, the pressures of one's job, and one's physical surroundings are just a few examples of the numerous facets of the work environment that can have opposing effects on an employee's mental and physical state (Awino et al., 2018).

Reward management practices, both financial and non-financial, of many kinds are included in the incentive system, which can also affect the work satisfaction of employees. In human resources administration, coming up with the appropriate incentives for workers has always been difficult. In the hospitality industry, many businesses struggle to determine the most effective strategies to encourage their employees. The reward is "anything that an employer is prepared to offer to an employee in exchange for that person's efforts," and it is intended to cover a wide range of circumstances (Norbu & Wetprasit, 2021).

To address some of the issues in the hotel industry, this study was conducted to determine if work condition and reward management practices influence the work satisfaction of hotel industry employees.

Methodology

Research Design

The study used the descriptive-correlational survey design as it covers two entities: describe the present condition of the population of the variables and using the applicable statistical tools, determine how these variables are related and measure the degree of the relationship.

Population and Sampling Technique

The population of the study was composed of regular employees of six selected hotels. Using purposive sampling, 152 samples participated in the study, of which 89 were male and 63 were female. In terms of age, 58 employees (38.16%) are within the age bracket 21-30, 50 (32.89%) belong to the age bracket 31-40, 19 (12.50%) comprised the 41-50 years old, followed by 17 (11.18%) of those 20 years old and younger, 7 (4.61%) are at the age bracket 51 to 60 years of age and only 1 (0.66%) is of the 61 years old and above age bracket. In terms of years of service, 53 (35.9%) were working for 2-3 years, 34 (22.4%) for a year or less, 33 (22.7%) for 4-5 years, 19 (12.5%) for 6-7 years, 7 (4.6%) for 8-9 years and 6 (3.9%) for more than 10 years.

Instrumentation

The study used Google Forms to gather data. The survey instrument is composed of three parts. Part I provides demographic and socio-economic information— annual income, age, sex, marital status, educational background, work title, and department. Part II, Part III, and Part IV examined the working conditions, reward management practices, and work satisfaction respectively.

Analysis of Data

Data gathered were analyzed using the SPSS software. The profile of the respondents was determined with frequency count and percentage. The employees' perception of the working condition and reward management practices and the level of work satisfaction were assessed using mean and standard deviation. Relationships between variables were tested using Pearson's *r* and linear regression.

Ethical Considerations

This study was submitted to the AUP Ethics Review Board for approval. Consent for voluntary participation was also secured from the participants before the administration of the research instrument. Filled-out questionnaires were not associated with any of the respondents and data were treated with confidentiality.

Results and Discussion

Psychological Working Condition

Table 1 shows the psychological working conditions experienced by the respondents. The result shows that the respondents have good psychological working condition ($M = 2.97$ $SD = 0.62$).

Table 1

Descriptive Statistics on Respondents' Psychological Working Condition

	Mean	SD	Scaled Response	Interpretation
I feel comfortable being true to myself at work.	3.03	.635	Agree	Good
I feel safe confronting someone when they say/do something that hurts me.	2.79	.677	Agree	Good
I believe that my manager is good at resolving conflicts in the team.	2.99	.592	Agree	Good
I believe the leadership is transparent to the workers.	3.09	.671	Agree	Good
I have a strong relationship with my teammates.	3.12	.630	Agree	Good
Committing a mistake at work takes a costly consequence.	2.76	.778	Agree	Good
I feel secure in my work.	2.95	.613	Agree	Good
There is a strong support system among the workers.	3.03	.671	Agree	Good
Overall Mean	2.97	0.66	Agree	Good

Legend: 1-1.5 – Very Poor 1.51-2.5 – Poor 2.51-3.5 – Good 3.51-4 – Very Good

Psychological working condition is the interaction between people in a workplace, the work of the individual and its impact on the employee, organizational conditions, and the culture of the organization. The result implies that there is a good relationship in the workplace. This type of work setting is called a “healthy work environment” (Sitepu et al., 2020).

Physical Working Condition

Table 2 shows the physical working condition experienced by the respondents. The result shows that the respondents have good physical working condition ($M = 2.86$ $SD = 0.74$).

Table 2

Descriptive Statistics on Respondents' Physical Working Condition

	Mean	SD	Scaled Response	Interpretation
My job requires me to work intensively.	2.79	.697	Agree	Good
My job demands too much effort.	2.84	.773	Agree	Good
I have enough time for all my work.	2.92	.742	Agree	Good
My work often involves conflicting demands.	2.85	.669	Agree	Good
My work area is well-ventilated.	3.08	.686	Agree	Good
My work area is small to do my work well.	2.60	.800	Agree	Good
My work area is well lighted.	2.95	.740	Agree	Good
I have a heavy workload.	2.84	.801	Agree	Good
Overall Mean	2.86	0.74	Agree	Good

Legend: 1-1.5 – Very Poor 1.51-2.5 – Poor 2.51-3.5 – Good 3.51-4 – Very Good

Physical working condition is the space allocation in the workplace, physical layout, temperature of the workplace, and safety of the surroundings. The result implies that the employees find their work environment good. An excellent working environment, one that is aesthetically pleasing, hygienically clean, intellectually interesting, and compassionate toward employees, positively impacts both the dedication and retention of workers (Holston-Okae, & Mushi, 2018).

Monetary Reward Management Practices

Table 3 shows the monetary reward management practices as experienced by the respondents. The result shows that the hotels included in the study have good monetary reward management practices ($M = 3.58$ $SD = 0.95$).

Table 3

Descriptive Statistics on Respondents' Monetary Reward Practices

	Mean	SD	Scaled Response	Interpretation
Our company gives fair rewards for every good job at work.	3.59	.930	Often	Good
Workers are informed of the monetary reward system of the company.	3.63	.899	Often	Good
Our company gives merit pay.	3.53	.927	Often	Good

[table continues on the next page]

Our company implements monetary rewards consistently.	3.62	.969	Often	Good
Every worker has an equal chance to receive monetary rewards.	3.67	.919	Often	Good
Our company gives monetary rewards based on evidence.	3.41	.916	Sometimes	Fair
Gift cards and coupons are given to employees who excel in the workplace.	3.55	.968	Often	Good
Additional paid vacation time is given by the company.	3.53	1.042	Often	Good
Overall Mean	3.58	0.95	Often	Good

Legend: 1-1.5-Very Poor 1.51-2.5-Poor 2.51-3.5-Fair 3.51-4.5-Good 4.51-5-Very Good

Among the indicators, being informed and aware of the monetary reward was rated highest. Deckers (2018) contends that while rewards are not the primary focus of work satisfaction, they can help. Incentives may improve employees' conduct by increasing their satisfaction at work because they must follow the rules to obtain the reward.

Non-Monetary Reward Management Practices

Table 4 shows the non-monetary reward management practices experienced by the respondents. The result shows that the hotels included in the study have good non-monetary reward management practices ($M = 3.62$ $SD = 0.93$).

Table 4

Descriptive Statistics on Respondents' Non-Monetary Reward Practice

	Mean	SD	Scaled Response	Interpretation
Our company gives non-monetary rewards that improve workers' well-being.	3.72	.922	Often	Good
Our company gives employees time to work on their projects	3.51	.899	Often	Good
Workers are given non-monetary rewards that they appreciate	3.57	.925	Often	Good
Our company gives experimental rewards that benefit the workers.	3.73	.920	Often	Good
Extra leave and work flexibility are given based on a clear reward system	3.55	.961	Often	Good
Every worker has an equal opportunity to be rewarded.	3.70	.970	Often	Good
Our company gives employees a chance to show appreciation for each other.	3.57	.881	Often	Good
Our company attends educational or well-being events/workshops.	3.60	.992	Often	Good
Overall Mean	3.62	0.93	Often	Good

Legend: 1-1.5 – Very Poor 1.51-2.5 – Poor 2.51-3.5 – Good 3.51-4 – Very Good

Notably, all the indicators were rated good. Employee work satisfaction is influenced by factors other than monetary pay, according to Cassar and Meier (2018).

Work Satisfaction

Table 5 shows the work satisfaction of the respondents. The result revealed that the respondents have a high level of work satisfaction ($M = 3.78$ $SD = 0.91$).

Table 5

Descriptive Statistics on Respondents' Work Satisfaction

	Mean	SD	Scaled Response	Interpretation
There is a good interpersonal relationship among workers.	3.71	.911	Often	High
The culture is generally good.	3.72	.855	Often	High
The workers are encouraged to give feedback.	3.68	.925	Often	High
Workers find their work meaningful.	3.65	.923	Often	High
Workers have adequate opportunities for promotions and career development.	3.74	.913	Often	High
Workers are provided with the tools and technologies necessary to do their jobs well.	3.88	.901	Often	High
There is regular recognition of workers' accomplishments.	3.82	.885	Often	High
Workers are kept informed of pertinent news and information in a timely manner.	3.77	.895	Often	High
Workers are treated as team members.	3.91	.913	Often	High
The management is transparent.	3.95	1.028	Often	High
Overall Mean	3.78	0.91	Often	Good

Among the indicators, the respondents rated highest the transparency of the management, followed by their experience being treated as team members, and provided with the tools and technologies to do their job well. The employees were highly satisfied. According to Pancasila, Haryono, and Sulistyono (2020), how the management treats their employees affects their satisfaction and performance.

Table 6 presents the correlation between psychological working condition and work satisfaction. The data showed that there is a strong positive correlation between the two variables ($r = 0.518$; $p < .001$).

Relationship of Working Condition, Reward Management Practices, and Work Satisfaction

Table 6

Correlation between the Respondents' Psychological Working Conditions and Their Work Satisfaction

Work Condition	Psychological Working Condition		Work Satisfaction
	Pearson Correlation	1	0.518**
	Sig. (2-tailed)		<.001
	N		152
	Pearson Correlation	0.518**	1
	Sig. (2-tailed)	<.001	
	N	152	152

Psychological working condition is an important indicator of employees' psychological status which directly affects job satisfaction. Managers are increasingly realizing that job satisfaction is the key to retaining excellent employees and organizational health. Therefore, companies must pay much attention to the employees' mental health conditions if they want to improve competitiveness (Cao et al., 2022).

Table 7 presents the correlation between physical working condition and work satisfaction. The data showed that there is a strong positive correlation between the two variables ($r = 0.545$; $p < .001$).

Table 7

Correlation between the Respondents' Physical Working Conditions and Their Work Satisfaction

		Physical Working Condition	Work Satisfaction
Work Condition	Pearson Correlation	1	0.545**
	Sig. (2-tailed)		<.001
	N	152	152
	Pearson Correlation	0.545**	1
	Sig. (2-tailed)	<.001	
	N	152	152

The study by Budie et al. (2018) revealed that both personal and environmental variables affect satisfaction and the use of the workspaces was extensive.

Table 8 presents the correlation between the working condition and work satisfaction. The result showed that there is a strong positive correlation between the two variables ($r = 0.577$; $p < .001$).

Table 8

Correlation between the Respondents' Working Conditions and Their Work Satisfaction

		Working Condition	Work Satisfaction
Work Condition	Pearson Correlation	1	0.577**
	Sig. (2-tailed)		<.001
	N	152	152
	Pearson Correlation	0.577**	1
	Sig. (2-tailed)	<.001	
	N	152	152

As found in the study of Taheri et al. (2020), the working environment has a significant impact on job satisfaction. The study showed significant impacts of the working environment on job satisfaction. Without providing better facilities organizations can't run properly, whereas the working environment is the prime concerning issue of the employee.

Table 9 shows the correlation between monetary reward management practices and work satisfaction. The result revealed that there is a strong positive correlation between the two variables ($r = 0.784$; $p < .001$).

Table 9

Correlation between the Respondents' Monetary Reward Management Practices and Their Work Satisfaction

		Work Satisfaction	Monetary Reward Management Practices
Work Condition	Pearson Correlation	1	0.577**
	Sig. (2-tailed)		<.001
	N	152	152
Monetary Reward Management Practices	Pearson Correlation	0.577**	1
	Sig. (2-tailed)	<.001	
	N	152	152

The research of Al-Jalkhaf and Alshaikhmubarak (2022) showed a large effect of financial and non-financial incentives on work satisfaction.

Table 10 presents the correlation between non-monetary reward management practices and work satisfaction. The result showed that there is a strong positive correlation between the two variables ($r=0.760$; $p<.001$).

Table 10

Correlation between the Respondents' Non-Monetary Reward Management Practices and Their Work Satisfaction

		Work Satisfaction	Non-Monetary Reward Management Practices
Work Condition	Pearson Correlation	1	0.760**
	Sig. (2-tailed)		<.001
	N	152	152
Non-Monetary Reward Management Practices	Pearson Correlation	0.760**	1
	Sig. (2-tailed)	<.001	
	N	152	152

The study of Alkandi et al. (2022) significantly demonstrated the importance of non-financial, moral incentives in achieving job satisfaction.

Table 11 shows the correlation between reward management practices and work satisfaction. The result showed that there is a strong positive correlation between the two variables ($r=0.808$; $p<.001$).

Table 11

Correlation between the Respondents' Reward Management Practices to Their Work Satisfaction

		Work Satisfaction	Reward Management Practices
Work Condition	Pearson Correlation	1	0.808**
	Sig. (2-tailed)		<.001
	N	152	152
Reward Management Practices	Pearson Correlation	0.808**	1
	Sig. (2-tailed)	<.001	
	N	152	152

The study of Kainga (2021) revealed that reward management practices had a positive and statistically significant relationship with job satisfaction.

Table 12 shows that both working condition and reward management practices influence the work satisfaction of the respondents. Between the two, reward management practices has higher influence (Beta score of .728) than working condition (Beta score of 0.14). This implies that hotel employees are satisfied with the rewards they receive more than their working condition.

Table 12

Linear Regression Result between the Work Condition and Rewards Management Practices of Hotel Industry Workers and Its Influence on their Work Satisfaction

Model	Unstandard Coefficients		Standardized Coefficients		Sig	Correlations		Collinearity Statistics		
	B	Standard Error	Beta	t		Zero-Order	Partial	Part 1	Tolerance	VIF
1 (Constant)	.471	.258		1.824	.070					
WORK CON	.239	.111	.130	2.155	.033	.577	.174	.102	.622	1.607
REWARD	.727	.060	.728	12.070	<.001	.808	.703	.574	.622	1.607

The results of the study of Apriyanti, Sudiarditha, and Saptono (2021) indicate a positive and significant effect of reward on job satisfaction and a positive and significant effect of the work environment on job satisfaction.

Comparison of Hotel Industry Workers' Work Satisfaction Considering their Demographic Profile

Table 13 presents the mean, standard deviation, t-value, and significance of work satisfaction considering sex. The data show that sex makes no significant difference in work satisfaction.

Table 13

Comparison of Hotel Industry Workers' Work Satisfaction Considering Their Sex

	Sex	N	Mean	Standard Deviation	Std. Error Mean	F	Sig	T-test	df
Work Satisfaction	Male	89	3.78	0.76294	0.08087	0.208	0.649	-0.086	150
	Female	63	3.7903	0.66928	0.08432				

In the study of Liu et al (2021), it was found that there were no significant gender differences observed in job satisfaction.

Table 14 presents the mean, standard deviation, t-value, and significance of work satisfaction in terms of age. The data shows that there is no significant difference in the level of the workers' work satisfaction between age groups. This implies that hotel industry workers, young or old, have generally the same level of work satisfaction.

Table 14*Comparison of Hotel Industry Workers' Work Satisfaction Considering their Age*

	N	Mean	Standard Deviation	Std. Error Mean	F	Sig
20 yrs below	17	3.4235	1.02563	0.24875		
21 - 30	58	3.7739	0.69065	0.09069		
31 - 40	50	3.888	0.55756	0.07885		
41 - 50	19	3.6643	0.89221	0.20469	1.941	0.91
51 - 60	7	4.2286	0.28702	0.10848		
61 up	1	4.5				
Total	152	3.7843	0.7233	0.05867		

In the study of Hasanzadeh (2022), there was a highly positive association between participants' age and job satisfaction.

Table 15 presents the mean, standard deviation, t-value, and significance of work satisfaction in terms of years of service. The result shows that there is no significant difference in the level of work satisfaction in terms of years of service. This implies that regardless of the years spent in the hotel, the level of work satisfaction is generally the same.

Table 15*Comparison of Hotel Industry Workers' Work Satisfaction Considering their Years of Service*

	N	Mean	Standard Deviation	Std. Error Mean	F	Sig
1 yrs below	34	3.7618	0.78006	0.13378		
2 - 3	53	3.6451	0.78257	0.10749		
4 - 5	33	3.8394	0.58627	0.10206		
6 - 7	19	4.1158	0.54596	0.12525	1.929	0.93
8 - 9	7	4.1175	0.41889	0.15832		
10 yrs above	6	3.4	0.9757	0.39833		
Total	152	3.7843	0.7233	0.05867		

In the study of Alcana et al. (2019), the results revealed that there was no significant relationship between job satisfaction and years of service. This implies that the length of time spent in a company cannot guarantee the work satisfaction of employees.

Conclusion and Recommendation

This study investigated work satisfaction and how it is influenced by working conditions and reward management practices among employees of selected hotels. The results showed that employees have good psychological and physical working conditions. They have experienced good reward management practices, both in monetary and non-monetary forms and they have a high level of work satisfaction. Both working conditions and reward management practices influence the work satisfaction of the employees in the hotel industry.

Considering the nature of the work in the hotel industry, this study recommends enhancing the work satisfaction of employees by improving their working conditions and consistently providing equitable monetary rewards and valuable non-monetary rewards.

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Mamuhunan sa Kaugmaon: A Case Study on Financial Management of Tertiary Education Subsidy Grantees

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With the rising costs of higher education, many students rely on financial assistance programs to pursue their academic goals. The tertiary education subsidy plays a crucial role in supporting students financially, but it is essential to understand how effectively students manage these funds. Thus, this case study seeks to provide valuable insights into how tertiary education subsidy grantees responsibly manage their finances. Senior college students from an Adventist institution in Davao, Philippines voluntarily participated in the study. The researchers observed confidentiality and anonymity of the participants. Data was gathered through eight in-depth interviews, two focus group discussions and document analysis. In analyzing, the analysis framework of Robert Yin is adopted. This study is anchored on the Life Cycle Theory of Franco Modigliani and the Bucket Theory of Financial Management. Results showed that grantees manage their money from TES by returning the tithe, prioritizing bills and expenses, extending financial assistance to family, and ensuring savings. The challenges while managing their TES are the following: lack of financial literacy, lack of financial planning, and impulsive buying. The strategies used to overcome financial management challenges include financial literacy education, budgeting and expense tracking, and the development of good budgeting habits. It is recommended to conduct further study on factors that affect financial management in the context of tertiary education subsidy grantees.

Keywords: *tertiary education subsidy, financial management, case study, Davao*

Tertiary Education Subsidy (TES) program in the Philippines has emerged as a significant initiative aimed at addressing the financial barriers faced by students pursuing higher education. Introduced as part of the comprehensive education reform agenda, TES seeks to provide financial assistance to qualified students, enabling them to access and complete tertiary education. Since its inception, the program has played a crucial role in alleviating the financial burden on students and has had a transformative impact on their educational journey (Purigay, 2020).

The TES program has helped alleviate the burden of educational expenses and has enabled countless individuals to pursue their academic aspirations. Through its comprehensive approach, TES has not only transformed the lives of students but has also contributed to the overall development of the nation (Purigay, 2020).

According to the Asian Development Bank, Philippines is ranked as 68th in a worldwide financial literacy index. The absence of a high level of financial literacy leads to wrong financial decisions and management (Sabalo, 2019). The students suffer from financial problems because of their poor financial management, in a survey, 31.2% did not know where their money was spent. (Daud et al., 2018). Students who display better attitudes in money management tend to outperform their peers who didn't develop the habits in the areas choosing financial products and services and monitoring expenses (Lucas, 2018). They are also prone to result in impulsive consumption and low ability in repayment since they do not have a source of income (Wei, 2019). Researches nowadays have focused on the lack of financial knowledge and understanding among the young adults (Lucas, 2018). The financial illiteracy of the young people and how it affects the financial decision making were given less attention in the field of research (Jayaraman & Jambunathan, 2018).

The tertiary education subsidy plays a crucial role in supporting students financially, but it is essential to understand how effectively students

manage these funds. By analyzing the financial behaviors, decision-making processes, and challenges faced by college students, this case study seeks to provide valuable insights how tertiary education subsidy grantees responsibly manage their finance.

Methodology

Research Design

This study utilized a case study research design. A qualitative case study is a research method that employs multiple data sources to investigate a phenomenon within a specific setting. (Baxter & Jack, 2008). In a case study, a real-world situation is examined within its natural setting, with the understanding that context matters (Kaarbo & Beasley, 1999).

Population and Sampling Technique

In case studies, it is common for sample sizes to be small, as is the case in most qualitative research. The selection of samples and cases can sometimes be straightforward and clear, particularly when dealing with unique individuals, organizations, or when special arrangements or access to the case are available. According to Yin (2018), one approach is to seek input from knowledgeable individuals regarding potential case candidates or collect limited documentation about them. In qualitative research, Strauss (1990) suggests the concept of saturation as a means to determine an acceptable sample size. However, it is essential to note that there are no rigid rules for selecting the appropriate sample size in qualitative research. Factors such as the available time, resources, and research goals often serve as significant indicators for determining the sample size (Patton, 1987).

Convenience sampling is a non-probability sampling technique in which participants are selected based on their accessibility and proximity to the researcher. This method is characterized by selecting individuals or units that are readily available and convenient for the researcher to

study. Convenience sampling is often used when time, resources, or access to the entire population are limited (Singleton et al., 2010). The participants in this research consisted of senior college students from an Adventist institution in Davao, Philippines voluntarily participated in the study. These students demonstrated consistent payment records and had no outstanding obligations since their first year. As the study was conducted on-campus, we focused on senior students who were available in this college during the research period, as some TES grantees were engaged in off-campus internships and practicum. To select our participants, we obtained the names of senior college students from the Registrar and the Director of Student Finance (DSF). These seniors were chosen as our sample due to their ability to provide valuable insights and substantial information to fulfill the research objectives. Data was gathered through eight in-depth interviews, two focus group discussion and document analysis.

Analysis of Data

In qualitative research, the process of systematically searching and organizing interview transcripts, observation notes, or other non-textual information acquired by the researcher to deepen understanding of the phenomenon is referred to as data analysis (Bogdan & Biklen, 1982). In this study, the researchers utilized thematic analysis as a technique to derive meaning from the collected data. Thematic analysis involves scrutinizing the data collection to identify, examine, and document recurring patterns. It is important to note that while thematic analysis is a technique for representing data, the selection of codes and development of themes inherently involve interpretation (Braun & Clarke, 2006). Another widely recognized approach for analyzing qualitative research data is Yin's data analysis framework, developed by Robert K. Yin. This framework provides a structured and systematic process for analyzing data obtained through interviews, observations, or documents (Yin, 2018).

Ethical Consideration

To ensure a clear and respectful interview process, it is crucial for all participants to treat each other with respect and adhere to ethical principles. The researchers guaranteed confidentiality, obtained informed consent, and ensure the participants' rights to privacy. Ethical considerations such as anonymity, confidentiality, and informed consent, as emphasized by Richards and Schwartz (2002), has been upheld throughout the research process.

Results and Discussion

Financial Management of Tertiary Education Subsidy Grantees

The Filipino college students commonly exhibit various financial management practices, such as setting financial goals and tracking expenses. Students' perceived financial well-being is influenced by their financial behaviors, including their ability to manage debt, control spending, and save for the future.

This study placed a particular emphasis on exploring the financial management of TES grantees. According to the participants, they highlighted three key factors in their financial management: putting God first, extending financial assistance to family, prioritizing bills and expenses, and ensuring savings. These aspects were identified as crucial elements in their approach to financial management.

Table 1

Data Analysis RQ1

Categories	Themes
Spiritual Responsibility	Putting God First
Prioritizing Family	Extending Financial Assistance to Family
Support to related expenses in education	Prioritizing Bills and Expenses
Savings	Ensuring Savings

Philippians 4:19 emphasizes the faithfulness of the Lord in meeting our needs when we obediently give back to Him. This highlights the importance

of tithing as a practice desired by God. There are several advantages to giving tithes. It demonstrates your faith in God as your ultimate source; it allows you to witness God's provision in your finances; and it aligns with God's promise to bless abundantly (Malachi 3:10).

The influence of parents on students' money management habits was found to be the most significant, with 70.0% of respondents citing parents together as the primary influence. Among individual parents, 13.0% mentioned their mother, while 6.0% mentioned their father. Upon entering college, many students face financial challenges such as bill payments, budget creation, and navigating credit for the first time in their lives. The ability to effectively manage these challenges relies on the financial knowledge and behaviors they acquired prior to becoming independent (Lyons et al., 2006).

Browning and Lusardi (1996) explain that saving occurs when there is a surplus of income over consumption during a specific period of time. In a psychological context, Warneryd (1999) defines saving as the act of reserving funds for future use by refraining from immediate purchases. In simpler terms, saving behavior is the result of perceiving future needs, making a deliberate choice to save, and following through with the necessary actions.

Financial Management Challenges of Tertiary Education Subsidy Grantees

Lack of financial knowledge often leads to overspending, resulting in many Filipinos losing their money (Dulin, 2016). College students face the challenge of controlling their spending, and their financial management during this period will significantly impact their future financial condition. It is during their college years that most students experience spending without the guidance of their parents (Sabri et al., 2008).

The challenges Tertiary Education Subsidy Grantees confront according to the participants are lack of financial literacy, lack of financial planning and impulsive buying.

Table 2

Data Analysis RQ2

Categories	Themes
Bad Spending Habits	Lack of Financial Literacy
Bad budgeting	Lack of Financial Planning
Budget Plan Not Followed	Impulsive Buying

As teenagers leave for college after graduating from high school, they often find themselves having to manage their own finances and food for the first time. There are several factors that can contribute to increased food expenses, such as food waste and dining out. Most Filipinos lose their money because of overspending due to lack of financial knowledge (Dulin, 2016). College students often face the challenge of controlling their spending, and the way they manage their finances during this time will significantly impact their future financial condition. It is during their college years that the majority of students experience the responsibility of spending without the guidance of their parents (Sabri et al., 2008).

Overspending can have detrimental effects on an individual's financial situation, as it can deplete funds that were intended for other important expenses or savings goals. Moreover, exceeding the planned budget can disrupt an individual's financial strategy or goals. This highlights the significance of adhering to a financial plan, making wise expenditure decisions, and avoiding impulsive spending in order to maintain fiscal stability and achieve financial objectives (Bae, Hanna & Lindamood, 1993).

Coping Strategies Utilized by Tertiary Education Subsidy Grantees

Addressing the lack of financial literacy among college students can be achieved through the implementation of financial planning and education programs (Goetz et al., 2011). Peer financial planning and education programs are an

effective approach to improving financial literacy and alleviating financial stress among college students.

Drnovsek et al. (2010) define coping as the active process of addressing personal and interpersonal issues and reducing stress caused by challenging and demanding situations. The Tertiary Education Subsidy Grantees cope with the challenges by financial literacy education, budgeting and expense tracking, and the development of good budgeting habits.

Table 3
Data Analysis RQ3

Categories	Themes
Self educate and plan ahead	Financial literacy education
First things first	Budgeting and expense tracking
Responsible with the finances	Development of good budgeting habits

In conclusion, proactive approach to saving demonstrates foresight and readiness in managing financial uncertainties. The intention is to have a reserve of funds available to navigate challenges without causing significant financial strain or disruption (Sabri & MacDonald, 2010).

The thematic analysis underscores the interconnectedness of various themes and categories, highlighting the holistic approach adopted by tertiary education subsidy grantees. Brown et al. (2010) emphasizes the interconnected nature of education, jobs, and income, indicating a need for a holistic perspective.

The participants follow a systematic approach to managing their money. They first allocate their funds to cover essential and high-priority expenses or goals. Only after taking care of these important financial obligations do they consider spending on less significant or non-essential items. This strategy reflects responsible financial decision-making by ensuring that the most crucial needs and commitments are addressed before indulging

in discretionary purchases. By prioritizing their financial resources in this way, the participants aim to achieve a balance between practicality and enjoyment while managing their finances effectively (James, Leavell & Maniam, 2002).

Conclusion and Recommendations

Therefore, the findings of this study suggest that the financial management of Tertiary Education Subsidy Grantees employ distinct strategies in managing their finances. These strategies encompass various aspects, including putting God first, extending financial assistance to family, prioritizing bills and expenses and ensuring savings. These aspects were identified as crucial elements in their approach to financial management. The categories under these themes include spiritual responsibility, prioritizing family, support to related expenses in education and savings.

Tertiary Education Subsidy Grantees face various challenges, such as lack of financial literacy, lack of financial planning and impulsive buying. The categories under these challenges include bad spending habits, bad budgeting and budget plan not being followed.

To cope with these challenges, Tertiary Education Subsidy Grantees employ coping strategies such as financial literacy education, budgeting and expense tracking, and the development of good budgeting habits. The categories under these coping strategies include self educate and plan ahead, first things first, responsible with the finances.

Further research investigating the factors that influence financial management among Tertiary Education Subsidy (TES) grantees would be highly relevant and beneficial. Such research would provide a deeper understanding of these factors and enable the development of effective strategies to enhance the financial management skills of students, enabling them to handle and maximize their TES subsidies more effectively.

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Influence of Perception on Benefits and Intrinsic Motivation on Employee Commitment Among Adventist Organizations in Laos

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Employee commitment is a key factor that helps organizations become successful because their workforces are motivated to be productive. Employee benefits play an important role in helping to make employees feel valued and secured by their employers when they face unexpected family expenses. This study aimed to find the extent to which these benefits and intrinsic motivation impacted employee commitment to Seventh-day Adventist organizations are operated by the Laos Adventist Mission. Data for this research study was collected using both quantitative and qualitative methods. A survey questionnaire with a rating scale and open-ended questions was completed by 44 participants from four provinces and in-depth interviews with eight participants were also conducted. The findings showed that employee benefits did not have a significant positive influence on employee commitment; however, intrinsic motivational factors had statistically significant positive influence on employee commitment. So while employees may not prioritize employee benefits when choosing to work for Adventist organizations, nevertheless, providing those benefits specified by denominational policy is a practical way to demonstrate care and responsibility toward valued human resources. Without intrinsic motivation, such organizations would face challenges in trying to recruit and retain their workforce. Therefore, organizations, especially in the not-for-profit sector, need to treat their employees well and make sure that the intrinsic motivation elements that attract them are always promoted and valued.

Keywords: *employee benefits, intrinsic motivation, commitment, Laos, Adventist employees*

The study aimed to find out the degree to which employee benefits and intrinsic motivation impact employee commitment to Seventh-day Adventist organizations in Laos. An employee benefits package involves non-wage forms of payment that a company provides to employees besides their regular salaries and wages. Examples include child care assistance, health and/or life insurance, hospitalization programs, pension or retirement plans, social security, and paid time off in the form of vacations or paid holidays (Christoph, 1996). Any non-wage benefits that an organization provides to its employees can be recognized as benefits, whether they are accepted or not (Walker, 2022).

Employers use benefit packages to supplement the cash compensation that employees receive and to protect employees and their families from financial risks. Employee benefits are essential for the development of corporate industrial relations. Compensation and benefits are important keys that help companies retain their employees, encourage increased employee responsibility, and improve the quality of work life in an organization. Amah (2010) also found that benefits can make a big impact on employee performance and commitment. These may include health care assistance, parental leave time or child care, retirement pensions, commissions, tips, or performance-related bonuses. These elective benefits convey the message that an organization cares about its employees and may motivate them to put more effort into their work.

As Baumeister (2016) observed, motivation arises from our thoughts or feelings, physical or psychological. Neuhaus (2021) emphasized that intrinsic motivation means doing something because we enjoy it based on our own interests or needs. Intrinsic motivation differs greatly from extrinsic motivation, for which an anticipated punishment or reward is the key driving factor. When a person enjoys doing something because

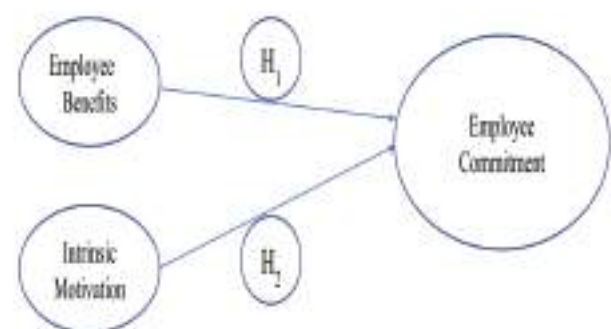
of personal interests/needs, payment is not the primary reason for these actions (Neuhaus, 2021). Intrinsic motivation is individual to each person. It exists within a person who feels that personal interests are connected to the activity (Ryan & Deci, 2000).

Commitment means that employees have bonded with their company. They feel connected, feel that they belong and are part of such organizations, and feel that these are workplaces where they can really fit in. When employees are dedicated in this manner, they add greater value to their work because of the extra effort and determination that is put into it (Wainwright, 2023).

This study is anchored on the conceptual framework presented in Figure 1. Specifically, it answers the following research questions:

1. How do the participants perceive their employee benefits?
2. What is the extent of intrinsic motivation of the respondents?
3. What is the level of employee commitment among the respondents?
4. Is there a significant relationship between perceptions of benefits and intrinsic motivation on employee commitment?
5. Do perceptions of benefits and intrinsic motivation affect employee commitment?

Figure 1
Conceptual Framework



Methodology

This research study was carried out using both quantitative and qualitative methods to gather information regarding the relationships among employee benefits, intrinsic motivation, and employee commitment. A descriptive-correlational approach was employed. A survey questionnaire was used, which consisted of two types of rating scale questions and open-ended questions. These survey questions were placed in a Google Form so that respondents could complete the questions online; they were also prepared in a Microsoft Word document. This form was for workers who did not have email access or did not know how to use the Google Form. Open-ended interview questions were asked in person or through an online conversation using Messenger, WhatsApp, or Zoom. The following rubric illustrates how the statements from the survey questionnaires were interpreted, with the range of scores that showed the level of agreement with each statement.

A score of 4.21–5.00: Strongly Agree / Very High Level

A score of 3.51–4.20: Agree / High Level

A score of 2.60–3.50: Neutral / Average Level

A score of 1.81–2.60: Disagree / Low Level

A score of 1.00–1.79: Strongly Disagree / Very Low Level

Microsoft Excel and a statistical software package were used to analyze the research data. Descriptive analysis, Pearson's correlation coefficient, and multiple regression analysis were used to test the hypotheses. Moreover, descriptive statistics were also used to analyze responses to the interview questions.

In Table 1, 44 respondents participated in the study out of a total of 53 employees of Adventist organizations under the Laos Adventist Mission (LAM), which was equivalent to 83% of the population. The respondents who answered these survey questions were pastors, teachers in the

English language schools, and teachers of regular schools from different provinces. These survey questions asked about gender, family status, age, years of service, the number of children, how many of them attend school, and educational assistance from the LAM.

Table 1

Demographic Information about Respondents

	Number of Participants	Percentage of Participants
Gender		
Male	20	45.5%
Female	24	54.5%
Family Status		
Single	21	47.7%
Married	23	52.3%
Age		
<=25	7	15.9%
26-35	31	70.5%
36-45	5	11.4%
46 =>	1	2.3%
No. of Children		
None	27	61.4%
One	10	22.7%
Two	4	9.1%
Three or more	3	6.8%
No. of Children Attending School		
None	37	84.1%
One	3	6.8%
Two	2	4.5%
Three or more	2	4.5%

Results and Discussion

Perception of Employee Benefits, Extent of Intrinsic Motivation, Level of Employee Commitment

Table 2 shows that the level of intrinsic motivation was at the highest level; this indicates that Adventist employees have their own strong intrinsic reasons as to why they work for Adventist organizations. It shows that the employees are

willing to do this work and bring a positive influence to other people's lives. The second highest mean was for employee commitment, which shows that the employees enjoy their work because they can experience personal growth while working to serve God. Not only will they feel blessings from God, but they will also be blessed by serving others. Since the lowest mean was for employee benefits, this shows that many employees don't rely on whether they will receive such benefits or not. Benefits are just like a bonus; if they have them, they will be grateful, but if they don't receive them, it does not matter too much to them while they are working for an Adventist organization.

Table 2

Comparison of Average Mean and Standard Deviations for Each Variable

Variable	Mean	Standard Deviation	Level
Employee Benefits	3.61	0.85	High
Intrinsic Factors	4.28	0.64	Very High
Employee Commitment	4.22	0.68	Very High

Table 2 shows how the participants perceived their benefits. It also includes the extent of intrinsic factors. Lastly, it described the level of employee commitment.

In Table 3 below, respondent levels of agreement with statements regarding intrinsic motivational factors are shown. Statement No. 7 received the highest mean score, indicating that Adventist employees did their work because of the blessings that they will receive from God, and not for monetary rewards. This intrinsic factor showed that their work was really done from the heart.

Table 3

Extent of Intrinsic Motivation

Statements	Mean	Standard Deviation	Level
1. I do my job well because I am happy to do it.	4.34	0.61	Very High
2. My current job is the central interest in my life.	4.05	0.65	High
3. Helping other people in my work makes me happy.	4.34	0.57	Very High
4. When my work improves people's lives, I am happier than when receiving my salary.	4.34	0.61	Very High
5. I enjoy socializing with my co-workers outside of the workplace.	4.05	0.78	High
6. My family is happy that I am working for God.	4.39	0.75	Very High
7. God's blessings are more important to me than monetary rewards.	4.61	0.54	Very High
8. I put in a great deal of extra effort to help my organization without any expectation of rewards.	4.41	0.58	Very High
9. I feel like my contribution to the work of my organization is meaningful and recognized.	4.11	0.65	High
10. I am content with my job because it is challenging.	4.18	0.62	High
Grand Mean	4.28	0.64	Very High

In Table 4 below, respondent levels of agreement with statements regarding employee commitment are shown. Statement No. 2 had the highest mean score, indicating Adventist employees' commitment to their work made them wish to be a part of their organization's success. In addition, Statement No. 4 with the second highest mean score showed that Adventist employees' love for God was the foundation of their commitment to working for Adventist organizations. As Christians, their love for God led them to bond with their employing organizations.

Table 4*Level of Employee Commitment*

Statements	Mean	Standard Deviation	Level
1. I am committed to my work without thinking of anything that I may receive.	4.02	0.66	High
2. I want to be a part of my organization's success.	4.50	0.51	Very High
3. I feel like my employment organization's problems are my own.	4.09	0.77	High
4. Because of my love for God and His church, I am committed to working for an Adventist organization	4.45	0.50	Very High
5. If I am committed to my work, my career can progress.	4.27	0.66	Very High
6. If I am committed to my work, I can grow as a person.	4.34	0.64	Very High
7. I believe in the mission of my employing organization.	4.30	0.63	Very High
8. Even if I am unhappy about something at work, I do not think about working for a non-Adventist organization.	4.09	0.83	High
9. I plan to always work for an Adventist organization.	4.05	0.86	High
10. I would recommend that my family and friends work for an Adventist organization.	4.09	0.74	High
Grand Mean	4.22	0.68	Very High

Relationship Between Perceptions of Benefits and Intrinsic Motivation on Employee Commitment

Table 5 shows the correlations among the three variables that were studied. Table 3 shows that the correlation between intrinsic motivational factors and employee commitment was $R = .763$, which is statistically significant at the 0.01 level. However, only an insignificant and negative correlation was found between employee benefits and employee commitment (-0.123). This indicates that the higher the level of importance attached to employee benefits, the lower the level of employee commitment.

Table 5*Correlation Among Variables*

		Commitment	Benefits	Intrinsic
Employee Commitment	Pearson Correlation	1	-.123	.763**
	Sig. (2-tailed)		.426	.000
Employee Benefits	Pearson Correlation	-.123	1	-.104
	Sig. (2-tailed)	.426		.504
Intrinsic Motivation	Pearson Correlation	.763**	-.104	1
	Sig. (2-tailed)	.000	.504	

Note: ** $p < .01$; * $p < .05$

The results from this study indicated that Adventist employees were generally happy with their organization's employee benefits. But of course, some employees were not so happy with them, since some statements did not have very high mean/ agreement scores. Information from the interviews also revealed that some employees were not pleased with certain benefits and wanted improvements in areas like more public holidays and broader medical checkup allowances. This shows that not everyone is happy with the benefits that their organizations are providing. For sure, it is impossible to satisfy everyone in an organization, but that does not mean that efforts should not be made to solve these problems or that things should be left just as they are. When the reasons for employee unhappiness with benefits are known, ways can be found to make improvements.

On the other hand concerning employee commitment, the average mean scores show that most Adventist employees are firmly committed to their work without thinking of their benefits. Most of them believe that this is the work of God, and that they are serving God, not humans, so the rewards that they will receive are from God. Besides that, Kulshrestha et al. (2022) found that commitment binds employees to their organizations, and it may be seen in different ways such as a genuine belief in the organizational mission, values, and objectives. This research found that Adventist employees are strongly committed when they can see that their careers can progress while working for their organization. Statement 7 had a high mean score of 4.30 regarding this belief in their organizational mission.

The results from the simple regression analysis showed that there was no significant relationship between employee benefits and employee commitment. This means that employee benefits don't affect the commitment of Adventist employees in Laos. In the interviews, Adventist employees did mention how important the benefits were for dealing with financial issues, even though they were

not thinking of the benefits. When the employing organization provides benefits, they appreciate the organization even more, and they will try to improve their work because the benefits are extra support that encourages them besides their salary.

From this study, it can be seen that most Adventist employees were happy with the employee benefits provided even though the benefits were not the main thing that led them to work there. Even though employee benefits didn't seem to have a major influence on whether employees will commit themselves to their work or not, it is still important for organizations to provide these benefits to relieve their extra expenses.

Neuhaus (2021) emphasized that intrinsic motivation means doing something because we enjoy it based on our own interests or needs. In this research study, the results showed that Adventist employees were happy to do their jobs, and their jobs were the central interest of their lives, with a high mean score. This indicated that they were very interested in doing their jobs well. They have a purpose in doing jobs that match with their own interests. For example, they love God and they love helping people, and that's why they are committed to their jobs. These interests lead them to work for their organizations without thinking about other rewards. The mean scores for each statement in the intrinsic factors section are at the very high and high levels, which indicates that most Adventist employees are intrinsically willing to work for an Adventist organization.

Wainwright (2023) found that commitment meant that employees have bonded with their companies. They feel connected, feel that they belong and are part of such organizations, and feel that these are workplaces where they can really fit in. When employees are dedicated in this manner, they add greater value to their work because of the extra effort and determination that they put into it.

Even though employment benefits may not be a priority to most workers, it would still be better if organizations could improve some of the

benefits given to employees. For example, one respondent did not really feel satisfied with the children's educational assistance benefits because of restrictions regarding which schools employees' children could attend. This person could only afford to send children to a private school if a significant level of reimbursement for tuition expenses was received. In fact, some good private schools are expensive, and so this meant that the family had to pay more to cover the rest of the school fees. Knowledge about issues related to the policies is very important when organizations provide benefits. While giving benefits is good, it may not be enough if the organization does not have a good knowledge of such situations. It can be a bad thing for the organization if the benefits don't seem fair to the employees and enable them to focus on doing their work.

Influence of Perception on Benefits and Intrinsic Motivation on Employee Commitment

Table 6 shows the coefficients of the independent variables from a multiple regression analysis. The multiple regression analysis in Table 6 showed a significant positive relationship between intrinsic motivational factors and employee commitment, with a Beta = 0.758 and p-value < 0.01. On the other hand, the relationship between employee benefits and employee commitment was negative, with a Beta = -0.045 and an insignificant p-value of .662.

In conclusion, Pearson correlation and multiple regression analysis both showed that:

- Intrinsic motivation had a statistically significant positive influence on employee commitment to Adventist organizations in Laos.
- Employee benefits had no statistically significant influence on employee commitment to Adventist organizations in Laos, and were actually inversely related to employee commitment.

Table 6

Multiple Regression Between Perception on Benefits, Intrinsic Motivation and Employee Commitment

Model	Coefficient (a)				
	Unstandardized Coefficients		Standardized Coefficients		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>
(Constant)	.998	.605		1.649	.107
Benefits	-.045	.103	-.045	-.441	.662
Intrinsic	.789	.106	.758	7.480	.000

Many studies have discussed how employee benefits help and support workers in addition to their regular salary. Employee benefits are programs that employers use to supplement the cash compensation that employees receive, to protect the employee and his or her family from financial risks (Christoph, 1996). The interview data from this study revealed that employee benefits really helped families to stretch their salaries, and prevented families from spending extra money. This was especially true in regard to health issues, which no one can predict when something might happen, or how much it would cost at the hospital. It is really important for Adventist employees to feel secure and leave their worries about unexpected expenses like health issues to their organizations so they can focus on their work.

Based on the results from the simple regression analysis between intrinsic factors and employee commitment, there was a positive relationship between both variables. It is true that if people don't have any interest in their jobs, they won't commit to doing them. Adventist employees were strongly motivated by intrinsic factors as shown by their mean scores, which led them to commit themselves to their work.

After analyzing the data, it became clear that Adventist employees didn't prioritize employment benefits when choosing their workplaces. But when an organization decides to provide such benefits, it also needs to improve them as a gesture of its care and responsibility towards its employees. In the struggle to retain good human resources, organizations compete for staff members with other companies. Therefore, it is good to take the initiative to offer good benefits to staff to show them that they are really being looked after. Caring for employees is a responsibility that organizations should have anyway. Caring and searching for needs that ought to be supported is something that Adventist organizations should keep practicing. Organizations should not wait for employees to suffer first, but think ahead of time of providing for their essential needs. This is a matter of helping to support their families' burdens.

The data results indicated that not every employee has access to the policy manual or employee benefits when they start working for an Adventist organization. It is best for an administrator or the human resource manager to provide new employees with the policy manual, and go through the employee benefits very clearly with each employee. I believe that the employees who don't know about the benefits will appreciate this gesture. It is better to let employees know what they are supposed to receive, rather than to wait until they find out by themselves that they should have received this or that benefit. They might not need benefits now, but no one knows how tough life may be or what they are going to face. Therefore, the human resource manager should make sure this happens in an interview, during the job review, or each time before renewing work contracts.

One of the research objectives was about how leaders may increase employee commitment. Even though it was found that employee benefits do not have a significant influence on employee commitment, leaders still need to improve them

because benefits can become important or necessary in the future, especially when employees really need them. Human resource leaders need to invest in employees who commit themselves to their work, and they need to receive good and fair employee benefits.

Conclusion and Recommendation

The purpose of this research was to find out the degree to which employee benefits and intrinsic motivational factors impact employee commitment to Seventh-day Adventist organizations in Laos. The study found that employee benefits had no significant influence on employee commitment, while intrinsic factors had a significant positive influence on employee commitment. Since one of the research objectives was to look for the reasons for employee commitment, it was enlightening to note that intrinsic motivational factors had a statistically significant influence on employees' commitment to their work.

In conclusion, the Adventist employees did not seem worried about their employee benefits or make them a priority in choosing a workplace because they believed that this was the work that God wanted them to do. Yes, they appreciate the employee benefits if they are provided, but it did not seem to bother them if they didn't receive them from the beginning. They have willing hearts because they know what interests them in working for Adventist organizations. Without intrinsic motivational factors, such organizations would face challenges in trying to maintain their staffs, since there are many competitors fighting for good and dedicated employees, especially those who don't really care about employment benefits even though they may really need them. In conclusion, benefits are not the most important matter that leads Adventist employees to be committed to their work, but intrinsic motivational factors have a stronger relationship to employee commitment.

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Motivating Factors Influencing Investment Decisions in Stock Purchases Among Professional Workers of Various Private Institutions in Indonesia

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This research contributes to a better understanding of the factors influencing investment decisions based on income level and financial literacy in stock purchases. The findings of this study can serve as a guideline for investors and market participants in making investment decisions through stock purchases. Moreover, the research findings provide insights for the government and capital market regulators in developing financial literacy programs and enhancing public participation in stock investments. Using a quantitative approach, the research team investigated professional workers in diverse Indonesian regions and private institutions. These individuals had investment income and were familiar with stock options. The researchers gathered 239 valid data points through purposive random sampling. The research affirms that both income level and financial literacy significantly impact the rise in stock-purchasing investments. Notably, financial literacy yields a more substantial effect, influencing investment decisions through a better understanding of economic aspects, including risk assessment and potential gains. Enhanced financial literacy empowers rational evaluation, proactive management of threats, and alignment of investment strategies with financial goals. These findings underscore the pivotal role of financial literacy in fostering informed and strategic investment choices, including stock purchases.

Keywords: *level of income, financial literacy, stock purchase.*

The economic activities of the community intertwine with community life. Individuals must learn to manage their resources effectively for long-term prosperity. This management involves financial management, as finances represent one of the resources that individuals can invest. Generally, people support by saving money in a bank account. However, considering money saving as an investment form is regarded as less profitable, primarily because the Bank's interest rates cannot raise or preserve the value of money against the purchasing power of today's society. This phenomenon is because their savings keep decreasing due to inflation, which keeps rising compared to bank interest rates (Malik & Budiman, 2022). Therefore, society seeks alternative investment instruments to increase its purchasing power and preserve its wealth value against inflation.

There are numerous options for investment instruments offered to society nowadays, including real estate, gold, forex, and stocks. People base the standard choices on their income level after deducting consumption expenses. Stocks are a commonly chosen investment option due to their varied prices, affordability across all income segments of society, and alignment with the diverse risk profiles of investors (Nie, 2020). In other words, an individual's income level will determine their choices in creating an investment decision portfolio from the various available investment options (Yundari & Artati, 2021).

The use of digital technology for online stock investing is increasingly popular, which correlates with the rising financial literacy of the public compared to their tolerance for investment risks (Muthia et al., 2022). Furthermore, current advancements in information technology make purchasing stocks more convenient and flexible while providing relatively higher yields than traditional savings accounts. Another reason investing in stocks is attractive is its ease of transaction and liquidity, making them suitable for long-term savings and passive income during retirement (Nie, 2020).

From the phenomenon above, this study aims to provide an alternative investment instrument for people who experience a decrease in the value of their savings against inflation. The incapability of bank interest rates brings about this situation to rise and sustain the value of money concerning the purchasing power of the general public. Therefore, authorities should offer public investment options that enhance their purchasing power and safeguard the value of their wealth from inflation. Thus, this study aims to provide an understanding of stock investment as one of the investment options available to the public with different income levels. The investment must be affordable for all income groups.

Furthermore, this study aims to provide an understanding of the increasing use of online digital technology in stock investing activities, yielding relatively greater returns than savings. Hence, this research contributes to understanding the factors influencing public interest in stock investing, such as financial literacy and investor psychology. By understanding these factors, investors can make better decisions when investing in stocks. Additionally, this writing can improve financial literacy and better financial management for society.

Income Level and Stock Purchasing

Generally, a company generates income through its productive efforts, quantified by the rise in new assets acquired from selling products to customers. This concept indicates that income is a source of inflow of asset increases from the company's main operational activities (Dzakiyuddin, 2018). In financial accounting standards, IAI employs the revenue definition from IASC, which does not differentiate between the terminology of revenue and gains—combining both forms a singular concept known as income (Suwardjono, 2014). According to Lindananty and Angelina (2021), income refers to earnings derived from work in production and sales in the service sector over a certain period. It serves to signify the well-being of individuals, households, and communities.

All sources of income contribute to the calculation of the total income, and the largest source of income comes from their salaries or wages based on their position. Sari and Mahdzan add that income results from someone's sacrifice in the form of material to meet their living needs. As a person's income increases, they seek understanding and ways to manage their finances through relevant financial knowledge to invest their income in various investments, including stocks, bonds, deposits, gold, and similar investment types. In other words, the higher a person's income, the greater their desire to invest (Yundari & Artati, 2021).

This idea finds support in earlier research indicating that an investor's income level will influence their decision to buy stocks in the stock market. Various factors, such as occupation, consumption lifestyle, and current economic conditions, shape an investor's personality. As one progresses in their job, their financial ability and lifestyle tend to improve, leading to a greater desire to invest in stocks. In other words, an increase in income indicated by a job promotion and enhanced economic and lifestyle conditions can influence a person's ability to purchase stocks (Novrianda et al., 2020).

On the contrary, researchers discovered that income does not affect one's decision to invest in stocks because most respondents have low income yet possess adequate financial knowledge and rationality. Additionally, investors with low income can now purchase stocks with at least one hundred shares per lot at prices more affordable in the current stock trading market (Lindananty & Angelina, 2021).

Financial Literacy and Stock Purchasing

According to the Organization for Economic Cooperation and Development (OECD), financial literacy entails understanding financial concepts and risks, including skills, motivation, and confidence in applying such knowledge to

determine appropriate financial investments for attaining economic well-being (Priscilia et al., 2020). Financial literacy is related to an individual's competency in managing finances, which includes having a financial understanding, the ability to read and communicate financial concepts and reports, the capacity to manage financial needs, and the proficiency to make adequate investment decisions. Moreover, it entails having high confidence in effectively planning for future financial needs (Remund, 2010).

Therefore, financial knowledge and the ability to read financial statements are necessary when making investment decisions related to financial investment. Understanding finances well will aid investors in choosing suitable investment instruments based on their financial situation and help them avoid investment mistakes, resulting in prosperity and economic stability in the future (Sulistiyowati et al., 2022). Thus, someone with good financial literacy will tend to have financial information that can help them choose investment instruments with tolerable risks. Research (Loprang et al., 2022) supports this, showing that improving financial understanding will encourage individuals to invest more.

Further, Lindananty and Angelina (2021) found that an individual's financial literacy assists in making informed decisions on stock purchasing, supported by a competent understanding of investment risks, rational investment management, and relevant financial knowledge.

Methodology

This research used a quantitative approach to examine a specific population or sample. The research population consisted of professional workers in various regions of Indonesia who have income to invest and are familiar with stocks as an investment instrument. Using a questionnaire, the researchers collected and employed the collected data as the research sample. They used purposive random sampling to gather valid data

from 239 participants. The data were analyzed utilizing the statistical software SPSS version 23 to examine the independent and dependent variables.

The data was analyzed using descriptive statistical analysis, linear regression, significance testing, correlation testing, and coefficient determination to answer the research hypothesis. The study consists of independent and dependent variables which are presented in Table 1. The independent variables comprise income level and financial literacy, while the dependent variable is stock purchasing, as explained below.

Table 1
Research Variables

Variable	Definition
Income Level (Astuti, 2019)	Earnings from salary or wages based on job position levels: 3 = Manager/Director, 2 = Supervisor, 1 = Employee, and others.
Financial Literacy (Mahendra, 2022)	By having a fundamental understanding of personal finance and the ability to read financial statements, measured by 1 = literate, 0 = less literate.
Stock Purchase (Mahendra, 2022)	Investment/stock purchase decision, measured by 0 = never invested/bought stocks. 1 = Have invested/bought stocks.

Source: Author (2022).

The regression equation in the study is $Y = a + b_1X_1 + b_2X_2$, where Y = stock purchase; X_1 = income level; X_2 = financial literacy.

Results and Discussion

Descriptive Statistical Analysis

Table 2 below provides a descriptive overview of respondent data. This include variables X_1 =

income Level (INC), X_2 = financial Literacy (LIT), and Y = Stock purchase (STP).

Table 2
Descriptive Statistics

	N	M	SD
Income Level(INC)	239	1.5230	1.24621
Stock Purchase(STP)	239	.5523	.49830
Financial Literacy(LIT)	239	1.4644	.86832
Valid N (listwise)	239		

Source: Author (2022)

The survey findings reveal exciting insights into the respondents' characteristics. The average income level (INC) reported is 1.52, indicating that the participants' income surpasses a supervisor's. The average Financial Literacy (LIT) score stands at 1.46, nearly approaching 1, implying that not all respondents possess proficient financial report reading abilities. Regarding stock buying (stock purchase), the average score is 0.55, suggesting that most respondents have chosen to engage in stock investments.

The analysis of survey data provides valuable insights into the respondents' attributes. The average income level (INC) reported as 1.52 indicates that the participants generally have incomes exceeding that of a supervisor. The average Financial Literacy (LIT) score of 1.46, approaching 1, suggests that not all respondents possess advanced financial report reading skills. Regarding stock buying (stock purchase), the average score of 0.55 implies that many respondents have opted for stock investments.

Correlation

The researchers conducted the statistical Pearson product-moment correlation test to examine relationships between independent and dependent variables. the results are shown in Table 3.

Table 3*Correlation Test*

		Stock Purchase	Income Level	Financial Literacy
Stock Purchase (STP)	Pearson	1		
Income Level (INC)	Pearson	.196**	1	
Financial Literacy(LIT)	Pearson	.172**	.186**	1

Source: Author (2022).

Based on the statistical test results, this study reveals the presence of relationships among the examined variables. The findings underscore that there are significant correlations within the dataset. Specifically, the dependent variable, stock purchasing (stock purchase), exhibits a correlation of 0.196 with the independent variable, income level (INC). Similarly, a correlation of 0.172 is observed between stock purchases and another independent literacy trait (LIT). Furthermore, the research identifies a correlation value of 0.186 between income level (INC) and financial literacy (LIT). Collectively, these findings suggest mutual interdependence and reciprocal influence among these factors within the context of this study.

The findings showed a significant relationship between stock purchasing, income level, and financial literacy. The positive correlation between stock purchasing and income level (0.196) indicates that as an individual's income level increases, they tend to be more inclined to invest in stocks. The correlation of 0.172 between stock purchasing and financial literacy implies that individuals possessing higher financial literacy might have enhanced capabilities to understand the advantages and risks associated with stock investments. The correlation between income level and financial literacy (0.186) reflects that individuals with higher income levels tend to possess better financial literacy, which in turn may aid them in making more informed investment decisions. These findings highlight the importance of financial literacy and income level in shaping investment behavior and demonstrate how these two factors mutually influence each other in the context of stock purchases.

Regression Analysis

To determine the extent of the independent variable's influence on the dependent variable and to test the research hypothesis, linear regression analysis was conducted. Table 4 below presents the findings of the study.

Table 4*Regression Analysis*

		B	SE
1	(Constant)	.287	.081
	Income Level(INC)	.065	.026
	Financial Literacy(LIT)	.078	.037

Source: Author (2022)

Based on the table above, we have derived the following linear regression equation of $Y = a + b_1 X_1 + b_2 X_2$. The presented linear regression equation, $\text{Stock Purchase} = 0.287 + 0.065 \text{ Income Level} + 0.078 \text{ Financial Literacy}$, holds significant implications. The positive constant term "a" (0.287) signifies that if all independent variables, Income Level (X_1) and financial literacy (X_2), remain unchanged (with values of 0), the predicted Stock purchase (STP) would be 0.287.

Analyzing the equation and its corresponding coefficients, the regression coefficient for income level (X1) is 0.065. It suggests a positive association between income level and stock purchases. A 1% increase in income level is projected to correspond with a 6.5% increase in stock purchases.

For financial literacy (X2), the regression coefficient is 0.078. This positive coefficient implies that a 1% elevation in financial literacy is linked to a 7.8% increase in stock purchases, assuming other variables remain constant. This analysis underscores the role of income and financial literacy in influencing stock investment decisions.

F-Test

The study aims for an F-test to assess the impact of income level and financial literacy on stock purchasing through a simultaneous regression analysis of the variables listed in Table 5. The provided table indicates a notable influence of income level and financial literacy on stock purchases, with a significance value of 0.002 (sig. 0.002 < 5% significance level). The finding suggests that both income level and financial literacy play a significant role in influencing stock purchasing decisions.

Table-5

F-Test

Model		Sum Sq	df	M Sq	F	Sg.
1	Reg.	3.637	3	1.212	5.137	.002 ^b
	Res.	55.459	235	.236		
	Total	59.096	238			

Source: Author (2022)

This test examines the combined effects of income level and financial literacy on stock purchasing. A simultaneous regression analysis of variables listed in Table 5 shows that both income level and financial literacy significantly impact stock purchases. The significance value of 0.002 (sig. 0.002 < 5% significance level) underscores the statistical relevance of these influences. It found that individuals with higher income levels

and better financial literacy are likelier to purchase stock, emphasizing their importance in shaping investment decisions.

Hypothesis Testing

The study uses significance tests to accept or reject the formulated hypotheses. The test outcomes are available in the subsequent Table 6.

Table 6

Hypothesis Decisions

Variable	T	Sig.	Decision
Income Level(INC)	2.522	.012	Accepted
Financial Literacy(LIT)	2.121	.035	Accepted

Source: Author (2022)

Based on the provided table, it is evident that the income level variable (X1) holds statistical significance, as indicated by the t-value of 0.012 ($0.012 < 0.05$). This finding implies that the t-test is accepted, suggesting a meaningful connection between income level and the decision to purchase shares.

Similarly, the t-value for the literacy variable (X2) is 0.035 ($0.035 < 0.05$), leading to the conclusion that the test is accepted. This finding indicates a substantial impact of financial literacy on stock purchase decisions. Therefore, income level and financial literacy are statistically influential factors in shaping individuals' decisions to engage in stock purchasing.

Coefficient of Determination

The coefficient of determination is used to understand the combined influence of income level and financial literacy on stock purchasing. Results are presented in the table 7.

Table 7

Coefficient of Determination

Model	R	R Sq	Adj R Sq	SE Est.
1	.248 ^a	.062	.050	.48579

Source: Author (2022)

As indicated in the table, the combination of income level and financial literacy contributes 6.2% to stock purchasing, while other factors that have not been studied account for the remaining influence. The coefficient of determination table results suggest a relatively weak correlation ($r = 0.248$) between income level and financial literacy in stock purchasing.

Income Level Influences Stock Purchases

The test results presented in Table 6 show that H1 is accepted. The research hypothesis for H1 states that income level significantly influences stock purchases. The test results presented in Table 6 show that H1 is accepted. The test results presented in Table 6 show that H1 is accepted. This alignment aligns with research findings that show a significant impact of income level on stock purchases, as evidenced by the sig-value of 0.012. The study results reveal a positive relationship and considerable influence between income level and stock purchases.

Thus, researchers can conclude that an increase in the income level of professional workers over time will cause them to invest more in stock purchases. This finding coincides with the study by Novrianda et al. (2020), which suggests that an investor's attitude towards income will influence their decision to purchase stocks in the stock market. However, in contrast to the findings of Lindananty and Angelina (2021), which specifically targeted respondents with low-income levels and allowed for stock trading transactions with a minimum of 1 lot (100 shares), making it affordable for low-income investors. This finding suggests that income levels determine a person's purchasing power for investing. In simpler terms, an individual's ability to buy investments is affected by their income level, which serves as a factor that reinforces an investor's choice to purchase stocks.

Financial Literacy Influences Stock Purchasing Decisions

The second hypothesis (H2) posits that the utilization of financial literacy significantly impacts stock purchasing. After conducting a significance test, the results suggest that the variable Financial Literacy (X2) has a t-statistic of 0.035 ($0.035 < 0.05$), indicating the acceptance of H2; this means that financial literacy has a significant influence on stock purchasing decisions. The research by Sulistyowati et al. (2022) supports this finding that individuals with higher financial literacy tend to possess financial information aiding investment choices. This finding aligns with Lindananty and Angelina (2021), who assert that financial literacy aids stock purchasing decisions. Hence, it guides investors to consider financial understanding and reports as factors reinforcing decisions to buy shares in specific companies. In essence, financial literacy emboldens investment decisions through stock purchases.

Conclusion and Recommendation

According to the findings of the above research discussion, the majority of respondents chose to invest in stocks. Most respondents had income levels similar to those of supervisors and could read financial reports. Statistical test results indicated that income levels and financial literacy significantly influenced investor motivation to purchase stocks. Further findings reveal that separate regression tests have shown that both income level and financial literacy significantly affect the increase in stock-purchasing investments. Financial literacy has the most considerable impact for every 1% increase in each variable, with an increase in Stock purchasing investments influenced by income level at 6.5% and financial literacy at 7.8%. In other words, a person's decision to invest in buying stocks is more influenced by their knowledge of financial management, including their ability to read financial reports, which contributes the most to their investment decision-making.

This finding explains that individuals with higher levels of financial literacy tend to understand better the essential aspects of investing, including the risks and potential gains of stocks. They can more rationally evaluate investment options and make more informed decisions. Meanwhile, good financial literacy enables individuals to understand the risks associated with investing in stocks and how to manage them. They might possess enhanced skills to handle market fluctuations and proactively manage the impacts of threats. Therefore, solid financial literacy can assist individuals in comprehending the long-term profit potential of investing in stocks. They may be more motivated to invest in stocks, believing that these investments can provide better long-term returns. Aside from that, high financial literacy enables individuals to have better skills in making financial decisions, including investment decisions. They can plan more sound investment strategies that align with their financial goals. Thus, financial literacy strongly influences individuals to understand, manage risks, and make better investment decisions, including purchasing stocks.

The study's results are expected to guide investors and capital market participants in making investment decisions through stock purchases, recognizing stocks as a viable investment alternative in contemporary society. For investors and the general public alike, with income and financial literacy, this research encourages them to confidently make investment decisions in stocks with higher return potential. Meanwhile, for capital market participants, these findings can act as an indicator or guide that individuals with specific income levels (such as supervisors) and financial literacy, despite risk aversion, can be encouraged to participate as investors in stock investments.

The study has limitations; it is conducted only on a limited number of respondents in a specific location and time, making the findings not generalizable to a broader population or other regions. The research only considers two

independent variables: income level and financial literacy. This study does not include other factors such as investment experience, knowledge about the stock market, and corporate policies that might influence respondents' investment decisions. The data collection method employed a questionnaire, raising the possibility of response bias.

Hence, future research can consider other factors influencing investment decisions in stock purchases, such as investment experience, knowledge about the stock market, and corporate policies. Moreover, researchers can conduct studies in a more comprehensive range of regions, allowing findings to apply to a broader population. Data collection methods beyond questionnaires, such as interviews or observations, can be utilized to obtain more accurate data and reduce potential bias.

At the very least, this study contributes to a better understanding of the factors influencing investment decisions in stock purchases: income level and financial literacy. The research results can guide investors and participants in the capital market in making investment decisions through stock purchases. These findings can offer government and capital market regulators insights into developing financial literacy programs and enhancing public participation in stock investments.

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Learning Experiences from Selected Adventist Entrepreneurs in Thailand

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Not all Seventh-day Adventists wish to work as employees of denominational organizations. Instead of taking jobs in firms where it may be difficult to keep the Sabbath, some could become entrepreneurs instead; that way they could earn a living while living according to their beliefs. Operating their own businesses may also allow them to be a greater blessing to others than by working as a hired employee in another firm. This research project investigated how selected Adventist entrepreneurs in Thailand set up their businesses and met various challenges, along with what aspiring entrepreneurs who wish to operate their own businesses someday may learn from their experiences. A descriptive research methodology utilized multiple in-depth interviews about the launching and operations of three small businesses, along with analysis of their financial statements, to better understand these entrepreneurs' experiences. The results indicated that the Adventist entrepreneurs were at different stages in their spiritual journeys, and so their motivations for setting up and perspectives on running their businesses also differed accordingly. Their Adventist beliefs inspired and encouraged these entrepreneurs to maintain their faith in God and keep a positive attitude, which helped them to manage their businesses as best they could.

Keywords: *entrepreneurs, Seventh-day Adventists, Thailand, launching a small business*

The Seventh-day Adventist Church (Adventists) is a Millennialist Protestant Christian denomination founded in 1863 in the United States. They are called Seventh-day Adventists based on the church's observance of the "biblical Sabbath" on Saturday, the seventh day of the week, while "Advent" refers to their belief that Jesus Christ will soon return to this earth. (BBC 2009, July 30).

Adventists have 20+ million members worldwide who worship in about 162,000 congregations. They operate over 8,000 schools from kindergarten to the university level around the world, with more than 2 million students. They also own and manage 198 hospitals across the globe. Adventist believers live in more than 200 different countries worldwide; they are truly a global family.

The Seventh-day Adventist Church in Thailand was established in 1919, and its leaders worked under the oversight of a headquarters office located in China. Nai Pleng was a young Thai man who was searching for life's meaning. After studying the Bible with a Chinese pastor, he decided to follow Christ. He later became a literature evangelist, studied in Singapore, and became a prominent worker for the church in Thailand (Insom et al., 2006, Page 61).

There are more Thai believers now; many have become teachers, doctors, nurses, and entrepreneurs who have established their own businesses. They have also founded various institutions in Thailand, such as Bangkok Adventist (Mission) Hospital, Chiang Mai Adventist Academy, Thepamnuay Vitaya School, etc. (Insom et al., 2006). In 2020, the Thailand Adventist Mission reported 14,859 baptized church members worshipping in 54 churches and 74 small groups throughout the country (ASTR Office of Archives, Statistics, and Research, 2021).

Many studies have mentioned important, different views and features of entrepreneurship. Seth (2021) said that entrepreneurship is important because it has the ability to improve standards of living, create wealth, drive and improve products,

and enable new markets to be developed not only for entrepreneurs but also for related businesses. McChesney (2016) said, "Entrepreneurship is not only about money. It is to create value and make change in the world".

Although Adventists have 28 fundamental beliefs, only one is directly relevant to this research study. This is Fundamental Belief 20: The Sabbath. Many employees in Thai firms are required to work 6 days each week. Sometimes it is hard for Adventists to find jobs that do not involve working on Saturday, because normally most firms work from Monday to Saturday and rest on Sunday. Adventists believe that the Sabbath, Saturday, is a day to remind them of God's creation. He used the first six days to create this earth, and on the seventh day, he set it aside as a holy day for reflection, enjoyment, and worship. The Sabbath is kept from sundown on Friday to sundown on Saturday. All essential work needs to be done by Friday before sunset. Adventist people call Friday the "preparation day"; after sunset, they spend it worshipping with family, and on Saturday morning, they worship with family and other church members. On Saturday afternoon, they may assist the less fortunate, including visiting patients, encouraging each other in small groups, praying for each other, and praying for the needy.

The need for more Adventists to become entrepreneurs is so that their work will not make it difficult for them to obey God's laws. The Atlantic Columbian Conference of the Seventh-day Adventist Church has initiated a project known as the Banner Project. This project supports entrepreneurial projects and business ideas with advice, strategies, market studies, and financing. This has allowed participants to come up with business opportunities and proposals to move their ideas forward. The program has included developing skills and acquiring tools to help the entrepreneurs carry out their projects successfully (Arrieta, 2021).

Difference Between a Small Business and an Entrepreneur

A small business owner operates a business with the personal goal of providing income for the family, while an entrepreneur has the goal of growth and achieving profit (Ionitã, 2012). Similarly, Hurst et al. (2011) discussed that most small business owners have little desire to grow large or to innovate, unlike entrepreneurs. Small business owners intend to provide an existing service to an existing market, while entrepreneurs intend to bring a new idea to market or to enter an unseen market (Hurst et al., 2011). Small business owners' main reason for starting a business is usually for non-pecuniary benefits, such as wanting to be their own boss and wanting a flexible schedule and work hours (Hurst et al., 2011)

Methodology

This research project used a descriptive design that gathered data using mostly qualitative methods. This design allowed the researcher to state the concern being studied, design interview questions, analyze information, and summarize the findings. The population for this study consisted of three small businesses that were launched by purposively selected Adventist entrepreneurs, as follows. (1) PAUL Trading Limited Partnership (a manufacturing firm); (2) APD Sport Limited Partnership (a manufacturing and wholesale firm); and (3) Big Bass Drinking Water Plant (a manufacturing and service firm). The researcher also analyzed the financial statements of each entrepreneur from 2017 to 2019. Additionally, the researcher learned about their experiences setting up and operating their businesses in Thailand.

Gandy (2015) suggested using the data collection procedures for in-depth interviews as follows: (1) introduce oneself to the participant(s); (2) present a consent form, go over its contents, and answer questions and concerns of the participant(s); (3) give the participant a copy of the

consent form; and (4) turn on the recording device; (5) introduce the participant(s) with a pseudonym or other identification, noting the date and time; (6) begin the interview with question #1 and follow through to the final question; (7) follow up with any additional questions; (8) end the interview; and (9) thank the participant(s) for their part in the study. Reiterate contact numbers for follow up questions and concerns from participants; (10) end the interview procedures. Data collection methods using in-depth interviews, in which the researcher asks the same questions to all the participants, make those questions the control variables. All the interview questions related to the research objectives were divided into 3 parts as follows: (1) *business setup*; (2) *experiences*; and (3) *things to share with young Adventists, prospective entrepreneurs, or other interested people*.

Results and Discussion

Rationale for and Experience in Launching a New Business

PAUL Trading Limited Partnership

Mr. Paul Phoophichitprai was born into an Adventist family but became visually impaired as a young man due to an immune system disease called Behcet's (beh-CHETS) disease that slowly eats up visual ability and may destroy vision completely. Upon finishing a bachelor's degree and graduating in 2006, Paul thought to himself, "What can I do after this?" He was interested in producing high-quality health foods that employed safe production processes for consumers, and so Paul Trading, a company that focuses on producing fresh and natural foods, was founded on November 17, 2006.

Paul believed that his way of life, especially the food that he consumed, was at least partially the cause of his loss of vision. Feeling that he could do something about this, and with his knowledge and a love for food, Paul started a company that used only natural ingredients and no preservatives. The

main guidelines for his products were taken from the lessons that he gained because of his health problems. Even though he lost his eyesight, he didn't lose his vision of a better life for his customers through his products.

Paul Trading produces products that are healthy and nutritious for customers by using the best, freshest, and most natural ingredients. These products are produced, packed, and delivered to their customers in the best possible ways to ensure that the customer gets the best and most nutritious products possible. To back up these claims, Paul's products have been certified as GMP (Production) Standard "No. 8-4-15-50-09-00861" and received "Halal" from the Halal Standards Institute of Thailand to indicate that the food products are not contrary to Islamic principles. Thus, they are not only safe and healthy, but also enjoyable and acceptable for everyone.

The first product that Paul came out with was peanut butter. He remembered how missionaries he had met in the past loved to eat peanut butter with bread. Paul developed formulas and recipes for this product, and his company currently produces many other products, such as peanut oil, sesame oil, sunflower oil, almond butter, and dried fruit bars. All this is accomplished with 50 employees. His products, under the brand PAUL FOOD are on sale in hypermarkets. With the net income he gets from the sale of his products, he established a foundation to provide educational scholarships to support disadvantaged children.

Paul says, "In my life today, I have adhered to the teachings of King Rama IX, who taught us to live sufficiently to make oneself beneficial to society. Whether it is my business administration or daily life, I will use the King's Sufficiency Economy Philosophy to guide me to move forward in every situation. It gives me the inspiration to face various problems under more pressure than others".

APD Sport Limited Partnership

Mr. Piya Ekwiriyathorn was also born into an Adventist family; both his father and his mother were teachers and worked in an Adventist school. Piya liked to play football ever since he was a child, and many times in football games with his friends, he was chosen as the goalkeeper. A goalkeeper must have good gloves to catch and block the ball from entering the goal. After graduating from an Adventist university and working for several years in a variety of jobs, he decided that he wanted to start his own business.

In 2016, Piya and two of his friends established APD Sports Company Limited. They registered the company under the Civil and Commercial Code in Bangkok as legal entity No. 0105559043981 on March 14, 2016. The company is engaged in manufacturing and distributing goalkeeper gloves, football team shirts, polo shirts, t-shirts, activity shirts, framing work, screening work, and brand design. On February 6, 2020, Piya invited a pastor friend to visit his business. The pastor dedicated his shop to God and sought blessings for Piya and his two friends' company. Since he is very active in sports activities, every time he participates in activities related to sports, he always enjoys them.

The business has gradually expanded, and Piya and his friends opened a football stadium named APD Football Arena. On January 30, 2020, Piya invited a pastor friend to pray for this new venture. To open this football field for rent, he and his friends also announced they were recruiting teams to participate in football competitions, 6 people per team, and they would accept only 12 teams. Due to the COVID-19 crisis, their business strategy had to be adapted in order to survive; the various products in their inventory are still being sold as usual, but more through online platforms.

Big Bass Drinking Water Plant

Mr. Pornchai Raebut was born into a Buddhist family and lived in the Muak Lek District of

Saraburi Province. His family made their living as dairy farmers by raising cows and selling cow's milk to a dairy cooperative, which used the milk to produce various products. After deducting his expenses, he had around 16,000 Baht left per month. Since there were four family members, they would get 4,000 Baht each, which is a low income when compared to the value of the hard work that they have done. They had to wake up at 5 a.m. every day to milk the cows, plus taking care of them day and night. In 2017, there was an epidemic that sickened the local cattle, causing many of their cows to die.

At the end of 2018, Pornchai thought about changing the family business from producing cow's milk to producing and selling drinking water. Pornchai believed that water is necessary for everyone's daily life, so he would be able to sell it. So, they sold their cattle, set up a drinking water plant, and prepared all the various documents and detailed product information for Food and Drug Administration (FDA) approval. The FDA spent several months reviewing his product quality and production standards according to their requirements. While waiting for the FDA number, Pornchai and his family could not sell water, so they were without any income. Finally, they received permission to bottle the water and use their own branded logo. After completing all the steps, they successfully brought their product to market.

The time of becoming an entrepreneur was a very difficult time for Pornchai, since he encountered many problems that made him think about giving up. During this time, Pornchai met a friend who was an Adventist. She invited him to learn about her God's love, which made Pornchai calm down. He wanted to start a new life, and his friend helped him learn about Adventist beliefs. He also learned more about the important parts in the Bible in a Sabbath school class with some students and the church

pastor. When the COVID-19 pandemic struck, the church members could only worship online. He continued studying for around six months, trying to follow various SDA beliefs, such as eating healthy foods and taking a Sabbath break from his work. Eventually, he was prepared to follow through and accept this new faith, and he was baptized on Sabbath, December 12, 2020.

As he continued working at home as usual, his parents saw a change in Pornchai. He had started a new life with his water business, still hadn't told anyone in his family about the Sabbath. They didn't understand why he stopped his work. They pressured him to sell water on Sabbath afternoon, which is contrary to Adventist beliefs. Everyone in the business stopped working and rested on Sunday; they were unhappy because if Pornchai was off on Saturday, it would mean that he was off for two days a week, both Saturday and Sunday. So, after worshipping on Sabbath morning, for a time, Pornchai went out to sell drinking water in the afternoon. His customers would not order drinking water on Sunday because they knew that the shop was closed; only if a customer went to buy drinking water directly at the water plant would they sell water on Sunday. As an Adventist member, he could follow all the other practices except for keeping the Sabbath. He still needed to ask God to help him with this matter because he was living and working with people who did not know or understand this belief.

Financial Statement Analysis of PAUL Trading Company, Ltd.

The overview in Table 1 of PAUL Trading Ltd. Part 2014-2018 Statements of Financial Activity show that PAUL Company had 3 years of profit, followed by 2 years of losses. There were certain things that happened because they suddenly experienced losses in the last two years of the Statement of Financial Activity from 2014-2018.

Table 1*PAUL Trading Ltd Part 2014-2018 Statements of Financial Activity*

Income	2014	2015	2016	2017	2018
Sales	9,547,403.97	10,336,318.97	29,230,238.05	35,269,777.77	33,131,663.85
Other Income	249.72	316.87	590.55		1,033.02
Total Income	9,547,653.69	10,336,635.84	29,230,828.60	35,269,777.77	33,132,696.87
Expenses					
Cost of Sales	8,076,479.23	6,955,857.37	23,627,458.43	31,257,120.68	32,621,970.78
Operating Expenses	1,067,339.31	2,873,420.61	4,699,981.49	5,808,720.81	2,577,370.88
Total Expenses	(9,143,818.54)	(9,829,277.98)	(28,327,439.92)	(37,065,841.49)	(35,199,341.66)
Net Income (Before Inc. Tax)	403,835.15	507,357.86	903,388.68	(1,796,063.72)	(2,066,644.79)
Less: Cost of Financing		(7,275.12)	(18,807.21)	(54,878.77)	(80,245.61)
Corporate Income Tax	(15,575.27)	(20,191.86)			
Net Profit and Loss	388,259.88	479,890.88	884,581.47	(1,850,942.49)	(2,146,890.40)
Retained Earnings (Loss), Jan. 1	<u>-326,289.31</u>	<u>25,952.36</u>	<u>505,843.24</u>	<u>1,390,424.71</u>	<u>(460,517.78)</u>
Retained Earnings (Loss), Dec. 31	61,970.57	505,843.24	1,390,424.71	(460,517.78)	(2,607,408.18)

In the year 2016, Paul's sales suddenly increased, almost tripling from 10.3 million Baht in 2015 to 29.2 million Baht in 2016. This represented a difference of around 18,893,919 Baht when compared to 2015. Aside from peanut butter - creamy and crunchy - and along with sweetened and unsweetened products, Paul began producing many new products in 2016. These included items such as almond butter, sesame oil made by a cold pressing process, rice bran oil, peanut oil, coconut oil, white, black, and red sesame seeds, sesame cookies, molasses, and several kinds of cereal and nut bars. Paul had more distribution channels, which included supermarkets like the MALL, Tesco Lotus (now Lotus's), and vegetarian food stores in Chiang Mai Province, as well as some Seventh-day Adventist institutions like the Mission Hospital and the Ekamai International School minimarts. The company also launched online sales on the Lazada and Shopee platforms while creating their own website under the PAUL Food brand. The company also hired a sales manager in each part of Thailand.

All of these reasons led to a rapid increase in sales starting in 2016 and thereafter. Because

many new employees were hired to support the new products and distribution channels, the company was not able to control its expenses, and so even though sales were high, they began to experience losses. Mr. Paul was probably a little too fast to invest in so many new products at the same time. It seems like he didn't have a proper financial plan for the expansion, and so the company ended up losing money during the last 2 years that were studied.

Financial Statement Analysis of APD Sport Company Limited

According to Table 2, the Statements of Financial Activity showed that in 2016, APD Sport Co. Ltd. lost 18,648.42 Baht. Since 2016 was APD Company's first year of operations and its first time to submit financial statements to the Thai revenue office, it is not surprising that the company did not show a profit during their first year of business. Their financial operations were not yet developed or organized in a systematic way, and that was part of the reason why their net income was negative.

Table 2*APD Sport Company Ltd 2016-2019 Statements of Financial Activity*

Income	2014	2015	2016	2017
Sales	357,687.85	3,666,593.88	4,077,885.77	3,488,226.57
Other Income	2,487.12	25,744.76	18,153.00	16,153.00
Total Income	360,174.97	3,692,338.64	4,096,038.77	3,504,379.57
Expenses				
Cost of Sales	249,353.63	2,539,931.38	2,575,155.59	1,996,163.96
Operating Expenses	<u>129,469.76</u>	<u>711,970.39</u>	<u>1,140,983.18</u>	<u>1,157,310.80</u>
Total Expenses	378,823.39	3,251,901.77	3,716,138.77	3,153,474.76
Income before Income Tax	-18,648.42	440,436.87	379,900.00	350,904.81
Less: Income Tax		<u>-15,224.28</u>	<u>-11,985.00</u>	<u>-7,635.72</u>
Net Profit and Loss	(18,648.42)	425,212.59	367,915.00	343,269.09

The income statement shows that they didn't pay any income tax for their first year of operation. This made sense, said Piya, because it was not necessary for the company to make a profit in its first year. In 2018, their profit and loss statement showed that they posted a gain, and it was the highest profit compared to the other years that were studied. This occurred because different promotions were offered to their customers. For example, they advertised more on online channels such as Facebook, their website, and through dealers in different places all around Thailand. About 80% of their income came from online sales through Facebook and LINE, while 15% came from their dealers and partners. The last 5% came from sales through Shopee and their storefront shop. Their operating expenses from 2018 to 2019 were relatively high. There was a change in how they rented out a football field to their customers. That was also one of their income items, having been in their plans since the beginning. That's why their operating expenses jumped from 2018 and onwards; they also added more equipment like printers and some office chairs and tables for office use as well.

BIG – BASS Water Plant Financial Analysis

Table 3 below shows sales, operating expenses, and profit and loss each month from January to December 2019, which was the first year for Pornchai's new business.

Table 3*2019 BIG-BASS WATER PLANT Statement of Financial Activity*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sales	51,213	48,700	69,038	60,090	56,358	82,286	67,883	81,636	70,675	67,965	65,465	67,348
Less:												
Operating Expenses	41,350	37,934	44,346	44,739	46,046	47,446	46,942	45,360	43,982	43,040	42,871	43,490
Profit (Loss)	9,863	10,766	24,692	15,351	10,312	34,840	20,941	36,276	26,693	24,925	22,594	23,858

According to Table 3, Pornchai's business has never operated at a loss. The Statement of Financial Activity didn't show any negative results, and the average monthly sales in 2019 were 65,721 Baht. His operating expenses were around 40,000 Baht each month, except for February 2019. His lowest profit was 9,863 Baht in the month of January, but his profits slowly increased in later months. In the months of February, April, and May, his profits exceeded 10,000 Baht per month, with the business earning 10,766 Baht, 15,351 Baht, and 10,312 Baht per month, respectively. And for the months of March, July, September, October, November, and December, the business earned more than 20,000 Baht per month, with 24,692 Baht, 20,941 Baht, 26,693 Baht, 24,925 Baht, 22,594 Baht, and 23,858 Baht, respectively. For the months of June and August, profits passed 30,000 Baht monthly, with 34,840 Baht and 36,276 Baht. So, in summary, his average profit was around 9,000 Baht for 1 month, about 10,000 Baht per month for 3 months, around 20,000 Baht for 6 months, and around 30,000 Baht for 2 months. Thus, his average monthly profit was around 21,759 Baht for the year 2019.

Business Establishment

Each entrepreneur in this study had a different motivation when setting up his business. For example, Mr. Paul started his business because he saw the opportunities and he wanted to be independent, have his own income, and not depend on any organization. He wanted to depend on

himself with guidance and wisdom from God, and at the same time to be a blessing to other people around him. For APD Sports, Mr. Piya and his two friends started their business because they loved football and frequently played together. They wanted to do something that they loved and would never get bored of doing. Mr. Pornchai started his water business because his former business was not profitable enough to support his family, and so he was trying to find a better solution.

Business Operational Experiences

Each entrepreneur in this study faced different challenges because, while launching and running their businesses, they were also learning how to improve their management skills. Each of them faced different situations; there were opportunities to seize, problems to solve, and challenges in financial management. They needed their income to cover their expenses; here are some points that the researcher noted from the study, both strengths and weaknesses of each of the three entrepreneurs.

The first is Mr. Paul Poopichitprai. Paul has been able to manage his human resources well, and he has more employees than either Mr. Piya or Mr. Pornchai. But none of his employees receives a salary higher than 20,000 Baht, including him, which shows his humility as a manager. At the same time, Paul doesn't have any problems with human resources. He is quite good at managing people since he is a humble man of mature age. He likes to listen more than to talk. He has managed his employees by observing each one of them. By discerning what each person is good at doing, he has tried to put the right person in the right job. Some of his employees were broken-hearted people who were useless in the eyes of other people. With wisdom and guidance from God, Paul was able to solve every problem, no matter how small or how big.

Secondly, at APD Sport, Piya and his friends brought out the best qualities in each business partner. This included both hard and soft skills, with one working in finance, one in purchasing, and one in the marketing part of the business. They were shareholders who shared the same purpose; they focused mostly on online selling, which has worked out well. They are not producers, but middlemen who have seen the opportunity to make a profit by ordering products according to their own design and brand, and selling them to their customers. They set the product prices at quite a high level, but they make sure that the quality of the products is suitable given the price.

Thirdly, the study of the Big Bass Water Plant raised some interesting points. The main problem was in human resource management. Leadership was very important in this case, and the missing points in leadership at Big Bass water plant's business were:

- (1) Not knowing how and when to delegate work to each employee.
- (2) Negative attitudes, as a leader needs to have a positive attitude that will help in managing employees of different age groups; the leader needs to understand them in order to keep them working in the long term.
- (3) Confidence: the leader needs to study and work more than the other employees to build up their confidence by setting goals and a direction for the business.
- (4) The ability to embrace failure; a good leader must understand that failure can provide a foundation for eventual success, and not run away when faced with problems.
- (5) Daily inspiration is an important part of motivation in a business. The leader should bring this inspiration with him/her every morning, or else it will be difficult for the business to move on.

Things to Share with Young Adventists and Other Interested People

One of the objectives of this study was to share the stories of these entrepreneurs with young Adventists and those who may be interested in becoming entrepreneurs. These stories, advice, and tips may encourage or guide believers who would prefer working for themselves rather than for an Adventist or non-Adventist organization. As Adventist entrepreneurs, they became successful while still respecting and worshiping God, resting from their work on every Saturday, asking for wisdom from God, following His words, spending time with Him, and imitating His character in their daily lives by following the example Jesus has shown. Jesus

kept in touch with His Father above, and that helped Him to get through His mission on this earth.

The 3 selected Adventist entrepreneurs were not at the same level of spiritual experience since they came from different backgrounds. Mr. Paul was born into an Adventist family, and When he started his business, he was able to operate it in harmony with his beliefs. He could follow the fundamental beliefs of the Seventh-day Adventist Church without internal or external conflicts, since he and his family were very clear about them, and people around him also supported him.

Mr. Piya from APD Sport was also born into an Adventist family, but he was not able to practice all the Adventist fundamental beliefs in his business since his two shareholders were not Adventists. But they have chosen to respect each other and work together as a team.

Mr. Pornchai was not born into an Adventist family, but he became an Adventist during the lowest point of his life. This was when he closed down his previous business as previously recounted, he believes that God has led in the establishment of his new business. Since he became acquainted with the Adventist church, his life has been slowly changing for the better. He needs time to have more experience with this new way of life; since he is a relatively new believer, it has not always been easy for him to integrate all of the Adventist fundamental beliefs into his family business operations.

Implications and Conclusion

The researcher was not able to study about the businesses of other Adventist entrepreneurs because it would have been inconvenient for them, or they were not willing to share detailed information such as their financial statements. For these reasons, the researcher studied the business launching and operational experiences of these three entrepreneurs who were willing to share their business stories and financial statements, and to cooperate with the researcher in the matters that the researcher wished to investigate. The

experiences of other Adventist entrepreneurs may differ from those described, and so for this reason, these findings cannot be generalized as applying to all Adventist startups in Thailand.

Additional future research studies could further investigate the experiences of Adventist entrepreneurs, perhaps studying in greater depth about the challenges that they faced in various business categories. For example, manufacturing firms may face a very different set of problems than those encountered by retail or service businesses.

The selected entrepreneurs had different motivations in setting up their businesses. Probably the right way to do this is with a small budget in hand to support the first steps of starting the business. This is because it's not only a market trial but can also help the founders to develop patience when doing their work. To start and operate one's own business is not easy. The three entrepreneurs encountered many different difficult situations, and they needed to work harder than the other employees, especially when first starting their new businesses.

The selected entrepreneurs need different skill sets to run their businesses effectively. Since PAUL Food focuses on manufacturing healthy food, its products have expiration dates, and so PAUL Food needed to be good at managing its inventory and sales.

APD Sport does not manufacture its own products, but they are a middleman. They can keep their products as long as they want, but need to offer credit to their partners by allowing them to receive their products first and pay later. They need to skillfully manage their operating capital in order to avoid liquidity and bad debt problems. Big Bass Water Plan produces and sells drinking water products that have no expiration dates as well. People need to keep purchasing it regularly, and yet the production process isn't complicated, and it is not necessary to employ many workers to do the work.

Adventist fundamental beliefs were part of the motivation that inspired, encouraged, and pushed these entrepreneurs to launch their businesses. They have also helped them to maintain a positive attitude through adversity and manage their businesses well.

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The Perceived Impact of Work Scholarship Program on Values and Work Ethics of College Students: A Mixed Method Design

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The Work Scholarship Program (WSP) at a faith-based university is designed to provide students with financial support while allowing them to gain work experience at the university. The purpose of this study was to determine the perceived impact of WSP on the values and work ethics of college students using the mixed method, particularly the parallel-convergent design. Online surveys were conducted with 163 work scholars using total population sampling, and five were further interviewed simultaneously to complement the quantitative results. The work scholars should have worked in any department in the university for at least one semester to 12 semesters. The results revealed that the work scholars perceived the WSP as having a high impact on their values, specifically their personal growth, integrity, friendship, positive attitude, leadership, self-discipline well-being, adaptability, creativity, and conflict resolution. Furthermore, it also had a high impact on their work ethics, particularly on their accountability, do-it-yourself, work-life balance, diligence, responsibility, traditional work, productivity, and reliability. In addition, based on the interviews conducted, the following were significantly identified by the work scholars as having a great impact on their values and personal outcomes: skill improvement, improved patience, improved socializing skills, and improved self-esteem; and their work ethics in terms of responsibility, accountability, and productivity. It was recommended to continue the WSP at a faith-based university, especially for those who are financially constrained and need work experience while in college. These work scholars will be the foundational pillars of the future workforce.

Keywords: *work scholarship program, values, ethics*

Educational institutions in the contemporary world are continually exploring innovative approaches to teaching, recognizing that the learning experience should extend beyond the traditional classroom confines. The Work Scholarship Program (WSP) represents one such initiative, designed to enhance students' future employment performance (Chopra, 2017). Proficiency and skill development are integral to this training program, emphasizing not only the completion of professional courses but also the acquisition of valuable experiences that offer insights into the dynamics of working in a professional environment. According to Hora (2017), WSP contributes to the augmentation of students' knowledge and skills, ultimately enhancing their overall performance.

Moreover, WSP offers students direct exposure to various jobs, fostering practical experiences that prove beneficial for their future careers. This program affords students the opportunity to apply theoretical knowledge of techniques, methods, and instructional aids in real-world settings (Jogan, 2019). Defined as purposeful and meaningful physical labor integrated into the learning process, WSP not only results in items or services beneficial to the community but also provides a sense of self-fulfillment (Rajouri, 2018).

Engaging in WSP yields numerous advantages for students. Participation in such programs can lead to a lasting enhancement of their capabilities across various roles, not only during the program but also in future employment. WSP aims to positively modify students' behavior, serving as a form of practical education (Jackel, 2018). This hands-on experience allows students to gain a deeper understanding of their chosen field, refining skills, attitudes, and values associated with effective job performance (Hergert, 2019). The transformative impact of WSP is underscored by its ability to bridge the gap between theoretical comprehension and practical application, providing students with a well-rounded education that extends beyond the academic realm.

Work ethics are fundamentally rooted in an understanding of what is legally correct or incorrect within the professional realm. Ethics, defined as the moral principles guiding one's actions (Parveen, 2017), play a pivotal role in shaping an individual's approach to work. Demonstrating a robust work ethic not only commands respect but also establishes a person as someone others wish to associate with, fostering a stellar professional reputation. Such individuals become prime candidates for better job opportunities, increased responsibilities, and eventual promotion, paving the way for further career advancements.

Conversely, individuals with a poor work ethic may encounter challenges in maintaining productivity or risk facing job loss. In today's fiercely competitive job market, a lackluster work ethic can swiftly lead employers to seek alternatives without hesitation. Moreover, employees who fall short in demonstrating a strong work ethic may provide inadequate value for the compensation they receive, thereby warranting caution in promoting them or assigning greater responsibilities (Rajendranagar, 2020).

In the contemporary professional landscape, where expectations are high, the significance of possessing a commendable work ethic cannot be overstated. Recognizing and appreciating the nuances of values and work ethics is crucial, acknowledging that these principles may vary from person to person. Thus, fostering a commitment to ethical conduct in the workplace not only enhances individual career prospects but also contributes to the overall integrity and efficiency of the organizational environment.

Filipino teenagers are motivated to complete their education, even if their parents or families are unable to financially support them. They go to school while also working to meet their needs for school obligations and tuition payments. It is commendable when we learn that a teenager completes high school with their own support by working after school. Filipino teenagers are admired

for their diligence and hard work. Being a working student for Filipino teenagers is not simple, but with the help of their families, they can manage to work and attend school (Chavez et al., 2020)

Numerous studies have delved into the assessment of students concurrently employed while pursuing their studies. Muluk (2017) asserts that working beyond 15 hours per week adversely impacts academic performance, leading to lower grades, incomplete assignments, and detrimental effects on physical and mental well-being, including personal values. The extensive time and energy devoted to labor can divert students from their academic endeavors. Vickers (2018) supports this, indicating that working 20 hours or more weekly fails to yield positive effects on students' work ethics and heightens the risk of dropout from tertiary education. Nazri (2017) acknowledges the dual nature of advantages and disadvantages for students engaged in work while studying, emphasizing the need for robust physical and mental health.

In light of these challenges, the Scholarship Programs (WSP) emerge as potential solutions, offering numerous benefits. However, for college students, the primary concern lies in effectively managing their dual responsibilities. This study aims to shed light on this dilemma and provide valuable insights for future researchers, educators, and stakeholders. Specifically, it seeks to evaluate the effectiveness of implementing such programs, especially within the context of a faith-based university.

Remarkably, no prior studies have explored the impact of work scholarship programs on the values and work ethics of college students at a faith-based university. Consequently, there is a critical need to conduct this study and reassess the WSP of the university based on the findings. The outcomes of this research will contribute to a better understanding of the dynamics involved and inform decisions regarding the continuation of such programs, particularly in the unique context of a faith-based educational institution.

Methodology

Research Design

This study aimed to assess the perceived impact of the Work Scholarship Program (WSP) on the values and work ethics of college students, employing a mixed-methods approach, specifically the parallel-convergent design. The convergent parallel design involves the simultaneous collection and analysis of both qualitative and quantitative data, facilitating a comprehensive examination of the subject. The study emphasizes the importance of comparing and correlating qualitative and quantitative findings and subsequently interpreting the areas of convergence or divergence between the two data sets. Discussion of these intersections and disparities enhances the depth of understanding regarding the influence of WSP on the values and work ethics of the participating college students.

Population and Sampling Technique

The primary focus of this study encompasses the entire population of 162 working scholars affiliated with a faith-based university, where the research was undertaken and centered on individuals who have participated in the Work Scholarship Program. It is imperative that the selected work scholars have engaged in employment within various departments of the university for a duration ranging from one semester to a maximum of 12 semesters.

The data analysis unveiled a distribution among the respondents across different academic levels. Specifically, 28% or 45 respondents were enrolled in the 1st year, followed by 44% or 27 respondents in the 2nd year, 34% or 21 respondents in the 3rd year, and 24% or 39 respondents in the 4th year. Among the total 167 respondents, there was a gender breakdown, with 37.7% being female and 59.3% male.

Instrumentation

The research employed a comprehensive three-part questionnaire. Part 1 known as the Demographic Profile Questionnaire (DPQ), is designed to capture essential information such

as the respondents' gender, program/college, department/work area, and year level within the Work Scholarship Program. Part 2 encompasses the Values Questionnaire, meticulously crafted by the researcher based on an extensive literature review. The questionnaire comprises a series of questions aimed at understanding the influence of the work education program on the values of the participating scholars. Part 3 consists of the Work Ethics Questionnaire, also developed by the researcher through a literature review. This segment includes a series of questions focused on gauging the impact of the work education program on the work ethics of the participants.

Analysis of Data

Qualitative data underwent statistical analysis using SPSS version 23 in this study. Descriptive statistics, specifically frequencies and percentages, were employed to present the demographic profile data. To delineate the values and work ethics of the working scholars, mean and standard deviation were utilized.

In further analysis, T-test and ANOVA were deployed to compare the values and work ethics of the work scholars, taking into consideration their sex and year level. The choice to include only sex and year level as moderating variables for the T-test was deliberate, given the intricate nature of the range of other variables. This streamlined approach ensures a focused examination of the pertinent factors influencing the values and work ethics of the working scholars.

Ethical Consideration

To reinforce the ethical standards governing the research, the proposal underwent a thorough review by the Ethics Review Board of AUP, underscoring the commitment to the ethical conduct and compliance of the study with established guidelines and principles. To ensure the research's quality and integrity, the researchers actively sought the involvement of the targeted respondents and contextual elements crucial for the study's direction. Respondents were thoroughly briefed on the study's instructions, methodology, objectives, the anticipated contributions of the research, and the principles of its independence and impartiality. The voluntary nature of participation was emphasized, and explicit consent was requested, underscored by a firm commitment to maintaining strict confidentiality and anonymity, both of which were robustly implemented and assured.

Results and Discussions

The Values Gained through WSP by the Work Scholars in a Faith-based University

Table 1 elucidates the values acquired by work scholars through the Work Scholars Program (WSP), showcasing ten distinct dimensions. The descriptive outcomes, anchored in an overall mean of 4.1957 (SD=0.38470), unveil a resounding consensus reflected in a grand scale response of "Agree." This interpretation characterizes the overall response as high, indicating that respondents gleaned diverse positive values from their participation in the WSP.

Table 1

Mean and Standard Deviation of the Work Scholars' Gained Values through WSP

No.	Item	M	SD	SR	VI
8	Personal Growth: I am interested to learn new things/skills that would help me grow.	4.51	.627	Strongly Agree	Very High
6	Integrity: I am honest with my work and/or the people around me.	4.32	.627	Agree	High
5	Friendship: I can easily get along with the people around me.	4.29	.637	Agree	High

[table continues on the next page]

7	Leadership: I prefer working on teams rather than being alone.	4.22	.728	Agree	High
4	Positive Attitude: I do my best on every duty whether work/school related.	4.22	.685	Agree	High
9	Self-Discipline: I can be more punctual (e.g. waking up early in the morning, not being late for class, etc.).	4.21	.673	Agree	High
10	Well-being: I am satisfied with myself right now.	4.15	.724	Agree	High
1	Adaptability: I am able to work under pressure even in a stressful situation.	4.06	.750	Agree	High
3	Creativity: I am able to express myself more. (e.g. the way you dress, art, playing piano, doing sports, etc.)	4.05	.721	Agree	High
2	Conflict Resolution: I am able to think outside of the box and resolve problems without the help of anybody.	3.94	.675	Agree	High
Overall Mean		4.195	.38470	Agree	High

Note: Very High= 4.50-5.00; High= 3.50-4.49; Moderate= 2.50-3.49; Low= 1.50-2.49; Very Low=1.00-1.49

Personal Growth (Mean: 4.51, SD: 0.613) achieved the highest mean, indicating a “Very High” level of value. It reflects a strong desire among respondents to continually learn new things and skills, aligning with the concept of intentional personal development (Freitas et al., 2016). Acknowledged as a process of self-discovery and reaching one’s full potential (Jackson, 2021), personal growth fosters a mindset of continuous improvement and the pursuit of becoming the best version of oneself.

Integrity (Mean: 4.32, SD: 0.627), with a high mean score, emphasizes honesty in work and interactions. Aligned with the Latin *integritas* meaning “wholeness,” integrity signifies completeness and consistency of principles and values (Huberts, 2018). Emphasizing the importance of inner character, integrity is considered vital, particularly in academic settings where it defines an individual’s commitment to hard work and ethical conduct.

Friendship (Mean: 4.29, SD: 0.637). The value of Friendship, reflected in the statement “I can easily get along with people around me,” is underscored as important. Friendship contributes to effective collaboration, making individuals valuable team members. Defined by consensual, reciprocal

partnerships, friendships foster connection, motivation, and support, essential for students navigating the challenges of academia.

Leadership, with a mean score of 4.22, suggests a preference for working in teams rather than alone. Defined as motivating and influencing a group towards a common goal (Strait, 2020), leadership requires qualities such as ambition, skills, and the ability to make difficult decisions. Encouraging students to experience leadership roles contributes to the development of positive attitudes when facing multitasking pressures.

Positive attitude. The statement “I do my best on every duty whether work/school related” highlights the significance of a positive attitude. A positive mindset contributes to motivation and productivity. It enables individuals to focus on what can go right, learn from failures, and approach challenges with resilience (Lim, 2019)

Self-Discipline, measured by the ability to be punctual, aligns with the definition of Moneva (2020). Acknowledged as a vital value, self-discipline involves setting goals, thinking before acting, and comprehending the most significant aspects of life. Cultivating self-discipline is crucial for students as it shapes their destiny and future.

Well-being. The statement “I am satisfied with myself right now” underscores the importance of well-being. Subjective well-being, as defined by Ohja et al. (2017), is integral to a successful existence. Physical and mental well-being contribute to happiness and life fulfillment, providing students with comfort, health, and motivation to pursue their dreams.

Adaptability, reflected in the ability to work under pressure, emphasizes the capacity to navigate changing situations successfully (Martin, 2017). Encouraging adaptability supports both personal and professional growth, enabling individuals to reshape themselves and thrive in diverse environments.

Creativity, measured by the statement “I am able to express myself more,” is highlighted as a vital workplace value. It encourages thinking outside the box, fostering productivity, resourcefulness, and success. Expressing ideas promotes self-confidence and inclusion, leading to cooperative and participative behavior.

Conflict Resolution, with a mean score of 3.94, indicates a high but less-experienced value among respondents. The ability to think outside the box is associated with innovation and problem solving and therefore it is crucial (Gaither et al., 2015). While conflict resolution may be less experienced, it is interpreted as a value learned during the Work Scholarship Program, demonstrating the students’ growth in resolving problems independently.

Table 2 outlines additional values gained through the Work Scholarship Program, validated through interviews. Respondents consistently highlighted the challenge of balancing work and study, especially for a Work Scholar in public safety juggling duties as a student guard.

Work scholar experience time constraints managing the responsibilities of both student and worker. Many working students also face challenges when they work and study simultaneously (Tumin et al., 2020).

Another theme emerged—school-to-work transition difficulties, with respondents often seeking advice from friends to navigate this adjustment. The interview responses also revealed a theme of skills improvement, where participants noted acquiring new skills and experiences through the work scholarship program. Other themes that emerged during the interview were: improved patience, socializing skills, self esteem, and integrity.

How do Work Scholars Assess their Work Ethics?

The work ethics of work scholars undergo detailed examination through the exploration of eight distinct dimensions, as delineated in Table 3. These dimensions encompass productivity, diligence, reliability, responsivity, accountability, do-it-yourself ethos, traditional work approach, and work-life balance. Analyzing the descriptive results, characterized by an overall mean of 4.1265 (SD=0.63930), we observe a pervasive consensus reflected in a robust “Agree” response on a grand scale. This interpretation, indicative of a high level of agreement, suggests that respondents have indeed acquired diverse positive values through their participation in the WSP.

Table 2
Summary of Themes for RQ1

Research Question	Themes
1. What are the values gained through the Work Scholarship Program by the work scholars in a faith-based university	<ul style="list-style-type: none"> • Better Time Management • Circumstances and Situation • Skills Improvement • Improved Patience • Improved Socializing Skills • Improved Self esteem • Integrity

Table 3*Mean and Standard Deviation of the Work Scholars' Work Ethics*

No.	Item	M	SD	SR	VI
5	Accountability: I am able to take responsibility with my own actions whether it is right or wrong.	4.52	.627	Strongly Agree	Very High
6	Do It Yourself: I can work with minimal supervision.	4.22	.627	Agree	High
8	Work-Life Balance: I am able to have time for myself (adequate sleep, proper meal, exercise).	4.15	.637	Agree	High
2	Diligence: I am able to pay attention to details more.	4.11	.728	Agree	High
4	Responsibility: I am able to take ownership of all that falls within the scope of my duties, power, mission, or goals.	4.09	.685	Agree	High
7	Traditional Work: I like to do things my way even if it is time consuming.	4.06	.673	Agree	High
1	Productivity: I am able to finish my work/school tasks before the given deadline.	3.94	.724	Agree	High
3	Reliability: I believe the people around me can depend on me	3.91	.675	Agree	High
Overall Mean		4.1265	.6393	Agree	High

Note: Very High= 4.50-5.00; High= 3.50-4.49; Moderate= 2.50-3.49; Low= 1.50-2.49; Very Low=1.00-1.49

Accountability. The cornerstone of the students' perceived work ethic is accountability, where they express a profound commitment to taking responsibility for their actions, irrespective of the outcome. With a mean of 4.52 (SD=3.977), this work ethic is deemed "very high," aligning with a definition that emphasizes accepting responsibility for honest and ethical behavior.

Do-it-Yourself. "I can work with minimal supervision" reflects a strong inclination toward self-reliance and appreciation for effort. The average mean of 4.22 (SD=0.659) underscores students' ability to produce outcomes from raw materials, emphasizing the value of experiential learning and creative exploration.

Work-Life Balance. With a mean of 4.15 (SD=0.692), students recognize the importance of work-life balance. This aligns with Meenakshi et al. (2016) concept of work-life balance emphasizing equilibrium between work and personal life. It underscores the challenges many face in managing competing demands, highlighting the need for a supportive and healthy work environment.

Diligence. "I am able to pay attention to details more" reflects students' dedication to diligence, with a mean of 4.11 (SD=0.630). This value is crucial for

achieving high-quality work, especially in hands-on job settings. Diligence, as a vital component of one's values, is highlighted as a key factor in the students' industriousness.

Responsibility. The commitment to taking ownership of duties, missions, or goals is reflected in a mean of 4.09 (SD=0.598). Responsibility, seen as the ability to perform assigned duties satisfactorily, is fundamental to students' success in school and their future professions.

Traditional Work. Despite the trend towards modern approaches, a mean of 4.06 (SD=0.774) suggests that some students still prefer traditional ways of working. This preference may stem from a sense of comfort and familiarity, showcasing the diverse perspectives among students

Productivity. "I am able to finish my work/school tasks before the given deadline" reveals a mean of 3.94 (SD=0.733), indicating the importance students place on productivity.

Reliability. The perceived reliability of students, as reflected in the statement "I believe the people around me can depend on me," has a mean of 3.91 (SD=0.717). This work ethic is considered the lowest among respondents, possibly due to students' ongoing self-assessment as they transition from studying to the workplace

Interviews were conducted to validate and confirm the answers of the respondents. Themes were generated during the interview. Table 4 present these work ethics—responsibility, accountability, and productivity—serve as guiding principles shaping individuals in their personal and professional journeys. The real-world experiences shared by individuals from diverse work environments illuminate the practical application of these ethics. As individuals navigate the complexities of work, exposure to programs like work scholarships emerges as a catalyst for ethical maturity, shaping values that extend beyond immediate tasks to contribute positively to their overall well-being and success

Table 4*Summary of Themes for RQ2*

Research Question	Themes
2. How do work scholars assess their work ethics?	<ul style="list-style-type: none"> • Responsibility • Accountability • Productivity

Comparison of Values and Work Ethics of Work Scholars Considering their Sex and Year Level

Tables 5 and 6 provide a comprehensive comparison of values and work ethics among work scholars, taking into account both their gender and year level. The findings indicate a lack of discernible differences in the values and work ethics exhibited by male and female work scholars. This observation is supported by the fact that the p-values associated with all comparisons exceed the conventional significance level of 0.05. Table 5 outlines the descriptive outcomes stemming from the examination of college students' values and work ethics categorized by gender. The comparison utilized a t-test, and the interpretation was grounded in the mean rank, where a higher mean rank indicated elevated values and work ethics. This study's findings align with a prior investigation conducted in 1997, which explored gender-related differences in ethical attitudes among 318 graduate and undergraduate business students. Multiple inquiries from that study consistently indicated an absence of significant differences between sexes concerning survey items related to values and work ethics.

Table 5*Comparison of Values and work ethics by Sex*

	Sex	N	Mean	T	df	Sig (2-Tailed)	Verbal Interpr.
Work Ethics Skills	Male	99	4.0770	-1.247	160	.214	NS
	Female	63	4.2044				
Values	Male	99	4.2020	.262	160	.793	NS
	Female	63	4.1857				

There is a consistent pattern in the values and work ethics of college students across different years of study. All comparisons yield p-values exceeding the 0.05 significance level, indicating a lack of statistically significant distinctions. Whether in their second, third, or fourth year, students exhibit comparable values and work ethics, including their sub-dimensions. Therefore, we accept the hypothesis positing no significant difference in the values and work ethics of college students when considering their year level. This underscores the uniformity in these aspects of student behavior and underscores the robustness of these characteristics throughout various stages of their college journey.

Table 6*Comparison of Values and Work Ethics using ANOVA by Year level*

		Sum of Squares	Df	Mean Square	F	Sig.	Verbal Interpret
Work Ethics Skills	Between Groups	1.633	3	.544	1.359	.257	
	Within Group	63.273	158	.400			NS
	Total	64.906	161				
Values	Between Groups	.976	3				
	Within Group	22.851	158	.325	2.250	.085	NS
	Total	23.827	161	.145			

Conclusion and Recommendations

The results revealed that the work scholars perceived the WSP as having a high impact on their values, specifically their personal growth, integrity, friendship, positive attitude, leadership, self-discipline well-being, adaptability, creativity, and conflict resolution. Furthermore, it also had a high impact on their work ethics, particularly on their accountability, do-it-yourself, work-life balance, diligence, responsibility, traditional work, productivity, and reliability.

Based on interviews, work scholars noted significant positive impacts on their values and personal outcomes. The identified key factors that were improved included skills, patience, socializing abilities, and self-esteem, along with enhanced work ethics such as increased responsibility, accountability, and productivity.

It was recommended to continue the WSP at a faith-based university, especially for those who are financially constrained and need work experience while in college. These work scholars will be the foundational pillars of the future workforce.

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Green Bond and Financial Performance: Evidence from Indonesia

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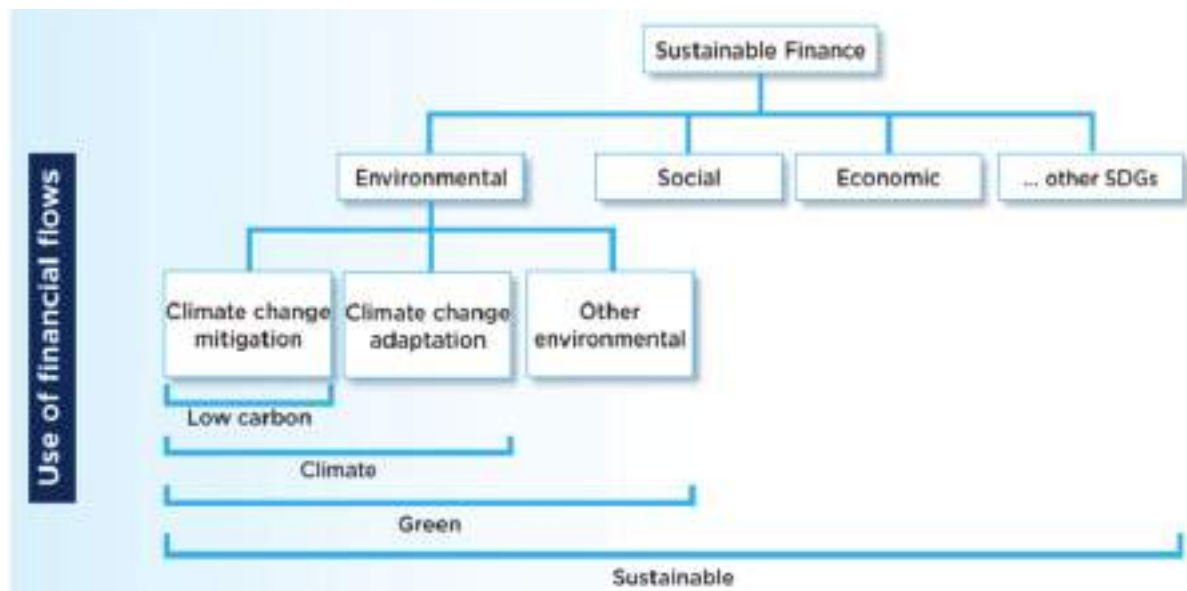
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As climate concerns shape global finance, green bond financing, a debt instrument designed to fund environmentally friendly projects, has become pivotal for sustainable practices. Yet, its impact on firm performance, especially in emerging markets like Indonesia, is not well explored. This study evaluates the financial performance of 809 firms on the Indonesia Stock Market in 2021, focusing on whether firms issuing bonds, specifically green bonds, perform better. Key metrics include ROA, ROE, and NPM. Multiple regression was used to test the data. Results indicate that firms issuing bonds had a notably lower ROE of -2.002, attributed to incurred interest expenses reducing net income. Interestingly, green bond issuers didn't demonstrate significantly superior performance compared to general bond issuers. In summary, while green bonds hold promises for fostering sustainability, their direct financial benefits in the Indonesian context remain unclear. The study emphasizes the need for broader evaluations beyond just financial outcomes and suggests deeper research into sector-specific impacts in Indonesia to refine global sustainable financing strategies.

Keywords: *green bond, financial performance, roa, roe, npm, Indonesia stock market*

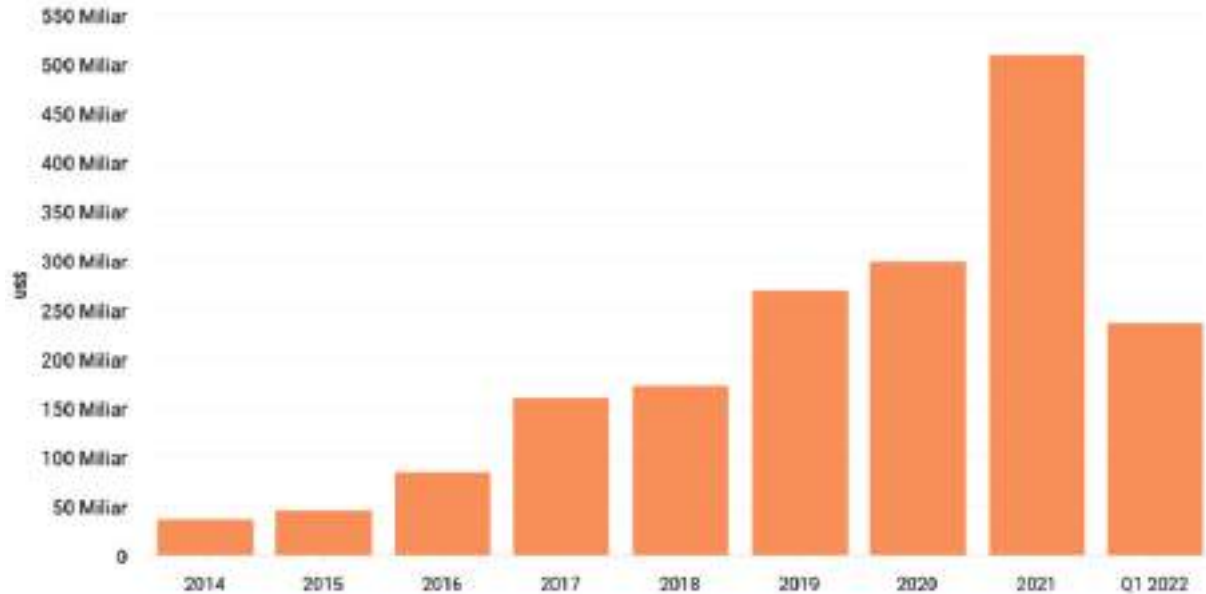
As global challenges like climate change, resource depletion, and social inequalities intensify, there's a pressing need to allocate capital in ways that will help mitigate these issues. Sustainable finance channels investments towards projects and initiatives that have positive environmental and social outcomes. ESG factors are increasingly recognized as material risks to businesses (Freiberg et al., 2020). Companies exposed to environmental degradation or involved in unethical practices are more susceptible to reputational, operational, and legal risks. By considering ESG factors, investors can make more informed decisions and potentially avoid entities that might face future liabilities or controversies. Modern stakeholders, including consumers, investors, and employees, are becoming more conscious of sustainability issues (Tilt, 2010). They demand transparency and responsible behavior from companies. Sustainable finance allows institutions to meet these demands and potentially enjoy increased loyalty, a more robust brand reputation, and a competitive advantage (Ziolo et al., 2021). Governments and regulatory bodies worldwide are tightening rules related to economic, social, and government (ESG) disclosures, carbon emissions, and corporate social responsibilities. Sustainable finance helps companies adapt to these regulations, positioning them favorably in an evolving legal landscape, as shown in Figure 1.

Figure 1
Elements of Sustainable Finance



Source: UNEP and the World Bank Group (2017,85)

With the global emphasis on sustainable development and environmental conservation, green bonds as a part of green finance have emerged as a leading instrument in the financial markets, allowing investors to fund projects with environmentally friendly impacts. The term green finance is more specific in focus compared to sustainable finance; however, it involves a wider range of activities than climate and low carbon finance (Dorry & Schulz, 2018; Gabor et al, 2019; Cunha et al, 2021) . As the world's fourth most populous country and a rapidly growing economy, Indonesia faces a unique set of environmental challenges. Balancing its development goals with sustainability efforts is crucial. In this context, the adoption and promotion of green bonds become even more pertinent. Figure 2 shows how green bond has been an interesting bond and has grown rapidly since 2014.

Figure 2*Green Bond Global Data Since 2014 - Q1 2022*

Source: databoks, 2023

Indonesia, with its vast archipelago, is highly vulnerable to the impacts of climate change. From rising sea levels affecting its coastal regions to the deforestation of its prized rainforests, the stakes are high. As a response, the Indonesian government and private sectors have been exploring various measures to finance sustainability projects, with green bonds standing out as a promising solution. Since the country's first green bond issuance in 2018, there has been an uptick in interest, both domestically and from international investors, to tap into Indonesia's green finance potential.

However, as with any financial instrument, the implications of such investments on a firm's financial performance remain a topic of debate and investigation. While numerous studies have shed light on this issue globally, there is a paucity of focused research within the Indonesian context. Given the country's unique economic landscape, its diverse industry sectors, and the specific environmental challenges it faces, understanding the financial performance of firms issuing green bonds in Indonesia is of paramount importance. The regulator organization OJK has released

POJK Nomor 60/POJK.04/2017 about green bond issuance (Penerbitan dan Persyaratan Efek Bersifat Utang Berwawasan Lingkungan).

This research aims to fill this gap by conducting a comparative analysis of Indonesian firms' financial performance metrics—ROA, ROE, and NPM—following their issuance of green bonds. By contrasting these metrics with firms that have issued bonds but not of the green variety, this study hopes to provide nuanced insights specific to Indonesia's financial and environmental landscape.

As green finance becomes a cornerstone of Indonesia's strategic move towards a sustainable future, such an investigation is not just timely but also crucial for policymakers, investors, and businesses alike. This study endeavors to shed light on the intersection of sustainable finance and corporate financial health in the vibrant and diverse economic setting of Indonesia.

The literature surrounding green bonds and their financial performance is vast and multidimensional. This study aims to contextualize the existing research while highlighting gaps that this study, especially focused on Indonesia,

hopes to address. The concept of green bonds, first introduced by the European Investment Bank in 2007, has witnessed substantial growth in the past decade (Flammer, 2020). These bonds are differentiated from traditional bonds based on their commitment to financing environmentally friendly projects. Kidney et al. (2015) defined green bonds as instruments that provide capital for projects with environmental benefits, with the key difference lying in the utilization of proceeds. Globally, research on the financial performance of firms post-green bond issuance has produced mixed results. While some studies suggest a positive correlation between green bond issuance and improved financial metrics (Baulkaran, 2019; Ge et al., 2020), others argue the benefits are mostly non-financial, such as improved reputation or stakeholder relationships (Deng et al., 2020).

Asia's bond market, particularly green bonds, has been expanding at an unprecedented rate (Felman et al., 2014; Wang et al., 2020). Indonesia, as part of this trend, issued its maiden sovereign green bond in 2018, drawing significant global attention (Zerbib, 2019). However, literature specific to Indonesia's green bond market and its implications for firm performance remains sparse. Several studies indicate that firms with stronger environmental practices tend to outperform their counterparts in the long run, even in financial terms (Clark, Feiner, & Viehs, 2015). This potentially underlines the rationale behind the surge in green bond issuances—the synergy between environmental sustainability and financial performance.

Another avenue explored in the literature is how the market perceives green bond issuances. Hachenberg & Schiereck (2018) suggest that markets react positively to green bond issuances, potentially due to the signaling effect, wherein firms convey their long-term vision and commitment to sustainability. Despite the enthusiasm surrounding green bonds, they aren't free from criticism. Some scholars point out potential "greenwashing," where

the environmental benefits are overstated (Karpf & Mandis, 2017). This poses challenges, especially in regions where regulations and oversight might be evolving, as is the case with many Asian markets, including Indonesia.

While a plethora of studies exist concerning green bonds and financial performance, there is a noticeable gap when it comes to specific research in the Indonesian context. Indonesia's unique socio-economic landscape, coupled with its environmental challenges, underscores the need for focused research. Given that Indonesia is at the forefront of climate vulnerabilities and is an emerging player in the green finance sector, understanding the financial repercussions of green bond issuances in the country becomes essential. This study, by analyzing the financial performance metrics of Indonesian firms post-green bond issuances and contrasting them with firms issuing non-green bonds, hopes to provide a fresh perspective and contribute to this evolving body of literature.

Methodology

Research Design

The objective of this study is to explore the impact of green bond issuances on the subsequent financial performance of Indonesian firms. The following section details the research method, including data collection, variable definition, and the statistical techniques applied. This study focuses on the years 2018–2021 for bond issuance and evaluates the financial performance metrics for the subsequent year, 2022. Financial data for the selected firms is sourced from Indonesia's Stock Exchange database, supplemented by the Indonesia Bond Market Report. Firms that have issued bonds in 2018–2021 and firms with ongoing bonds are included. They are further bifurcated into those that issued green bonds and those that did not. Firms that have incomplete data or went through significant structural changes during the study period (like mergers or acquisitions) are excluded to ensure data consistency.

Table 1*Variable Definition*

Variables	Abbreviation	Measurement
Firms issued Green Bond	GreenBond	Dummy variable. 1 if the firms that issued bonds also issued green bond, 0 otherwise of firm i at time t
Firms issued Bond	RegBond	Dummy variable. 1 if the firms issued bonds, 0 otherwise of firm i at time t
Return on Asset	ROA	Net income divided by total assets.
Return on Equity	ROE	Net income divided by shareholder's equity.
Net Profit Margin	NPM	Net profit divided by sales.
Control Variables:		
Firm Size	FSize	Total sales
Leverage	Leverage	Total debt/ Total asset

Table 1 presents all variables used in this research. The model used in this paper are as followed:

$$ROA_{t+1} = a_0 + \beta_1 GreenBond + \beta_2 FSize + \beta_3 Leverage + e \dots \dots \dots (1)$$

$$ROE_{t+1} = a_0 + \beta_1 GreenBond + \beta_2 FSize + \beta_3 Leverage + e \dots \dots \dots (2)$$

$$NPM_{t+1} = a_0 + \beta_1 GreenBond + \beta_2 FSize + \beta_3 Leverage + e \dots \dots \dots (3)$$

Data Analysis

Financial health and performance metrics of companies are presented in Table 2. Our dataset comprised a total of 809 observations, enabling a robust analysis across multiple financial metrics. ROA offers insights into how effectively a company's assets generate profit. The firms in our study exhibited a diverse range of ROA, with a minimum of -5.55% and a maximum of 4.35%. On average, companies showed a modest return of 1.12%. ROE sheds light on profitability relative to shareholder equity. The ROE ranged from a low of -12.86% to a high of 3.56%. Interestingly, the mean ROE was slightly negative at -0.0117 or -1.17%, suggesting that, on average, companies in the dataset were not generating positive returns on shareholders' equity during the period of study. NPM provides a perspective on how much of a company's revenues are actually translating into profit. The NPM in our dataset showed a wide variance, ranging from a staggering low of -187.19% to an impressive high of 222.54%. The average NPM, however, was negative at -25.62%.

Table 2*Descriptive Statistics*

Variables	N	Minimum	Maximum	Mean	Std. Deviation
ROA	809	-5.55	4.35	0.0112	0.32581
ROE	809	-12.86	3.56	-0.0117	0.74406
NPM	809	-187.19	222.54	-0.2562	12.14
FSize	809	-5.92	994.88	161.83	258.11218
Leverage	809	0	113.47	0.8696	5.32996
Valid N (listwise)	809				

In Table 3, we sought to identify the representation of Green Bonds in our dataset. Using a dummy variable, we categorized the bonds into two groups: 0 representing non-Green Bonds and 1 representing

Green Bonds. Remarkably, out of the 809 observations, a mere 6 bonds, or 0.7% of the total, were identified as Green Bonds. This small percentage emphasizes the niche nature of Green Bonds within our dataset and possibly suggests a limited adoption or availability of such bonds during the period of study.

Table 3*Frequency Green Bond*

	Dummy	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	803	99.3	99.3	99.3
	1	6	0.7	0.7	100
	Total	809	100	100	

Transitioning to Table 4, we scrutinized the distribution of conventional or Regular Bonds. Here, the dummy variable 0 stood for firms with no issuance of bonds, while 1 signified firms that issued Regular Bonds. In stark contrast to Green Bonds, Regular Bonds were more prevalent. Of the 809 observations, 95 bonds, or 11.7%, were identified as Regular Bonds. This reaffirms that, within our dataset, traditional bond instruments remain dominant, encompassing over a tenth of the total observations.

Table 4*Frequency Regular Bond*

	Dummy	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	714	88.3	88.3	88.3
	1	9	11.7	11.7	100
	Total	809	100	100	

Results and Discussion

Table 5 shows a multiple regression analysis aimed at understanding the relationships between key financial metrics—namely, Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM)—and independent predictor the presence of a Green Bond followed by control variables: firm size, and Leverage. Notably, the Green Bond variable underscores the potential financial impact of holding such environmentally-conscious instruments. The adjusted R-squared values provide a measure of the goodness-of-fit of the model for each metric. Finally, the F-test values, accompanied by their significance levels, test the overall significance of each model, helping to determine the collective impact of the predictors on the respective financial metrics.

Table 5*Results for Firms Issued Green Bond*

	ROA	ROE	NPM
<i>Constanta</i>	2.027	0.149	-0.675
	0.043	0.881	0.5
<i>Green Bond</i>	0.852	0.909	0.101
	0.394	0.363	0.919

[table continues on the next page]

<i>Fsize</i>	0.912	-1.068	0.416
	0.362	0.286	0.678
<i>Leverage</i>	-12.328	-0.209	-0.364
	0	0.835	0.716
N	809	809	809
Adjusted R2	0.158	0.001	-0.003
F test	51.359	0.702	0.106
	0.000a	0.551a	0.956a

Table 6*Results for Firms Issued Regular Bond*

	ROA	ROE	NPM
<i>Constanta</i>	1.798	0.834	-0.937
	0.073	0.404	0.349
<i>Green Bond</i>	0.74	-2.002	0.99
	0.46	0.046	0.322
<i>Fsize</i>	0.883	-1.149	0.427
	0.377	0.251	0.669
<i>Leverage</i>	-12.313	-0.255	-0.344
	0	0.799	0.731
N	809	809	809
Adjusted R2	0.157	0.003	0.002
F test	51.288	0.764	0.43
	0.000a	0.153a	0.732a

Table 6 shows the relationship between the existence of regular bond to ROA, ROE and NPM of the firms. The coefficient of 0.74 suggests a positive relationship between the issuance (or holding) of Regular Bonds and the Return on Assets. This implies that, on average, for every unit increase in the Regular Bond value, the ROA increases by 0.74 units. However, with a p-value of 0.46, this relationship is not statistically significant at conventional significance levels (e.g., 0.05). This means that the observed relationship could be due to random chance, and we cannot confidently conclude a direct impact of Regular Bonds on ROA based on this data. The coefficient of -2.002 indicates a negative relationship between the Regular Bond and the Return on Equity. This means that, for every unit increase in the Regular Bond value, the ROE decreases by approximately 2.002 units. The p-value of 0.046 is just below the conventional 0.05 significance level, suggesting that this relationship is statistically significant. Thus, there is evidence to suggest that Regular Bonds have a negative impact on ROE, and this result is unlikely to be due to random chance. The coefficient value of 0.99 suggests a positive relationship between Regular Bonds and Net Profit Margin. This means that for every unit increase in the Regular Bond value, the NPM increases by approximately 0.99 units. However, the p-value of 0.322 indicates that this relationship is not statistically significant at conventional significance levels. Hence, while there's an observed positive relationship between Regular Bonds and NPM, we cannot be certain that this isn't due to random variation in the data.

Conclusion

The research aimed to investigate the impact of Green Bonds and Regular Bonds issuance on the financial performance of Indonesian firms for the year 2022, focusing on bonds issued during the period of 2018-2021. The positive coefficient suggests a favorable relationship between Green Bond issuance and ROA. However, its statistical significance indicates that this relationship is not strong enough to be deemed non-random. Similarly, the positive coefficient hints at a potential positive impact of Green Bonds on ROE. The significance level, however, suggests caution in inferring a definitive relationship. The positive coefficient indicates that firms with Green Bonds tend to have a higher Net Profit Margin, but again, the statistical significance suggests this could be due to random variation in the data.

The positive coefficient indicates a potential positive influence of Regular Bonds on ROA, but the lack of statistical significance suggests that this relationship may not be robust. The negative coefficient value for Regular Bonds and ROE, which is statistically significant, suggests that firms issuing Regular Bonds have a lower ROE compared to those that do not. The positive coefficient suggests a potential favorable influence of Regular Bonds on NPM. However, the statistical insignificance cautions against drawing a firm conclusion.

This study shows that while both Green Bonds and Regular Bonds show potential influences on financial performance metrics, only the relationship between Regular Bonds and ROE is statistically significant. Specifically, firms in Indonesia that issued Regular Bonds between 2018-2021 tend to have a decreased ROE in 2022 compared to those that did not. However, the associations of both bond types with ROA and NPM, although discernible, aren't statistically substantial based on the data provided. This suggests that while Green Bonds might be perceived as environmentally conscious financial instruments, their direct impact on the financial metrics studied herein is inconclusive.

It's crucial for stakeholders, investors, and policymakers to understand these nuances when making decisions or analyzing the Indonesian bond market. Further research might be necessary to uncover potential underlying factors or to study the long-term impact of bond issuances on financial performance.

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Does the Auditor's Ethics Matter for Audit Quality? An Empirical Study in Local CPA Firms in Jakarta, Indonesia

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Competent external auditors audit financial statements, which is important for any institution. Audit quality is a main concern in every audit. External auditors are obliged to express an opinion on the fairness of the audited financial statements. Ethical behavior is observed when an audit is conducted on a client, and the outcome affects the audit quality. The study aims to explore how auditors' ethics affect audit quality. The participants in this study are 40 auditors who worked at local Certified Public Accountant (CPA) firms in Jakarta, Indonesia. Questionnaires were distributed, collected, and analyzed. For data analysis, this study used descriptive statistics, correlation, and simple linear regression. The findings revealed a moderately positive relationship ($r = .040$, $p = 0.01$) between the auditor's ethics and audit quality. Moreover, regression results imply that auditor's ethics significantly influenced the audit quality. According to the equation, audit quality = $21.065 + (0.394)$ (auditor's ethics). The results imply that ethics is important in the audit process at local CPA firms. Thus, auditors are advised to observe the ethical way of auditing financial statements. For further research, there is a need to increase the number of samples and consider the ethical behavior of those auditors connected to the Big Four CPA firms. Additionally, other variables that may affect audit quality, such as key audit matters and block-chain technology, can be considered.

Keywords: *audit quality, auditor's ethics, Jakarta, Big Four*

Many stakeholders depend on the published result of audit from certain public accountants. Being a public accountant counts much in the financial audit. It is the public accountant's responsibility to give reasonable assurance about the audit. Business problems are something that the company's auditors are aware of. The accounting profession is responsible for enhancing the level of intelligence in financial reports in businesses. Users can rely on public accounting services to deliver accurate and reliable information for decision making. As a result, if an auditor does not win the trust of numerous firms or connections, it will be a major problem for a public accountant's future career. The public accounting profession is currently based in the business sector. To carry out their duties as public accountants, auditors must follow guidelines established by the board, and, in particular, the Indonesian Institute of Public Accountants (IAP). The public accounting profession is a third party in the client's business or business environment where an audit of a company's financial statements is performed. An auditor is also a party to whom a firm owner must report what actually occurred, which builds the owner's faith in an auditor. According to Farida et al. (2016), an audit is a series of processes carried out by auditors to obtain accurate proof of an entity's economic activity. Companies require audit services.

In this scenario, it is intended that the resultant audit will be of high quality, making economic decisions easier for the company and its stakeholders. The quality of audit reports reflects the efficiency with which firm management manages the company's finances. Because of the increased reliance on audits of financial and other reports, public accountants must monitor the quality of their audits. Audit quality is critical when reporting audit results. CPA firm Purwanto, Sungkoro, and Surya are among those involved, as are Kasner Sirumpea, Tanubrata, Susanto, Fahmi, and Bambang & Partners. Surya, Purwanto, and Sungkoro permits

are subject to a one-year permit suspension. Inflating the financial report income of PT Hanson International Tbk for the 2016 period, the CPA firm was found to have breached the Capital Markets Law and the code of ethics for the public accountant profession. Meanwhile, the CPA firm was found to have made errors in the annual financial reporting connected to the collaboration agreement with PT Mahata Aero Teknologi to supply connectivity services. In this case, Kasner Sirumpea, Tanubrata, Susanto, Fahmi, and Bambang, among others, have neglected their duties. In accordance with this duty, a public accountant should bear significant responsibility for drafting PT Garuda Indonesia Tbk's 2018 annual financial report. The five public accountants had breached public confidence and were deemed to be lacking in honesty.

Based on the cases above, it showed that there are auditors who do not follow ethical standards, which resulted in negligence on their part to do the audit thoroughly. The research gap lies in why there are auditors who behave well, and some who do not. It appeared that public accountants showed unethical behavior during the audit. The auditor's ethical behavior affects audit quality. Ethics ensure that a certain level of trust is maintained. Ethics is a concern for employees, customers, society, the environment, shareholders, and other stakeholders. As a result, every organization should implement ethical models and rules to govern employees' activities and ensure that the interests and welfare of the people it serves are emphasized. Inflating the financial report and negligence in conducting the audit gave the impression of low audit quality. The results showed that auditor ethics had a positive effect on audit quality (Meidawati & Assidiqi, 2019); (Haeridistia & Agustin, 2019). A corporation appears excellent if the audit quality in the annual report is good. Every auditing company is always supervised by inside corporate parties. Everyone's ethical activities will influence others, as well as the organization, society, and themselves. Auditors are governed by a professional code of ethics known

as the Indonesian Public Accountant Code of Ethics when performing their duties. It is intended that by adhering to ethical principles when carrying out their profession, the quality of the resultant audit will be improved, so that the parties involved will not feel disadvantaged. Ichwanty and et., al. (2015). The public can use this code of ethics to evaluate an auditor's professional performance in carrying out their duties in accordance with the criteria of the applicable code of ethics. Most companies use the so called Big Four CPA firms in performing audits, which this research will explore with the local CPA firm located in Jakarta.

The findings indicate that audit firms that are associated with a foreign audit company deliver superior audit quality. However, as compared to their competitors, Big 4 auditors do not provide superior audit quality. Furthermore, the governmental entity, the accountable state authority, that controls the audit function in state-owned enterprises does not appear to relate to improved audit quality. Finally, local audit firms are associated with poor audit quality. This could be their tactic to secure future clients looking for low-quality audits (El-Dyasty & Elamer, 2021). According to these analysts, Big4 audit firms spend more resources on personnel recruiting and training, audit planning, and keeping up with cutting-edge technologies required for audits (Isaac, 2022). The profession of public accountants puts attention on quality as the most important thing to ensure the auditor profession can fulfill the obligation to the client (Meidawati & Assidiqi, 2019).

Auditing

The work of the public accountants is reflected in the opinion being released to the public. Auditing the financial statements of each business entity is expected to be of high quality. Financial statements are of little value if not audited. Auditing is the gathering and examination of evidence about information to identify and report on the degree of congruence between the information

and predetermined criteria. Auditing should be performed by a qualified, impartial third party (Arens, 2014). Gathering evidence requires a thorough investigation to develop and issue an opinion that is accordance with the gathered information. An audit is an evaluation and accumulation of evidence regarding the information of a company. An audit is a systematic method for objectively obtaining and evaluating evidence about statements regarding economic activities and events, with the aim of determining the degree of similarity between these statements and established criteria and conveying the results to interested users (Junaidi & Nurdiono 2016: 3). Audit has the function of reducing information discrepancies between managers and shareholders by using outsiders to provide validation of financial statements (Marantika 2019).

Auditor's Ethics

Public accountants are guided by certain standards or norms that must be followed strictly. Auditors are required to conduct themselves at a higher level, hold onto what is ethical. An auditor's ethics is one of the important factors that affect audit quality. Ethics is a way of life, attitude, thinking, and behavior that directs one's activities while interacting with the public or providing public-interest services. Professional ethics incorporate checks and balances, requiring practitioners to closely comply with the laws, regulations, standards, and policies necessary for providing quality services for the benefit of society. A code of ethics is defined by the Securities and Exchange Commission (SEC) as a set of written guidelines that reflect a company's knowledge of ethical issues and how it will deal with such issues. While a corporate code of ethics has long been suggested as an important measure for limiting the risk of wrongdoing, its efficacy has been frequently called into doubt, owing in part to the numerous scandals that have happened over the last several decades (Kim Duong et al., 2022). Auditors are required to abide by the rules and regulations.

When correctly applied by independent auditors, auditing standards are intended to limit the incidence of materially misstated financial statements originating from public companies. Auditing standards establish a “baseline” for audit methods and procedures (Bailey et al., 2015). Auditing is an important element in good governance, and the audit performance will be of quality if the established standards and guidelines are adhered to consistently (Sjam et al., 2020). The profession of public accountants puts attention on quality as the most important thing to ensure the auditor profession can fulfill the obligation to the client. Professional ethics includes an attitude standard for the members of the profession, that is practical and realistic but also idealistic. The demands of professional ethics must be above the laws but below the ideal standards of ethics (absolute), so the ethics have meaning and duly prevail (Meidawati & Assidiqi, 2019).

Audit Quality

Audit quality is a concept where there is no definite meaning for it. There are various ways to measure audit quality. Audit qualities are positively influenced by work experience, professional competence, motivation, accountability, and objectivity (Zahmatkesh & Rezazadeh, 2017). The term audit quality refers to the standardization of criteria or measurement quality connected to achievement utilizing the appropriate methods (Winanto, 2019). Audit quality and perceptions of audit quality have recently been a source of concern, because of audit failures and company failures, as well as the ensuing investigations that resulted in regulatory changes. To meet expectations, audit quality is required. The desire of financial statement users to acquire a clean bill opinion is supported by audit quality (Sinaga, 2017.). Audit quality gives every stakeholder the assurance that the company in which they invested their money is doing well.

Auditor's Ethics on Quality Audit

Professional competence, accountability, and objectivity of the auditor show a significant effect on the quality of the audit (Zahmatkesh & Rezazadeh, 2017). The results of this study indicate that auditor ethics had a positive effect on audit quality (Meidawati & Assidiqi, 2019). The results show that auditor ethics had a significant positive effect on audit quality (Kuntari et al., 2017). The results of this study show that the auditor's ethics variable has a positive effect on audit quality (Amran & Selvia, 2019). Auditor ethics have a significantly positive influence on audit quality (Pikirang, Sabijono, & Wokas, 2017). The results of hypothesis testing in this study show that auditor ethics have a significant and positive effect on audit quality (Kamil, Sukarmanto, & Maemunah 2018). Ethics-based auditing can improve the quality of decision making (Mökander & Floridi, 2021). However, In & Asyik (2019) stated that auditor ethics had a negative effect on audit quality, which shows that auditor ethics does not have a positive and significant effect on the quality of audits. Ethics variables have no effect on audit quality (Nurcahya & Agustina, 2021); (Haeridistia & Agustin, 2019); (Kim Duong et al., 2022; Ardillah & Chandra, 2022).

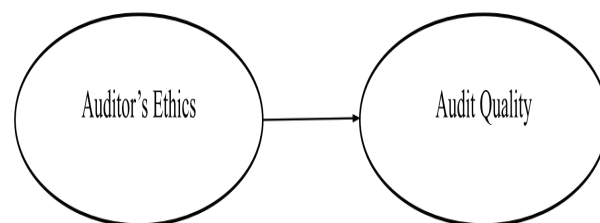
With all the previous studies mentioned above, the hypotheses being tested in this study are as follows:

H0: The auditor's ethics have no significant and positive effect on audit quality.

H1: The auditor's ethics have a significant and positive effect on audit quality.

Figure 1

Auditor's Ethics on Audit Quality



Based on the theoretical framework above, it explains the direction of this research. It emphasizes the variables to be discussed in this study. Auditor's ethics is variable X, and audit quality is variable Y. Indicators used in this study were also shown.

Methodology

The design of this study is descriptive-correlational. This study was conducted at local CPA firms in Jakarta. A total of 40 auditors from three local CPA firms, including Warnoyo & Mennix (12), Rama Wnedra (15), and Gideon Adi (13), responded to the Google form. These were the auditors who are accessible and consented to participate in this study. The researcher employed statistical procedures, and the Statistical Package for Social Science (SPSS) software was used to process and analyze the data. For data analysis, descriptive statistics, correlation, and simple regression were utilized. This study's data is derived from questionnaire responses from respondents who replied to existing content using a Likert scale, that is, Strong agree (5), Agree (4), Neutral (3), Disagree (2) Strongly Disagree (1), with an interpreted interval as follows. Table 1 shows the interval scale with interpretation based on Sugiyono (2016)/

Table 1

Interval Scale with Verbal Interpretation

Average Value	Response	Verbal Interpretation
4.21 – 5.00	Strongly agree	Very good
3.41 – 4.20	Agree	Good
2.61 – 3.40	Neutral	Neutral
1.81 – 2.60	Disagree	Not good
1.00 – 1.81	Strongly disagree	Not so good

Results and Discussions

Descriptive Results for Auditor's Ethics

This section assessed and described the ethics of auditors at Warnoyo and Mennix, Rama Wendra, and Gideon Adi & Partners. Auditor's ethics are the principles or standards that govern how members of the public accounting profession behave. An auditor's ethics serve as a guideline when conducting an audit in order to provide a quality audit. To address the question how the auditor's ethics in CPA firms are, research was carried out to determine the average (mean) and standard deviation. For each indicator employed, the result is described below:

Table 2

Descriptive Statistics for Auditor's Ethics in local CPA Firms

Indicator	CPA Firm Warnoyo dan Mennix		CPA Firm Rama Wendra		CPA Firm GAR	
	M	SD	M	SD	M	SD
Auditor's professional responsibility	4.23	0.523	4.38	0.563	4.41	0.528
Integrity	3.99	0.717	4.15	0.653	4.38	0.599
Objectivity	3.95	0.635	3.83	0.758	3.8	0.699
Total Average	4.05	0.625	4.12	0.658	4.19	0.608

Source: Author

The responses of the respondents to each indicator of auditor ethics fall under the good category, as shown in the table above. The first indicator, which measures the auditor's professional responsibility, has the highest level of indicator scores, with KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Rekan having total average scores of 4.23 for KAP Warnoyo and Mennix in the very good category, 4.38 for KAP Rama Wendra in the very good category, and 4.41 for KAP Gideon Adi & Rekan in the very good category. As a result, the respondents' responses can be interpreted as a total average ($M=4.05$; $SD=0.625$) at KAP Warnoyo and Mennix ($M=4.12$; $SD=0.658$) at KAP Rama Wendra ($M=4.19$; $SD=0.608$) at KAP Gideon Adi & Partners, which demonstrates that the respondents at KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gide When accountability, honesty, and objectivity are properly used, good ethics are produced as well as an improvement in audit quality.

The first factor used to gauge auditor ethics is the auditor's professional obligation. The study's findings demonstrate that at KAP Warnoyo and Mennix, if an audit report contains errors, the auditor can accept responsibility for the audit report to improve audit quality. The auditors at KAP Rama Wendra have the bravery to accept responsibility for the audit report in order to raise the audit quality if the audit results still need development and refinement. CPA firms are willing to accept accountability for audit results reports to raise audit quality. Present audit reports in accordance with predetermined SAP rules. If the audit findings nevertheless need adjusting and enhancement, accountants are accountable in that they act in compliance with the standards that are in place. And can accept responsibility for an audit report's flaws to raise the audit's overall quality. Another factor that assesses an auditor's ethics is integrity. The results show that KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Rekan have the highest level of value for the

same indicator, namely that auditors have great self-confidence in facing various difficulties, with an average value of 4.08 in the good category, 4.33 in the very good category, and 4.46 in the very good category. Auditors are full of confidence in handling numerous challenges, and evaluating situations and their consequences thoroughly. Auditors are prohibited from providing misleading reports, communications, and other information when carrying out assignments.

Lastly, the third factor in assessing an auditor's ethics is objectivity. The results show that at KAP Warnoyo and Mennix, KAP Gideon Adi & Rekan has the highest level of value for the same indicator, namely that the auditor will not take sides with anyone who has an interest in the audit results, with a mean of 4.00 at KAP Warnoyo and Mennix in the good category, 3.84 at KAP Gideon Adi & Partners in the good category. Furthermore, at KAP Rama Wendra, the auditor has the courage to act firmly and honestly in every audit assignment that the auditor carries out at the highest level, with a mean of 3.86 in the good category, and the lowest level is that the auditor will not take sides with anyone who has an interest in the audit results, with a mean of 3.80 in the good category. Auditors maintain objectivity by not taking sides with anyone who has a vested interest in the audit's outcome, and in every engagement, auditors maintain firmness and honesty.

Descriptive Results for Audit Quality

The second objective of this research is to determine the audit quality at KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Partners. The quality of the auditor's work, as proven by credible audit findings reports based on established standards, is referred to as audit quality. Six (6) indicators are used to determine audit quality implementation at KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Partners, namely: reporting all client errors, understanding the client's information

system, strong commitment in completing the audit, guided by auditing and accounting principles, not blindly believing client statements, and being cautious in decision making. To address the problem's identification, the author performed research by determining the average (mean) and standard deviation of each questionnaire statement, then combining and determining the average (mean) and standard deviation for one variable indicator. The author determines the interpretation of the results after obtaining the average (mean) and standard deviation (standard deviation) results.

Table 3*Descriptive Statistics for Audit Quality*

Indicator	CPA Firm Warnoyo dan Mennix		CPA Firm Rama Wendra		CPA Firm GAR	
	M	SD	M	SD	M	SD
Reports all client errors	3.62	0.7	3.76	0.718	3.65	0.536
Understanding of client information systems	3.66	0.887	3.96	1.016	3.69	0.779
Strong commitment to completing audits	3.83	0.74	3.6	0.823	3.49	0.885
Guided by auditing principles and accounting principles	3.87	0.982	3.66	0.826	3.84	0.64
Don't just believe the client's statements	3.7	0.891	3.73	0.699	3.8	0.664
Careful in decision making	3.37	0.503	3.19	0.595	3.38	0.499
Total Average	3.67	0.783	3.65	0.779	3.64	0.667

The answers made by respondents to audit quality indicators are classified as good based on the results of the average value data in Table. KAP Gideon Adi & Partners has the highest level of the same indicators, namely indicators guided by auditing standards and accounting principles, with a total average of 3.87 at KAP Warnoyo and Mennix in the good category, 3.84 at KAP Gideon Adi & Partners in the good category. KAP Gideon Adi & Partners falls into the above-average group. Meanwhile, the highest level at KAP Rama Wendra is understanding of client information systems, with a total average of 3.96, while the lowest level is a cautious attitude in decision making, with a total average of 3.19. As a result, the responses of the respondents can be regarded as a total average ($M = 3.67$; $SD = 0.783$) at KAP Warnoyo and Mennix ($M = 3.65$; $SD = 0.779$) at KAP Rama Wendra ($M = 3.64$; $SD = 0.667$) at KAP Gideon Adi & co. As a result, the responders at KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Rekan are auditors who have applied each indicator successfully in increasing audit quality, even though the auditors still have a level of anxiety when discovering and reporting the existence of a problem. Infractions in the client's accounting system that attempt to improve audit quality so that the auditor may present a better audit quality.

The first indicator used to measure audit quality is the reporting of all client errors. Reporting all client errors has been implemented properly at KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Partners. Mistakes or errors by the clients are disclosed based on the evidence discovered, and their disclosure has no bearing on the compensation received. Another indicator is understanding the client's information. Auditors' firms must first know the client's industry and financial

situation. After knowing the industry, auditors must maintain their organizational abilities and knowledge of client information systems, which makes auditing duties easier. The next indicator is; auditors' strong commitment to finishing the audit and their determination to perform the audit in a timely manner. In addition, auditors were equipped with audit skills and experience obtained from various clients, which made it easier to identify misstatements and formulate suitable audit findings. The next indicator is adherence to auditing and accounting principles. Auditors must understand the professional services attached to auditors in accordance with standards. Financial accounting and professional standards for public accountants are relevant in this type of job. Accounting and auditing principles are the guiding principles in completing the audit, so the auditor must comprehend it. Fifth, professional skepticism is another indicator of audit quality. Auditors do not easily believe the client's statement, which means that a critical thinking and questioning mind is practiced (Jaya et al., 2016). Lastly, a careful attitude in making decisions. Auditors exercise due care in making decisions. All audit findings during the fieldwork are based on the standards promulgated.

Influence Auditor's Ethics on Audit Quality

This section will elaborate on the influence of auditor's ethics on audit quality. An analysis had been made using the data obtained, such as a correlation coefficient and a regression analysis.

Correlation Results

The purpose of correlation coefficient analysis is to see whether there is a relationship between variables. The correlation coefficient value is a value used to measure the strength of a variable relationship. The following are the calculation results from the correlation coefficient analysis:

Table 4

Correlation Between Auditor's Ethics and Audit Quality

Correlations		
	Auditor's Ethics	Audit Quality
Auditor's Ethics	1	.401*
Audit Quality	0.401*	1

*.Correlation is significant at the 0.05 level (2-tailed)

Based on Table 4, it shows that the correlation coefficient value between auditor ethics and audit quality is 0.401, with a moderately positive relationship between the two. and there is a positive relationship between the two. It can be interpreted that the higher the auditor's ethics obtained by the auditor, the better the quality of the resulting audit.

Regression Results

Simple linear regression is used to analyze the influence of an auditor's ethics on audit quality. The test results are shown in Table 5:

Table 5

Coefficient of Determination

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.401 ^a	.161	.139	3.83657

a. Predictors: (Constant), Auditor's Ethics

Table 5 demonstrates that r is 0.401 and r^2 is 0.161. This means that auditor's ethics explains 16.1% of the audit quality variables, while the remaining 83.9% is explained by factors outside the model.

Significance Test

The significance test is carried out to test the hypothesis. This means testing how far the influence of auditor ethics as an independent variable explains audit quality as a dependent variable. To determine whether there is auditor's ethics on audit quality at KAP Warnoyo and Mennix, KAP Rama Wendra, and

KAP Gideon Adi & Rekan is 0.05 (5%). If the significance value is less than 0.05 (< 0.05) then H_0 is rejected. The results of the partial significance test on the influence of auditor ethics on audit quality at KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Partners can be seen from the table as follows:

Table 6
Significance Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	21.065	4.105		5.131	0.00
	Auditor's Ethics	0.394	0.146	0.401	2.701	0.01

Based on Table 6 above, the auditor's ethics on audit quality is $0.010 < 0.05$ so it can be concluded that H_0 is rejected. This result means that auditor's ethics have a significant influence on audit quality. What makes auditor ethics influence audit quality is that if auditors are able to maintain ethical behavior at work, they can produce quality audits. The results of this research are supported by (Meidawati & Assidiqi, 2019); (Suphachin & Chuaychoo, 2021); (Latercia et al., 2020); (Mulyani, 2020) who found that auditor's ethics has a positive and significant effect on audit quality.

Simple linear regression analysis was used to determine the influence of the relationship between auditor ethics and audit quality. Apart from that, this method is to find out how much the auditor's ethical values are influenced by audit quality.

From the regression equation above, it can be explained that if the auditor's ethics level is considered non-existent or zero, then the audit quality level is 21.065. Further, if the auditor ethics variable is 1, the resulting audit quality is 0.394 or 39.4%. Thus, it can be concluded that if auditor's ethics improve, this can also be followed by an increase in the quality of audits carried out by KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Rekan.

Conclusion and Recommendation

From the results of analysis and processing of research data regarding the effect of auditor's ethics on audit quality at KAP Warnoyo and Mennix, KAP Rama Wendra, and KAP Gideon Adi & Partners. Professional responsibility, integrity, and objectivity are the factors that an auditor must exercise in every audit engagement. At the same time, maintain the quality of audit through of reporting all client errors, understanding the client's accounting information system, strong commitment in completing the audit, guided by auditing principles and accounting principles, professional skepticism, and careful attitude in decision making. Ethics matters most on audit quality. The result showed that auditor's ethics has significant influence on audit quality. This is supported by previous results by Meidawati & Assidiqi, 2019; (Mökander & Floridi, 2021). Also, the quality of audit firms is an essential factor of their long-term sustainability. However, audit quality is difficult to assess, making it especially vulnerable to the behavior of those who perform audit work (Herrbach, 2001). No matter how tough the work of an auditor, ethical principles are still the basis of producing a reliable and trusted report.

There is a need for audit firms to develop strong ethical culture by adding other variables that affect audit quality, such as accountability, independence, and diligence. For future research, there is a need to increase the samples from other local CPA Firms.

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Risk Preferences and Information and Communication Technology Utilization in Investment Decisions

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This study investigates the influence of risk preferences and information and communication technology (ICT) utilization on investment decisions among Indonesian professional workers. A survey was conducted with 239 respondents, and the data were analyzed using SPSS 26.0, employing regression analysis, significance tests, correlation analysis, and coefficient of determination. The results highlight that ICT utilization significantly affects investment decisions among professional workers. Moreover, the combined influence of risk preferences and ICT has a substantial impact on investment choices. These findings emphasize the importance of digital investment decision-making and the need for investors to align their characteristics with their risk tolerance levels. Understanding the significance of risk preferences and ICT in investment decisions provides valuable insights for effective decision-making strategies. Investors can improve their digital literacy and utilize ICT to seek, understand, and process critical business information, leading to better-informed choices. Future research can explore specific personality traits and cultural factors to design targeted interventions and strategies, supporting investors in achieving improved financial outcomes.

Keywords: *investment decisions, risk preferences, information and communication technology (ICT)*

Globalization has experienced a very drastic decline due to the pandemic that has hit all over the world, including Indonesia, in the past two years. To restore the economic situation, individuals and society in general are encouraged to invest. There are many ways to invest, for example, by buying property, mutual funds, stocks, and others. In making an investment, the right decision is needed so that we don't go wrong in choosing the investment. There is no investment that provides benefits without risk. Therefore, understanding good and rational investor behavior can influence the process of making the right investment decisions (Amalia et al., 2020).

Investment selection can be grouped into real investments such as purchasing land, houses, gold, etc. While investments are not real, namely buying mutual funds, stocks, digital platforms, etc. Factors influencing investment decision-making: risk preferences and ICT utilization.

The first factor is risk preferences. In every investment, there will always be a risk to the level of ability received by men and women as investors. This can be understood when individuals who work for more than one source have a higher level of ability to take risks in investment decisions compared to individuals who work only for one source. If investors are faced with the same investment choices with the same rate of return, they will naturally choose a low level of risk (Nadhifah & Anwar, 2021).

The choice of risk taken by investors may affect the investment decisions taken. The more courageous an investor is in making risky choices, the higher their level of ability to make investment decisions. Conversely, investors who are afraid or very careful about making risky choices will delay or lower their ability to make investment decisions (Wardani, 2023).

The second factor is the use of ICT, or digital capabilities, for the development of information and communication technology. Rapid technological changes should be followed by human resources

who have the ability to obtain, manage, and utilize information in order to be able to survive dynamic, ever-changing, and increasingly competitive economic situations or conditions (Lestari, 2015). As we know today, information and communication technology have increased in the era of globalization, which has had a significant influence on almost all aspects of life, including the economy. With the level of information and communication that is very easy for investors to obtain, investment decisions will be easier to realize. Further explained by (Pradnyani et al., 2019) digital investment has a significant influence on investment interest.

From the explanation that has been given, there is still debate about the results of previous research, so investment decisions are still an interesting topic to be re-examined. To find out how high investment decisions are for professional workers or housewives, the authors conducted research on risk preferences and the utilization of ICT for investment decisions. Some of the purposes of this study are to determine the risk preferences and utilization of ICT in investment decisions.

Risk Preferences on Investment Decisions

To make the right decision in investing, the choice of risk that is in accordance with the understanding of individuals, communities, or organizations is very important. Risk preference is a level of risk capability borne by investors through investment activities. There is no investment that is not risky, where the level of risk is directly proportional to the return desired by the investor.

As explained by Anggirani (2017), there are three types of investors: risk seekers (investors who like risk), risk neutrals (neutral investors), and risk averters (investors who avoid risk). The higher the profit to be obtained, the greater the level of risk received, and vice versa, if the desired profit is small, the level of risk obtained is low. Another

explanation was also added by Nadhifah & Anwar (2021) where the selection of different risks is also caused by factors of age, employment status, income generated, and work experience. This is supported by previous research by Zahida et al. (2021) which said that there is a significant influence of risk preferences on investment decisions. Another opinion by Asfira et al. (2019) states that the choice of risk has a negative and significant effect on investment decisions.

Based on the discussion above, the research hypothesis is:

H1: Risk preferences have a significant effect on investment decisions

Utilization of ICT on Investment Decisions

Digital understanding through the use of online applications that we often do, such as Internet banking, online shopping, online lectures, or online investment purchases, has become an increasing trend in the current era of globalization. We are encouraged to understand and use information and communication technology electronically. Digital utilization is a situation where we can speed up the delivery of information related to the business or investment that we are doing with an attractive and efficient process for convincing potential investors (Khoirah et al., 2019). Today's rapidly developing technology is expected to have a large positive impact on investors' interest in investing. Speed and accuracy in analyzing, measuring, and processing information greatly impact investment decision-making. This is in line with previous research supported by Pradnyani et al. (2019) which says that there is a significant influence of online facilities on investment decisions.

Methodology

Research Design

A descriptive-correlational design was used for this investigation. Because the goal of the study was to describe the features of the population in

relation to the variables, this design was chosen. Data were obtained and quantitatively examined using surveys for frequencies, averages, and other statistical measures to establish correlations (Babbie, 2020).

Population and Sampling Technique

The population of the study was composed of workers from different company backgrounds. Using purposive sampling, 239 samples participated in the study, of which 131 were male and 108 were female, and they met several criteria based on certain considerations. In terms of the respondents' educational category, (n = 80; 33%) have master's and doctoral degrees; the next category is holding a bachelor's degree (n = 132; 55%); after that are employees with diplomas (n = 22; 9%); and the least number of educational attainments is high school (n = 5; 2%). In terms of employment level of category, most of the respondents (n = 88; 37%) are at the manager and director levels; next to them are employees (n = 68; 28%), while other levels of work are (n = 67; 28%), and the least number of respondents were at the supervisors' level (n = 16; 7%).

Instrumentation

An online survey questionnaire using Google Forms was used to gather data. There were two parts to the questionnaire. First is the respondent's profile, which includes sex, employment category, and education. The second part is a category scale to measure risk preferences, ICT utilization, and investment decisions, which were adapted from Determinants of Portfolio Performance II by Brinson et al. (1995).

Statistical analysis in this study consisted of linear regression ordinary analysis, a significant test, a correlation test, and a coefficient of determination. The research variables consist of independent variables and dependent variables, which are shown in the explanation table below:

Table 1*Independent Variables and Dependent Variables*

	Definition
Risk Preferences (RSK)	Choice of risk: 3: Risk Taker, 2: Risk Averse, 1: Neutral
Utilization of ICT (DIG)	Ability to Use Digital Applications, 1: Able, 0: Not Able
Investment Decision (DEC)	The decision to invest is 1 for 1 yes, 0 for no,

The regression equation of this study is: $Y = a + b_1x_1 + b_2x_2$

Where,

Y = Investment Decision (DEC)

X_1 = Risk Preferences (RSK)

X_2 = Utilization of ICT (DIG)

Analysis of Data

The collected data were examined using IBM SPSS Statistics version 26. Frequency and percentage were used to categorize the participant's personal profiles. Using the mean and standard deviation, the level of risk preferences, ICT utilization, and investment decisions of the employees were evaluated. Pearson's r and linear regression were used to examine the relationships between variables.

Ethical Considerations

The Economic Faculty's Ethics Board was formally consulted before the questionnaire was made available, and they gave their consent. Before responding to the research questions using a Google form, the participants were asked to consent to participating willingly in the study. The comments were entirely anonymous, with no connection to the respondents' identities, and no email addresses were acquired. The information was handled strictly and confidentially.

Results and Discussion

The results of the research contain good research findings, which are presented in the form of Descriptive Statistical Analysis

Table 2*Descriptive Statistics*

	N	M	SD
Risk Preference (RSK)	239	2.0209	1.27829
Utilization of ICT (DIG)	239	.8912	.31202
Investment Decision (DEC)	239	.5523	.49830

The results of the descriptive analysis based on Table 2 above show that the number of respondents (N) in this study was 239 people.

The average risk preference score (X_1) is 2.02, so it can be explained that respondents who have a risk-averse ability have the highest answers compared to respondents who have a neutral risk tolerance and a high-risk tolerance.

The average digital awareness score (X_2) is 0.89, so it can be explained that 213 respondents who are able to use digital applications, or 89% of the total respondents, are unable to use digital applications, while those who are unable to use digital applications are 26 people, or 11% of the total respondents.

The average investment decision score (Y) is 0.55, so it can be explained that 132 people, or 55% of the total respondents, decided to invest, while 107 people, or 45% of the total respondents, did not decide to invest.

Table 3*Correlation*

	GEN	Risk Preference (RSK)	Utilization of ICT (DIG)	Investment Decision (DEC)
Risk Preference (RSK)	.081	1		
Utilization of ICT (DIG)	.010	-.015	1	
Investment Decision (DEC)	-.032	.094	.172**	1

Based on the results of the correlation test in Table 3 above, the relationship between the variables in the study is obtained. These results explain that the dependent variables Risk Preference (RSK) and Utilization of ICT (DIG) have $r = -0.015$, Risk Preference (RSK) and Investment Decision (DEC) have $r = 0.094$, and Utilization of ICT (DIG) and Investment Decision (DEC) have $r = 0.172$.

Linear Regression

Table 4

Multiple Linear Regression

	B	SE
(Constant)	.249	.113
Risk Preference (RSK)	.039	.025
Investment Decision (DEC)	.278	.102

Source: Author Processed Data (2023)

Based on Table 4 above, the regression equation in this study is: $Y = a + b_1X_1 + b_2X_2$

Investment Decision (DEC) = $0.249 + 0.039$ Risk Preference (RSK) + 0.278 Utilization of ICT (DIG)

When the independent variable is predicted to increase by one unit, the regression coefficients on the independent variable will explain this, while the regression coefficients on the other independent variables will explain when they are expected to remain constant or equal to zero. When this occurs, it is natural to anticipate that the value of the dependent variable will increase or decrease, depending on the sign of the independent variable's regression coefficient. The previous table of regression results shows that the value of the constant a has a positive value of 0.249. The positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable. This shows that if all the independent variables which include SSR (x_1) and Utilization of ICT (DIG) (x_2) have a value of 0 or do not change, then the investment decision value of Investment Decision (DEC) (y) is 0.249.

Table 4 above shows the regression efficiency sign. The regression coefficient value of the Risk

Preferences (RSK) variable (X_1) has a positive value of 0.039. This value indicates a positive influence between risk preferences and investment decisions. This shows that if the risk preferences increase by 1%, the investment decision will increase by 0.039, assuming that other variables are held constant. The positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable. Based on these results, it can be explained that low, medium, or high-risk tolerance will have a positive effect on investment decisions.

The value of the ICT utilization variable (X_2) in the regression equation shows a positive coefficient of determination (0.278). The existence of a beneficial relationship between the use of ICT and investment choices is indicated by this value. This suggests that investment decisions will increase by 0.278 percentage points if a one percent increase in ICT use is achieved if all other variables are held equal. Because the sign is positive, it indicates that the relationship between the independent variable and the dependent variable is one whose effect is only one way. It is possible to conclude, based on these findings, that digital capabilities, such as high levels of information and communication usage, have a beneficial impact on investment decisions.

Significance Test

Table 5

Uji F

	M Sq	F	Sig.
Regression	.800	3.316	.021 ^b
Residual	.241		

Source: Author Processed Data (2023)

Based on the results of the analysis in Table 5 above, it was obtained a significance value of F of $0.021 < 0.05$, so it can be concluded that the F test is accepted and that there is a significant influence between gender, risk preferences, and digital awareness on investment decisions.

Hypothesis Testing

In this study, the t-test is used to determine the extent to which the influence of a single explanatory variable or independent variable independently explains the dependent variable. (α), which has a significance level of 5%, was selected to be used in this study.

Table 6

Hypothesis Testing

	t	Sig.	Decision
Risk Preference(RSK)	1.559	.120	Rejected
Utilization of ICT (DIG)	2.720	.007	Accepted

Source: Author Processed Data (2023)

Based on Table 6 above, it can be concluded as follows: in the SSR variable (X1), it is found that the significance of t is 0.120 ($0.120 > 0.05$), so it can be concluded that the test is rejected. There is no significant effect of risk tolerance on investment decisions. While the Utilization of ICT (DIG) variable (X2) found a significance t of 0.007 ($0.007 < 0.05$), it can be concluded that the test is accepted and that there is a significant influence of the use of ICT on investment decisions.

Coefficient of Determination

In this study, the Coefficient of Determination Test, known as R^2 , is used to determine the degree of closeness of the relationship between the dependent variable, known as investment decisions, and three independent factors, known as gender, risk preference, and ICT utilization.

Table 7

Coefficient of Determination

Model	R	R Sq	Adj R Sq	SE Est
1	.202 ^a	.041	.028	.49118

Source: Author Processed Data (2023)

Based on the results of the analysis in Table 7 above, an R^2 of 0.041, or 4.1%, means that investment decisions are influenced by risk

preferences and ICT utilization, while the remaining 95.9% are influenced by other factors outside of this study. The table results also show the results of a simultaneous correlation coefficient of 20.2%, which indicates a low relationship between risk preferences and ICT utilization in investment decisions.

Effect of Risk Preferences on Investment Decisions

The first hypothesis says that risk tolerance influences investment decisions. The results showed that the SSR variable (X2) obtained a significance t of 0.120 ($0.120 > 0.05$), and then H2 was rejected, meaning that the Risk Preferences (RSK) variable had no significant effect on investment decisions. These results are supported by research (Fitri, 2022) and also by Nadhifah & Anwar (2021) which state that there is no significant effect of risk preferences on investment decisions. Different opinions are explained by Lestari & Wardani (2017), who state that risk preferences have a significant influence on investment decisions. These inconsistent results are because neutral, medium, or high levels of individual tolerance are not the sole factor in investment decisions. Sometimes a low-risk tolerance to get small profits can affect investment decisions, or conversely, a high-risk tolerance to get big profits does not affect investment decisions. Thus, investors can see that the position of risk preferences is not a partial determining factor in making investment decisions. Other dependent variables can simultaneously have a significant influence on investment decisions.

Effect of ICT Utilization on Investment Decisions

The second hypothesis says that the use of ICT has a significant influence on investment decisions. The results showed that the Utilization of ICT (DIG) variable (X3) obtained a t-significance of 0.007 ($0.007 < 0.05$), so the partial t-test for H3 was accepted, meaning that ICT utilization has a significant effect on investment decisions. This is supported by research from Mastura et al. (2020)

and corroborated by Kusuma & Hakim (2022) that there is a significant influence of the use of ICT on investment decisions. From consistent research results, it can be concluded that digital understanding, use of online applications, and utilization of information and communication technology are very important factors that will provide information that is faster, more accurate, and more efficient in making investment decisions.

Conclusion and Recommendation

This study aims to examine the risk preferences and utilization of ICT in investment decisions. The results of the Risk Preferences study partially have no significant effect on investment decisions. The independent variable, utilization of ICT, partially has a significant effect on investment decisions. The independent variables Risk Preferences and ICT Utilization simultaneously have a significant effect on investment decisions.

Before making an investment decision, a potential investor should have strong characteristics and principles. These characteristics can be represented by culture, social environment, character, and psychological principles. This is also in line with the risk tolerance taken by individuals in accordance with a clear understanding of the risks, investment objectives, and selected investment period associated with each investment chosen by the individual.

He further explained that increasing technological advances have made it much easier for investors to search, understand, and process business information and help investors choose investments that are fast and appropriate by making investment decisions digitally. Theoretical suggestions include that investors, as online users who understand digitization and the use of information and communication technology, are advised to continue updating their ability to use applications in analysing, processing, and processing the information provided to make it more efficient, fast, and accurate in making investment decisions. As basic information, technically, investors should

often read the latest news about investments, such as information on the benefits that will be obtained from risk tolerance, the investment period, and the legality of the investment company they want to choose, so as not to experience losses.

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Screening for Coagulation Properties of *Tabernaemontana pandacqui* (Pandakaki-Puti) and *Tabernaemontana divaricata* (Crepe Jasmine)

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Tabernaemontana pandacqui and *Tabernaemontana divaricata* have been widely tested for various pharmacological activities, including anti-inflammatory, antioxidant, and antimicrobial properties. The phytochemical profile and coagulation properties of *Tabernaemontana pandacqui* and *Tabernaemontana divaricata* leaf extracts were investigated. Samples from different blood groups (A, B, AB, and O) from 20 volunteer students were treated with 100 ul leaf extract and served as the experimental group. The positive control group contained a commercial drug for coagulation, whereas the group that was not treated by any substance or any reagent served as the negative control. Thrombin clotting times for both the control and experimental groups were analyzed and compared. Results showed that *T. pandacqui* (19.46 mins) and *T. divaricata* (14.2 mins) significantly accelerated the thrombin clotting time of all blood groups when compared with the negative control (34.28 min), but not as significantly when compared to the positive control (4.63 min). The results of phytochemical analysis on both plants showed remarkable variation in terms of their presence and absence in various solvents and chemical testing. However, the leaf extract of *T. Pandacqui* was notable as it was shown to contain various compounds that caused coagulation. Further research may provide baseline information on coagulation properties of certain plants and potential for the pharmaceutical industry. The extraction of other parts of the plant, such as flowers, bark, and stems, may also be investigated for further study.

Keywords: coagulation, thrombin clotting time, *Tabernaemontana pandacqui*, *Tabernaemontana divaricata*, phytochemical analysis.

There are concerns about how pharmaceutical drugs for coagulation cause unintended intravascular clotting, leading to stroke. According to Cannon (2017), death from hemorrhage represents a substantial global problem, with more than 60,000 deaths per year in the United States and an estimated 1.9 million deaths per year worldwide. However, there are promising herbal plants in herbal medicine that are said to promote coagulation or hemostasis, heal wounds at a faster rate, and carry fewer side effects due to it being made from natural ingredients (Cordier & Steenkamp, 2012). Some species of the genus have already been proven for their various properties, such as antioxidant, anti-inflammatory, antimicrobial, inhibition of some enzymes, neuropharmacological activity, anti-protozoan, and antifungal properties (Silveira et al., 2017). This study investigated the phytochemical profile of *T. divaricate* and *T. pandacaqui* and compare the thrombin clotting time of the four blood groups (A, B, AB, and O) amended with *T. Pandacaqui* and *T. divaricata* ethanolic extracts. The phytochemical analysis and the thrombin clotting reaction of various blood groups in *T. Pandacaqui* and *T. Divaricata* ethanolic extracts have potential significance for the pharmaceutical industry.

Methodology

Plant Collection and Identification

The plant samples, *Tabernaemontana divaricate* and *Tabernaemontana pandacaqui*, were purchased from Tagaytay City, Philippines, and identified by the Bureau of Plant Industry at San Andres Street, Malate, Manila.

Extract preparation and Phytochemical Analysis

Fresh leaves of both *Tabernaemontana* plants were washed thoroughly with running water and air-dried at room temperature. The air-dried leaves were powdered and then soaked in 95% ethanol with a ratio of 6 ml of ethanol for every gram of the dried plant, as proposed by Mandanas (2018). The powder was soaked for a week with daily

shaking to improve yield (Raj, Balasubramaniam, & Nadeem, 2014). The mixture was then filtered using a cheesecloth, and the extract was isolated using a rotary evaporator. The extract was stored at 4 degrees Celsius for later use. A portion was brought to the Philippines' Department of Science and Technology for qualitative phytochemical screening.

Extraction of the Blood samples

The extraction of blood samples was conducted by a registered medical technologist on volunteers who had not been diagnosed with any coagulation disorder. Extracted blood was put into a test tube, and tests for thrombin clotting time proceeded immediately.

Prothrombin Clotting Time Screening

Plant extract was applied to the test tube with blood and observed until it reached coagulation using the tilt method. Thrombin clotting time was recorded. Normal blood, as a negative control, was allowed to coagulate without the interaction of any substance. Whereas the red top test with the commercial drug for coagulation (Thrombin gel) was used as a positive control.

Statistical Analysis

The data obtained was analyzed using the one-way analysis of variance technique (ANOVA). ANOVA tested the differences between two or more means.

Ethical Consideration

The participants of the study are students aged 20 to 28 who signed consent forms giving details about the study and the purpose of extracting blood and how it is going to be used in the research. The participants were given the opportunity to ask any question and were informed that they could withdraw from the study at any time. Confidentiality with the participants' personal information was observed.

Results and Discussion

Phytochemical Profile

The results of the phytochemical analysis of the leaf extracts in various solvents showed the presence of several phytochemical compounds (Table 1). There was a strong presence of alkaloids and carbohydrates in the petroleum ether solvent and aqueous extracts, which are only slightly present in methanol extracts. Alkaloids and carbohydrates are absent in chloroform solvents. Flavonoids are strongly present in the methanol extract but are only slightly present in the aqueous extract. The flavonoids are absent in petroleum ether and chloroform solvents. In aqueous and methanol solvents, tannins are strongly present but are absent in petroleum ether and chloroform solvents. Saponins and amino acids are strongly present in the aqueous extracts, whereas saponins

and amino acids are slightly present in methanolic extracts but are absent in petroleum ether and chloroform solvents. Glycosides are strongly present in petroleum ether and chloroform solvents, whereas glycosides are slightly present in aqueous extracts but are absent in methanol solvents. Lignins, on the other hand, are strong in methanol extracts but are slightly present in petroleum ether extracts, whereas lignins are absent in chloroform and aqueous extracts.

In petroleum ether extracts, quinones are strongly present but are adequately present in methanol extracts, whereas quinones are completely absent in chloroform and aqueous extracts. However, in all the extracts, phenols, sterols, and proteins were not detected, possibly because there was only one test done to determine the presence of phenols.

Table 1

Results of Phytochemical Screening of the Various Extracts of *Tabernaemontana divaricata*

Chemical Tests	Petroleum Ether	Chloroform	Methanol	Aqueous
1. Test for Alkaloids				
a) Iodine Test	-	-	-	-
b) Wagner's Test	++	-	-	+
c) Mayer's Test	-	-	+	++
2. Test for Flavonoids				
a) Pew's Test	-	-	-	-
b) Shinoda Test	-	-	++	+
c) NaOH Tests	-	-	-	-
3. Test for Glycosides				
a) Keller Kiliani Test	-	-	-	-
b) Glycosides Test	-	-	-	-
c) Cocentrated H ₂ SO ₄ Test	-	++	-	+
d) Molisch's Test				
4. Test for Phenols				
a) Ellagic Acid Test	-	-	-	-
5. Test for Lignins				
a) Lignin Test	-	-	-	-
b) Labat Test	+	-	++	-
6. Test for Saponins				
a) Foam Test	-	-	+	++

[table continues on the next page]

7. Test for Sterols				
a) Salkowskis Test	-	-	-	-
8. Test for Tannins				
a) Ferric Chloride Test	-	-	-	-
b) Lead Acetate Test	-	-	++	++
9. Test for Carbohydrates				
a) Molisch's Test	++	-	-	++
b) Barfoed's Test	-	-	+	-
c) Seliwanoff's Test	-	-	-	-
10. Test for Proteins				
a) Biuret Test	-	-	+	++
11. Test for Amino Acids				
a) Million's Test	-	-	+	++
13. Test for Quinone				
	++	-	+	-

++ = Strongly present, + = Slightly present and - = Absent

Results of the phytochemical screening for the leaf extracts of *T. Pandacaqui* showed it contains various compounds such as alkaloids, glycosides, flavonoids, and saponins that are responsible for the coagulation property of the plant. Table 2 shows these results.

Table 2

Results of Phytochemical Screening of *Tabernaemontana pandacaqui* extract

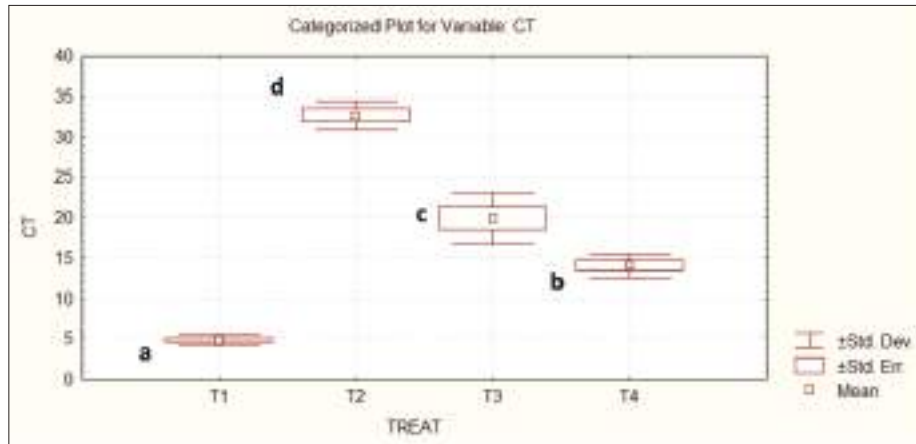
Alkaloid	+
Glycoside	+
Tannins	+
Gums	-
Flavonoids	+
Saponin	+
Steroid	-

Prothrombin Clotting Time of Different Blood groups

To determine the thrombin clotting time between different blood groups (A, B, AB, and O) amended with the extract of *T. Pandacaqui* and *T. divaricata*. Figure 1 reveals that in Blood Group A, Positive Control (T1) had the fastest clotting time (4.8 min), followed by *T. divaricata* group (T4) with 14.8 minutes, then *T. pandacaqui* (T3) with a 19.8 min clotting time. and the last to coagulate was the negative control group (T2) with a 32.64 min clotting time. The variables are all significantly different from each other.

Figure 1

Different Clotting Times in Blood Group A



The ANOVA in Table 3 reveals a significant difference ($p = .00000$) in the clotting time of blood group O. This result indicates that the results from *T. Pandacaqui* and *T. Divaricata* are significantly different from the negative control group (T2) and from the positive control group (T1).

Table 3

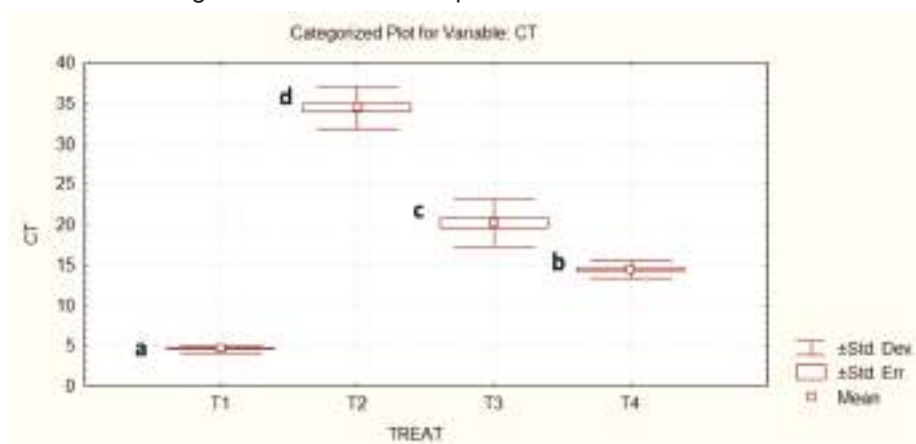
ANOVA Results for Clotting Time of Blood Group A

Stat. General Manova	Main Effect: Treat (group a blood.sta) 1-Treat				
Univar. Test	Sum of Squares	df	Mean Square	F	p-level
Effect	2037.252	3	679.0840	172.6960	.000000
Error	62.916	16	3.9323		

The boxplot in Figure 2 reveals that in the B Blood Group, Positive Control (T1) had the fastest clotting time (4.68 min), followed by *T. divaricata* group (T4) with 13.3 min clotting time, *T. pandacaqui* (T3) with a 20 min clotting time, and the last to coagulate was the negative control group (T2) with a 31.8 min clotting time.

Figure 2

Different Clotting Times in Blood Group B



The ANOVA results in Table 4 reveal significant differences ($p = .000000$) in the clotting times of blood group B. The results indicate that those from *T. Pandacaqui* and *T. divaricata* are significantly different compared with the negative control group (T2) and the positive control group (T1).

Table 4

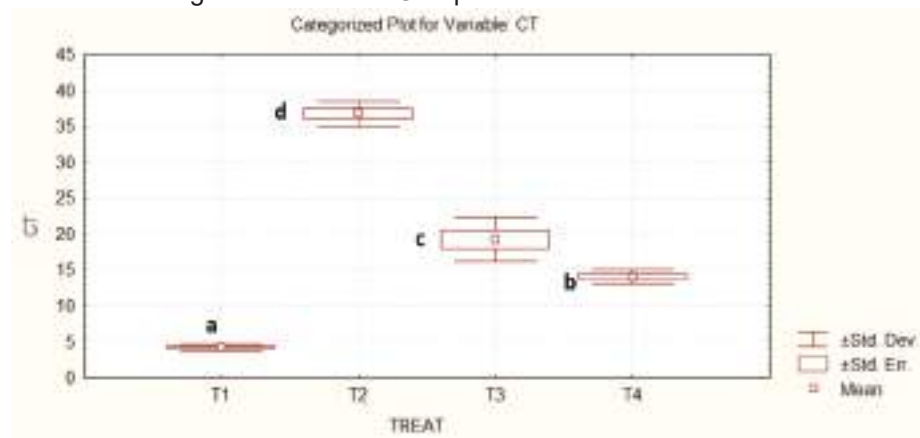
ANOVA of Different Clotting Time of Blood Group B

Stat. General	Summary of all Effects; design: (group a blood.sta)					
Manova	1-Treat					
Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
1	3*	635.9098*	15*	3.381833*	188.0370*	.000000*

The plot in Figure 3 reveals that in the B blood group, Positive Control (T1) had the fastest clotting time (4.24 min), followed by *T. divaricata* group (T4) with 13.9 min clotting time, *T. pandacaqui* (T3) with a 19.26 min clotting time, and the negative control group (T2) with a 36.1 min clotting time.

Figure 3

Different Clotting Times in Blood Group AB



The ANOVA results in Table 5 reveal a significant difference ($p = .000000$) in the clotting time of Blood Group B. This result indicates that clotting times with *T. Pandacaqui* and *T. divaricata* are significantly different compared to the negative control group (T2) and to the positive control group (T1).

Table 5

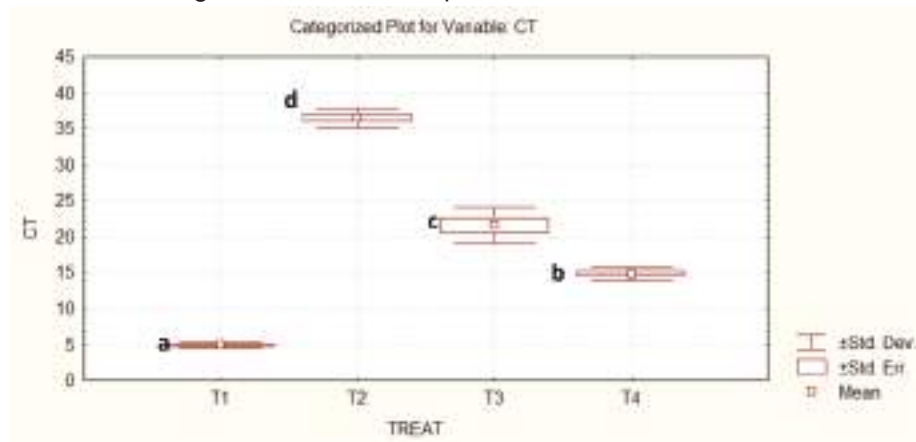
ANOVA of Different Clotting Time of Blood Group AB

Stat. General	Summary of all Effects; design: (group a blood.sta)					
Manova	1-Treat					
Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
1	3*	928.4013*	16*	3.353000*	276.8868*	.000000*

The chart in Figure 4 reveals that in the B Blood Group, Positive Control (T1) had the fastest clotting time (4.8 min), followed by *T. divaricata* group (T4) with 14.8 min clotting time, *T. pandacaqui* (T3) with a 19.8 min clotting time, and the negative control group (T2) with a 36.6 min clotting time.

Figure 4

Different Clotting Time in Blood Group O



The ANOVA in Table 6 reveals a significant difference ($p = .000$) in the clotting time of blood group B. This indicates that results with *T. Pandacaqui* and *T. divaricata* are significantly different compared with the negative control group (T2) and the positive control group (T1).

Table 6

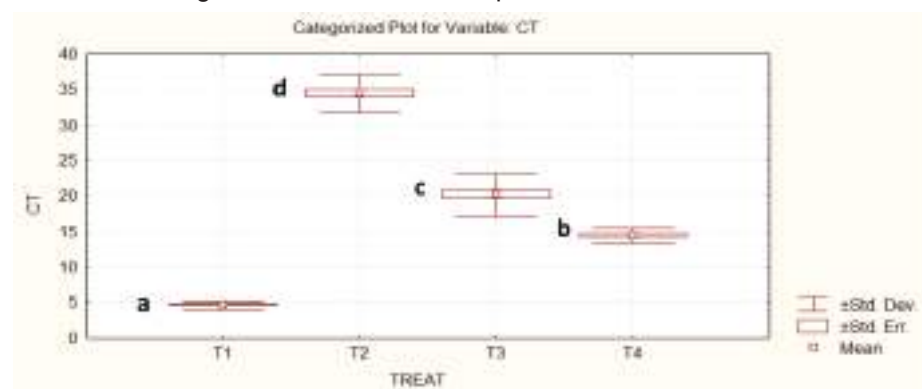
ANOVA of Different Clotting Time of Blood Group O

Stat. General Manova		Summary of all Effects; design: (group a blood.sta) 1-Treat				
Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
1	3*	880.1578*	16*	2.290250*	384.3065*	.000000*

Figure 5 shows the results when all blood groups are compared. In the B blood group, Positive Control (T1) had the fastest clotting time (4.63 min), followed by *T. divaricata* group (T4) with 14.15 min clotting time, *T. pandacaqui* (T3) with 20.14 min clotting time, and the negative control group (T2) with 34.2 min clotting time. The result showed a constant trend in all the different blood groups. This means that throughout all the blood groups, the data is different, but the group that coagulates faster, which is the Positive Control Group (T1), and the group that coagulates last, which is the Negative Control Group (T2), are consistent. This data also revealed that the experimental groups (T3 and T4) are faster to coagulate compared to the negative control group (T2), which is the group determining the normal clotting time of the blood. According to Didisheim (2010), the normal full coagulation time of the blood ranges from 30-45 minutes, independent of their blood groups.

Figure 5

Different Clotting Times in All Blood Groups



However, in the data presented, the blood groups that coagulate faster are A, B, and AB, with Blood Group O taking the longest time to coagulate. The reason for this is that A, AB, and B contain more factor VIII and von Willebrand factor levels, which are proteins that play a big part in the coagulation of the blood. The O blood type, however, contains less factor VII and von Willebrand factors (Choi, Ahn, & Lee, 2013).

The ANOVA in Table 7 reveals a significant difference ($p = .00000$) in the clotting time of blood group B. This indicates that the results with *T. Pandacaqui* and *T. divaricata* are significantly different compared with the negative control group (T2) and with the positive control group (T1). The data also shows that among the two experimental groups, *T. divaricata* (T4) was significant compared to *T. pandacaqui* (T3) because it has a faster coagulation time. One reason for this can be traced back to the phytochemical profiles of both plants, *T. Divaricata* has a negative presence or is slightly present for flavonoids, whereas *T. Pandacaqui* has a strong presence of flavonoids. Flavonoids are anticoagulants (Buck, 2003) and inhibit the coagulation factors of the blood, causing the blood to coagulate much slower. The levels of flavonoids are much greater in *T. pandacaqui* than in *T. divaricata*, resulting in the blood groups amended with the plant extract of *T. pandacaqui* to coagulate much longer than the blood group amended with the plant extract of *T. divaricata*.

Table 7

ANOVA of Different Clotting Time of All Blood Groups

Stat. General Manova	Main Effect: Treat (group a blood.sta) 1-Treat				
Univar. Test	Sum of Squares	df	Mean Square	F	p-level
Effect	9300.548	3	3100.183	727.6809	.000000
Error	319.527	75	4.260		

The ANOVA also showed that when *T. pandacaqui* (T3) and *T. divaricata* (T4) are compared with the negative control time (T2), which is very significant ($p = 0.00$) but not significant when compared to the positive control group (T1), which has been treated with a proven coagulation drug (thrombin gel).

Discussion

The thrombin clotting times of the blood for both the control and experimental groups were analyzed and compared. The results show that *T. pandacaqui* (19.46 mins) and *T. divaricata* (14.2 mins) significantly accelerated the thrombin clotting time of all blood groups as compared to the negative control (34.28 min) but was not as significant when compared to the positive control (4.63 min).

The result of phytochemical analysis of both plants showed remarkable variation in terms of their presence and absence in various solvents and chemical testing; however, the leaf extract of *T. Pandacaqui* was notable as it was found to contain various compounds that cause the coagulation property of the plant. Alkaloids, which, according to Singh (1975), affect the clotting formation enzyme of the blood, cause it to accelerate or decelerate depending on the concentration. Alkaloids are also present in the leaf extract of *T. pandacaqui*.

Glycosides, according to a previous coagulation study by Song et al. (2013), are also present in their plant extract and were proven to affect the coagulation property of blood. The leaf extract also contained tannins, which are a proven herbal constituent and are mainly used in tea. There are no studies, however, regarding tannins affecting blood coagulation. Flavonoids, however, prevent clotting of the blood and can be attributed as an anticoagulant (Prescott, 2012). Furthermore, Bijak (2014) also added that flavonoids inhibit the activity of Factor X, which plays a big role in the common pathway of the coagulation cascade.

Saponins are also present in the leaf extract of *T. pandacaqui*. According to Zhang et al. (2013), saponins affect the prothrombin coagulation time of blood, also known as coagulation. Moreover, plants containing saponins can be future pharmaceutical prospects for antifibrinolytic medicines. The biochemical compounds present in our extract are indeed filled with biochemical compounds that are credible for future pharmaceutical research.

With the limited sampling employed in this study, a similar study may be done on other parts of the plant, such as the flowers, bark, and stems of *T. Pandacaqui* and *T. divaricata*. Other commercially available coagulation drugs can also be utilized as positive controls. This study may provide basic information for further research on coagulation and may have significance for the pharmaceutical industry.

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Design and Development of Automated Borrowing System for John Lawrence Detwiler Memorial Library (JLDM)

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The library is one of the core learning places in educational institutions, aside from classrooms. Upgrading its equipment provides a better experience for library users. One consideration for upgrading the John Lawrence Detwiler Memorial (JLDM) Library is the book borrowing system. The current situation of the borrowing system leads to these two challenges: the risk of books not being returned or stolen, and the long waiting and processing time for borrowing books. This study aimed to design and develop an automated book borrowing system for the JLDM library to: a) lessen checkout time; b) replace the current proof of borrowing; and c) inform borrowers of the due dates and fines for overdue books through SMS. The researchers considered the design of the system, its speed and efficiency, reliability and robustness, security, and its overall setup. Its functional design was also considered in the whole process of the automated borrowing system. The automated book borrowing system showed that the checkout time was reduced, as well as that the proof of borrowing was replaced by printed material along with a photo of the borrower, which was taken and then stored in the database. SMS was used to inform the borrowers of the books' due dates and the fines for overdue books. The system can be further improved in its security and renewal process for the convenience of patrons.

Keywords: *borrowing system, RFID, barcode, GSM, SMS*

The library is one of the core learning places in educational institutions, aside from classrooms. Teachers and students visit the library for new or expanded information. Most of the time, students cannot finish reading and acquiring their desired information in one sitting, which results in them borrowing books from the library for a few days. The John Lawrence Detwiler Memorial (JLDM) library's current system operates its book borrowing manually, where the borrower writes the title and author of the books to be borrowed and the controller scans the barcode. This procedure prolongs borrowing time. The current situation of the borrowing system leads to these two challenges: a risk of books not being returned or being stolen, and a long waiting and processing time for borrowing books.

Self-check-in and checkout systems that use radio-frequency identification (RFID) exist. Some of these systems include the use of Global System for Mobile Communication (GSM) technology to inform the borrowers of the books' due date and overdue fines (Sangavi, Sri Deepa, Surya, Vinumadhi, & Brindha, 2016). There are also anti-theft devices that are integrated so that books will not be stolen (Younis, 2012). Innovations like these systems would be very useful in the JLDM library.

The current borrowing systems on the market are too expensive and are focused on the use of RFID, while the books in the JLDM library use only barcodes for identification. A system that incorporates both barcodes and RFID for the library would be included in the proposed automated book borrowing system. This paper aims to develop a system that would help the JLDM library with regards to book borrowing using database technology and embedded systems: a) to lessen checkout time and replace the current proof of borrowing through an automated electronic system; and b) to inform borrowers of the due date of borrowed books and fines for overdue books through SMS.

In 2015, another study that integrated RFID into a self-checkout and check-in system was made by Annaraman, Tamarai, and Kumar. A person can

borrow a book by approaching the computer interface system, then tapping the identification card (ID) as well as the book to be borrowed. The person will then choose whether the book will be checked out or whether more books will be added to be borrowed. Books that are brought out without checking out are detected by the anti-theft device that is installed in the entryway and exit of the library, which is an added feature of the system. An anti-theft device was also included in Younis' study (2012), wherein books that are not properly borrowed and go out of the library will alarm the person in charge.

There are also proposed systems that involve GSM technology. Ghewari, Shetty, Shinde, and Patil (2016) proposed to make automated library management using the existing RFID system and then added GSM technology to inform the borrowers of their due date and the fines for overdue books.

The JLDM library books are renewed manually, although online reservations are available. In the previous systems discussed, findings concluded that the automated systems reduced the time required to perform circulation operations. However, the studies made regarding the subject widely use RFIDs, and less is about using barcodes, which is the current type of identification method for the books used in the JLDM library. To prevent the stealing of books, a feature will be added to the system: a photo of the borrower will be taken, which serves as proof that they borrowed the book(s).

Methodology

Main Materials

The whole system of the automated book borrowing system was assembled using a desktop computer, Arduino, GSM module, RFID module, webcam, barcode scanner, and thermal printer.

1. **Windows PC.** A personal computer designed for regular use. It was the brain of the system and was used in the management of check-in, check-out, search, notification, and renewal

systems. The Arduino, barcode scanner, receipt printer, and webcam were connected to this computer.

2. **Arduino Uno.** A microcontroller board is where the RFID and GSM modules were connected. It was responsible for the communication to the PC and the management of the data from the RFID and GSM modules. It is based on the ATmega328P datasheet. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header, and a reset button.
3. **GSM Module.** This is a wireless GSM General Packet Radio Services (GPRS) module with the ability to send messages, make a call, or transfer data over GPRS to be able to communicate between computers and cellular networks (mobile phones). The GSM module was responsible for notifications in the system. It has a dimension of 15.8x17.8x2.4mm; this module fits into the compact design of the customer.
4. **RFID Module.** This module was used to accumulate information from RFID cards. Communication is used to gather data through radio waves.
5. **A webcam** is a device that takes pictures and videos. The specifications of the webcam include an automatic white balance and color correction, manual adjustable focal length, 12.0M pixels, high definition, and true color images. It can also move up and down 30 degrees rotatable, left and right 360 degrees, and with 30 frames per second.
6. **Barcode scanners.** Also called price-of-sale (POS), are usually used on food and other necessities with barcodes. The barcode scanner works when a certain amount of beam light is reflected from the scanner itself and bounced back to it. The spacing between the barcodes is responsible for reading the

information on a certain product. Aibecy 990 barcode scanner can scan 1D barcodes printed on paper or film 150 times or seconds. Plug in, and then it starts to work when barcodes approach the sensors. It adapted a 32-bit Advanced RISC Machine (ARM) processor, full trunk capacitance, and gold-plated optical glass, which can ensure high reading capability and long-lasting scanning sensitivity.

7. **Printer:** This is a type of digital printing wherein the thermal paper is heated by the thermal head of the printer to a certain area in order to produce desired image output and the result. The heated part of the paper turned black, which served as the ink for the receipt.

Design Considerations

The proposed self-checkout system for the JLDM library considered its design for reliability, robustness, security, speed, and efficiency that can replace the current system.

A. Speed and Efficiency

Speed and efficiency need to be checked when it comes to borrowing systems. Since some people have no patience, especially when in a hurry or have important things to do after borrowing a book, an express lane is convenient. The checkout system's speed and efficiency were considered in this study to make it convenient for the borrowers. Trials were made to check whether the system is fast enough and efficient for the borrowers' daily use.

Scanning speed

The Aibecy USB Bi-directional 1D Barcode Scanner has a scanning speed of 150 times per second, which is sufficient for the system. The MF RC522 RFID module has a data communication speed of 10 mbit/s, which is also enough for reading IDs and books.

Processor Speed

The Windows 10 processor has a built-in performance troubleshooter that helps find and fix problems that might be affecting the PC's speed. It has a speed of 3.5 GHz and a RAM of 64 GB, making it efficient for all the needed programs, applications, and databases.

B. Reliability and Robustness

Processors at some point fail; checking their reliability and robustness is important to prove their capability to work for an extended period of time. A 3-day trial was done to check whether the processors and devices lasted for 72 hours without failing.

Barcode scanner

The Aibecy USB Bi-directional 1D Barcode Scanner uses a 32-bit ARM processor that can decode reflected, creased, fuzzy, colored, tiny, dirty, or transparent barcodes in bright or dark conditions quickly. It also has a wide voltage design, capable of uploading data successfully even when voltage fluctuation occurs. It is made of lightweight ABS + PC, designed to have an impact-resistant level capable of withstanding a 2m drop and a water-resistant level of IP54. The available scanning modes are: auto, consecutive, and manual. It has a decode accuracy of 4 mil. It has an error code rate of 1/500 million.

Arduino UNO

The Arduino Uno is a microcontroller board based on the Microchip ATmega328P microcontroller that is open source. It can run programs that are loaded into it from the Arduino computer program.

RFID Module

The MF RC522 RFID reader module is designed to communicate between RFID tags by creating a 13.56-megahertz electromagnetic field. The reader can communicate with a microcontroller over a 4-pin Serial Peripheral Interface (SPI) with 10

Mbps as its maximum data rate. This also supports the encryption of rapid CRYPTO1 to validate Mifare series products.

Thermal Printer

The GOOJPRT QR204 Receipt Thermal Printer has a Mean Cycle Between Failures (MCBF) of 500 million lines.

C. Security

Connection security

The system was connected to the network through wi-fi. The wireless network had WPS security and an encrypted password. Even if there was an access breach, the system process was secure because the transactions done on the network were through the database management system, which has its own security measures.

Database security

Database security refers to the collective measures used to protect and secure a database or DBMS from illegitimate use, malicious threats, and attacks. It is a broad term that includes a multitude of processes, tools, and methodologies that ensure security within the database environment. The database management system used was PostgreSQL. PostgreSQL has roles and inherited roles to set and maintain permissions. PostgreSQL has native SSL support for connections to encrypt client/server communications. It also has row-level security.

System Design

Working Drawings

The kiosk design in Figure 1 describes the book-borrowing machine. The width of the kiosk was designed to align with the foundation of the library where it was installed. Its height was to be of consideration to the average height of the patrons and is of strategic height for the camera angle. A compartment was designed for the piling of books that are returned by the borrowers as well as a

place to install the devices that were used. A 13in. by 5in. The drop-box door was designed to fit every book in the library.

Figure 1A

Kiosk Design (front view)

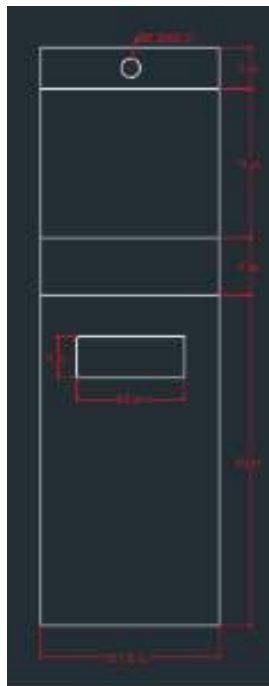


Figure 1B

Kiosk Design (side view)

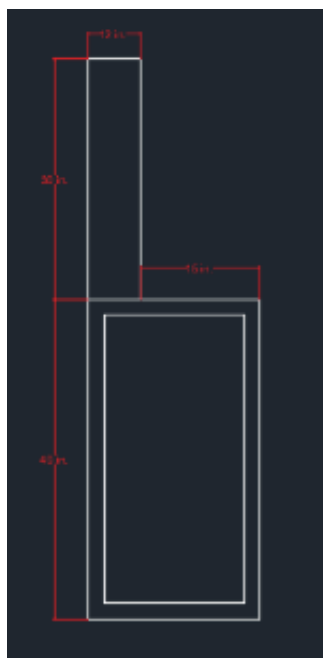


Figure 1C

Kiosk Design (isometric view)



Instructions on Using the System

The borrowing system shows a set of steps to instruct the borrower on how to use it. The instructions or steps are either audio or visual. The

programmed audio instructions are in sequence, following what the borrower is currently doing and indicating the next step. In the visual instructions, an interface at the beginning showed the steps to follow for the borrower to not be lost in the way of using it. The following instructions are:

1. Scan your RFID
2. Select whether to check-in or to checkout
3. If checkout button is selected,
 - a. Scan the books to be borrowed
 - b. Select the confirm button when finished scanning the books
 - c. Wait for your receipt
 - d. Select the OK button then a notification about the due date is presented
 - e. Proceed to the counter for final borrowing
4. If check-in button is selected
 - a. Scan the books to be returned
 - b. Select the confirm button if you are done scanning
 - c. Place the book inside the drop box.

Software Implementation

1. Reducing Checkout Time and Replacing the Proof of Borrowing

Checkout System

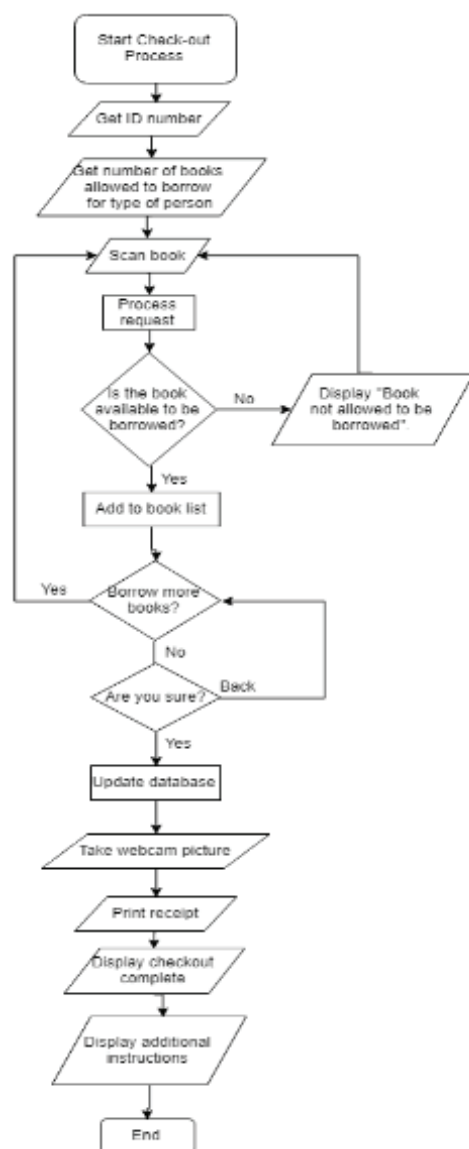
The check-out system was responsible for properly checking out the books borrowed from the library. The system required two inputs from the borrower: an ID and a book barcode.

The check-out process started with scanning the student or faculty ID to check the currently borrowed books and set the number of allowable books to borrow. Then the borrower was asked to scan the books borrowed. The system processed the book by checking its record in the database, reservation status, and period permitted for borrowing. If the book satisfied the listed conditions, it was added to the borrower's book list. Once all the books to be borrowed were processed, a confirmation dialog appeared to confirm the borrower's books. After the confirmation, the system updated the database. A

photo was taken to record the borrower's identity, which served as proof. After taking the photo, the receipt was printed. The main interface displayed instructions for the borrower to proceed to the counter for the completion of the check-out process.

Figure 2

Check Out System Flow Diagram



Approval System

The approval system was responsible for inputting the request from the check-out system into the Destiny Quest program used by the JLDM library. The Destiny Quest program is not open

source software; it is paid for and used by all of the libraries in AUP. For that reason, the proposed system cannot be connected directly to the Destiny Quest program. The approval program served as a bridge between the proposed system and the Destiny Quest program.

The objectives of the approval program were to: display all the check-in and check-out requests from the proposed system; and input all the reserved books into the proposed system's database. Displaying all the check-in and Check-out requests enabled the library worker to input the requests to the Destiny Quest program. Once inputted, the database was updated, and the inputted request was removed from the display. The purpose of inputting the reserved books into the proposed system's database was to use the data for the check-out and renewal processes. The approval program was implemented using VB.Net to display the check-in and check-out data.

Figure 3

Approval System Flow Diagram

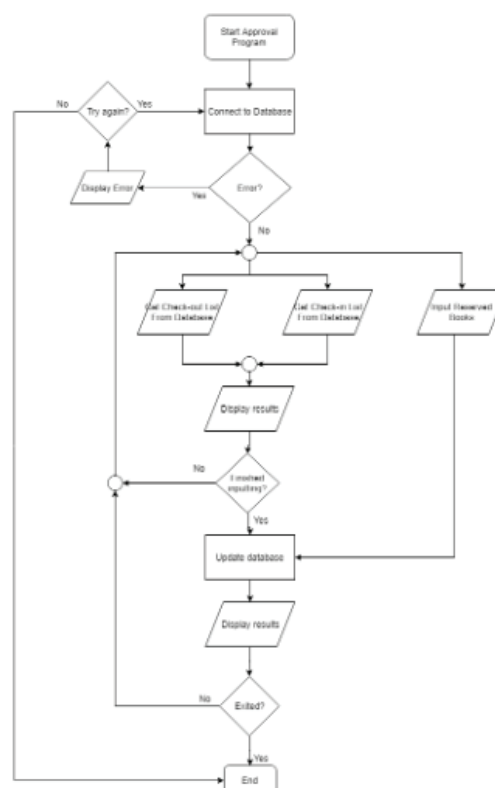
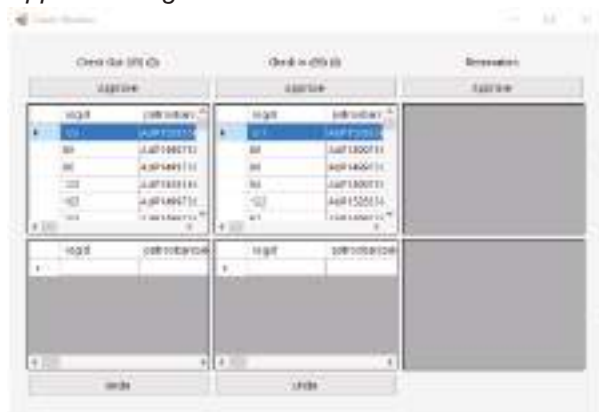


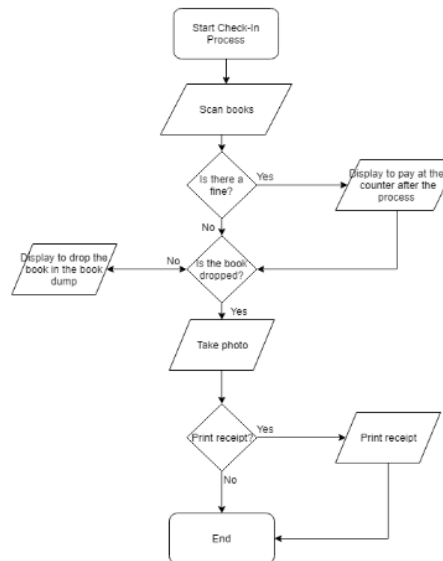
Figure 4
Approval Program



Check-in System

The check-in system was responsible for returning the borrowed books to the library and logging the records in the database. The process started with scanning the barcode of the book to be returned. The system checked if the book was returned before the due date. If the book was returned past the due date, the program instructed the borrower to pay the fine at the counter at the end of the process. If the borrower happens not to pay the fine, it is still recorded in the database under the borrower's account. Afterwards, the book dump gate opened, which allowed the borrower to drop the book inside. A sensor detected if the book was placed inside. After dropping the number of books to be returned, the gate closes. A photo of the student or faculty was taken as proof of the return. Then an option appeared as to whether a receipt was to be printed. If the borrower wanted a receipt, then a receipt was simply printed, and that ends the process. If the borrower chooses not to print a receipt, the process ends directly.

Figure 5
Check-In System Flow Diagram

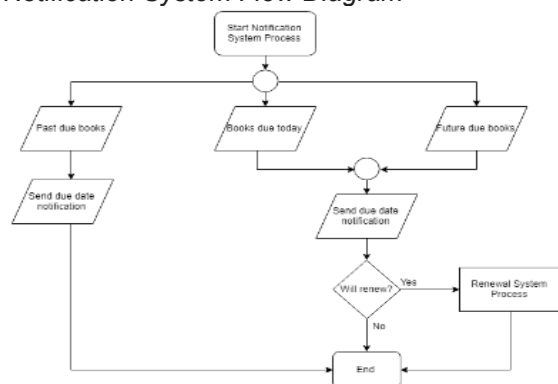


II. Informing Borrowers of the Due Date of the Borrowed Book(s) or Fines of Overdue Books

Notification System

The notification system was responsible for notifying the borrowers about the due date and if there were any fines. The system was implemented using a GSM module that allowed communication between the system and the borrower through SMS. The system also allowed the renewal of books, provided that they were not past their due date.

The process started with checking the database. There were different actions associated with the three kinds of borrowed books, depending on their due date. If the book was past the due date, the system sent an SMS containing the notification about the due date and the fines. It didn't give a renewal option. The borrower had to return the book and pay the fines before renewing. For the books due on the current day or due in the future, the system also sent a notification containing the due date and gave an option for renewal. If the borrower chose to renew, the renewal system process was initiated. If the borrower chooses not to, then the notification system process ends.

Figure 6**Notification System Flow Diagram**

Reducing Checkout Time and Replacing the Proof of Borrowing

Installing a kiosk in the JLDM library helped reduce the checkout time for borrowing a book. The kiosk allowed the patrons to check out books themselves. At the end, a photo of the patron was taken, which is stored in the database as proof that the patron borrowed books, along with a printed receipt to be given to the counter for final processing and security purposes.

Table 1**Speed Test between Manual Method and Automated Method**

Person	Number of Books	Manual Borrowing	Automated Borrowing	Time Difference in sec
1	1	85	68	17
2	1	97	69	28
3	1	82	69	13
4	1	88	72	16
5	1	85	69	16
6	2	133	88	45
7	2	118	110	8
8	2	120	90	30
9	2	121	90	31
10	2	120	92	28
11	3	188	141	47
12	3	188	141	47
13	3	173	144	29
14	3	177	140	37
15	3	190	144	46

Table 2**t-Test analysis between the Manual Method and the Automated Method (1 book)**

Parameters	Manual	Automated
Mean	87.4	69.4
Variance	33.3	2.3
P(T<=t) one-tail	0.001123	
P(T<=t) two-tail	0.002246937	

Table 3**t-Test analysis between the Manual Method and the Automated Method (2 books)**

Parameters	Manual	Automated
Mean	122.4	94
Variance	36.3	82
P(T<=t) one-tail	0.004336	
P(T<=t) two-tail	0.008671128	

Table 4**t-Test analysis between the Manual Method and Automated Method (3 books)**

Parameters	Manual	Automated
Mean	183.2	142
Variance	58.7	3.5
P(T<=t) one-tail	0.000163	
P(T<=t) two-tail	0.000326665	

The results show that when using the automated system for borrowing, checkout time was lessened. Tables 1 - 4 show a significant difference between the two processes, with a p-value of less than 0.05.

II. Informing Borrowers of the Due Date of the Borrowed Book(s) or Fines of Overdue Book

Using SMS, patrons were informed of the books' due date. After checking out the books, once confirmed by the system, it immediately notifies the borrower. A message about the book's due date is sent to the user's mobile number, as shown in Figure 14. If the book is near its due date, an SMS in Figure 15 is sent notifying that the book is due the following day. Notifications about overdue books and fines are also sent through SMS (Figure 16).

Figure 7

Books Due Date

Hey Richlyn Iza, the book you have borrowed: 3JLDM00101559D is due tomorrow. Please return it on time to prevent fines. Thank you!

Figure 8

Books Notification

You have borrowed the book: 3JLDM00101559D today. Please return it on or before May 17, 2019. Thank you!

Figure 9

Books Overdue Fines

Hey Richlyn Iza, the book you have borrowed: 3JLDM00101559D was due on May 17, 2019. Your fine is worth P3.00. Please return the book asap to avoid further fines. Thank you!

Conclusion and Recommendations

This study proved that an automated book borrowing system would reduce the checkout time at the library. The installation of the kiosk in the library, which is the new system of borrowing, has given more security to the books since there is proof recorded in a database. The library personnel's workload is reduced since notifications are sent by the system to the borrowers through SMS. The convenience of the borrowers was also achieved because the system has made a significant change in the time spent borrowing books. Checking in and out of books became easier and more accessible to the patrons since they could do it themselves, since waiting for a library staff to assist them can be time-consuming. This study recommends adding a renewal process for the convenience of the borrowers whenever they can't make it to the library on the said due date.

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Knowledge, Beliefs, and Practices of Students from a Faith-Based Higher Education Institution on Biblical Creation and Scientific Worldview

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Students in a faith-based higher education institution come from different religious backgrounds and may influence their knowledge, beliefs, and practices based on biblical accounts and the scientific worldview. This study used a descriptive-correlational design to determine undergraduate students' knowledge, beliefs, and practices on biblical creation and scientific worldview. The researchers used a self-constructed questionnaire, piloted it, and determined the instrument's reliability before applying it to a larger scale. A one-way ANOVA was used to determine differences between knowledge, beliefs, and practices in biblical creation and the scientific worldview. Pearson's r correlation and Spearman's Rho were used to assess the correlation between the variables. The respondents' knowledge, beliefs, and practices on Biblical creation were very good ($mean = 12.43$, $SD = 1.78$), very strong ($mean = 4.42$, $SD = 0.639$), and strong ($mean = 3.95$, $SD = 0.603$), respectively. Regarding the scientific worldview, the respondents' knowledge, beliefs, and practices were fair ($mean = 9.05$, $SD = 3.75$), average ($mean = 2.83$, $SD = 0.724$), and average ($mean = 3.21$, $SD = 0.453$), respectively. There were no significant differences between knowledge and practices in biblical creation and the scientific worldview in terms of gender. However, significant differences were found between beliefs and practices on biblical creation and the scientific worldview and knowledge of the scientific worldview in terms of religious affiliation. Finally, there was a significant relationship between knowledge, beliefs, and practices about biblical creation and the scientific worldview. The results of the study have valuable implications for developing the university's curriculum to integrate faith, values, and learning (IFVL) and strengthen students' faith and learning. Investigating the influence of theology and faith in shaping students' scientific studies, contemporary ideas, and practices in different religious institutions in the country is highly recommended.

Keywords: *Biblical creation, scientific worldview, knowledge, beliefs, practices*

Did you ever ask yourself, 'What is the reason for my existence?' and 'What should I do with this life?' Most religions and philosophies are founded on the quest for meaning, purpose, and values. There must be a guiding principle that guides people on how they ought to operate, may it be consciously or subconsciously. What shapes our beliefs, attitudes, actions, and philosophies by representing our pragmatic foundation for life is termed 'worldview' (Abi-Hashem, 2017). A worldview is a set of beliefs, values, narratives, and expectations about the universe that guide our thinking and behavior; it is reflected in ethics, religion, philosophy, and scientific beliefs, among other things (Gray, 2011).

Worldviews can be illustrated as lenses such as (a) eyeglasses, (b) sunglasses, and (c) contact lenses; (d) map and compass; as well as (e) filter and framework. It is like (a) eyeglasses through which we perceive the world, and glasses can make anything blurred, clear, or somewhere in between, depending on the prescription. Like a pair of (b) sunglasses or shades, everything we perceive is colored by them. It is not solely what we see, but what we see with! How we see the universe, interpret everything around us, and live in the world is influenced by the worldview lenses, glasses, or sunglasses we are wearing, whether good or bad. Similar to (c) contact lenses, worldviews affect everything people see while remaining undetected; worldviews are frequently overlooked, just as a fish is unaware that it is wet. Comparable with a (d) map and a compass, a worldview leads, orients, and guides people to where they are, where they are headed, and how to get there, personally and culturally. Lastly, worldview is like an (e) filter and framework that sifts and organizes, accepts and rejects, and puts life into context; it explains and adds meaning to things like God, the universe, our world, and ourselves; it expands our understanding of the world and our participation within it (Naugle, 2018).

The Adventist University of the Philippines (AUP) is a Christian university established to train students for responsible citizenship "in this world

and in the world to come," offering an education that strives for a balance of spiritual, intellectual, physical, and social growth (Javien et al., 2018). In a diversified multi-cultural institution and community such as AUP, people are exposed to various cultures, beliefs, and values. Morin (2011) highlights that exposure to social environments and interactions increases personal awareness because people get to encounter various perspectives. Thus, when people are exposed to different worldviews and beliefs, they are forced to think about their own worldview and beliefs more critically. People in AUP may have varying worldviews as they ponder their own existence, purpose, and values, given their different backgrounds. However, there are two belief systems that this study emphasizes: (1) the scientific worldview, and (2) the theistic worldview, specifically (2) biblical creation.

Students at AUP came from different backgrounds. Given the fact that students at the university may come from public schools where the teaching of evolutionist points of view is prevalent or from a private non-adventist high school where other doctrines may be introduced, a challenge exists to harmoniously develop various aspects of the lives of students given the diversity of worldviews each could possibly have. As mentioned above, aside from physical and social attributes, the mental and spiritual faculties are some of the aspects that the university aims to balance.

AUP's mode of teaching is grounded in the integration of faith in learning (IFL). IFL is a concept that showcases the use of the Christian perspective in teaching and is all about keeping the link between learning new information and experiencing a change in behavior as a result of that information (Thomas, 2012). AUP conducts various programs to teach the foundations of faith and/or use IFL. Such programs include Bible courses, religious programs, webinars, and special worship programs that include topics in Creation, God in mathematics and nature, and intelligent design. Given the steps that AUP uses to integrate its philosophy into the

diverse population of students, is there harmony between Adventist theology and the teachings of science in the classroom and much more in the minds of AUP students? Do students believe the teachings of faith at AUP? Do they practice what they ought to believe?

Methodology

Research Design

The researchers utilized a descriptive-correlational research design, specifically a descriptive-correlational design. Descriptive research design was often used in social sciences, education, and business research. It involves collecting data through observation, surveys, interviews, and other methods, and then analyzing the data to identify patterns, themes, and relationships. It enables the analysis and description of the distribution of one or more variables without consideration of any other or causal hypothesis (Aggarwal & Ranganathan, 2019). In addition, the researchers also utilized a correlational research design, a non-experimental study in which two variables are measured and their statistical relationships are evaluated (Price et al., 2015). This was needed to determine the correlation between knowledge, beliefs, and practices.

Population and Sampling Techniques

The researchers studied undergraduate AUP students who were in their fourth year or above and enrolled within the academic year 2022–2023. The respondents must have taken at least three (3) of the required Bible courses in their curriculum. Respondents who did not fit the criteria were considered outliers and were removed. Participants were chosen using the snowball sampling technique, a popular non-probability method for obtaining a survey sample. Compared to random sampling, this method relies on recommendations from participants who may know others who have the qualities that the research was looking for. This approach enables researchers to find

potentially qualified respondents who might have been missed using other means. Despite being widely used, the method has some limitations that must be considered. For instance, it can result in biased sampling if the people who are referred do not represent the target population. Nevertheless, snowball sampling was still a useful and effective method for acquiring data (Johnson, 2014). Table 1 presents the distribution of the respondents according to demographic characteristics.

Table 1

Distribution of Participants in Terms of Demographic Profile

Variables/ Categories	Counts	% of Total	Cumulative %
Gender			
Female	93	58.1 %	58.1 %
Male	67	41.9 %	100.0 %
Year Level			
4	146	91.3 %	91.3 %
5	9	5.6 %	96.9 %
6	5	3.1 %	100.0 %
College			
CAH	20	12.5 %	12.5 %
COB	20	12.5 %	25.0 %
COD	20	12.5 %	37.5 %
COE	20	12.5 %	50.0 %
COH	20	12.5 %	62.5 %
CON	20	12.5 %	75.0 %
COT	20	12.5 %	87.5 %
CST	20	12.5 %	100.0 %
Religious Affiliation			
Seventh-day Adventist	140	87.5 %	87.5 %
Non- Adventist	20	12.5 %	100.0 %

Note: The grand total is 160.

Table 1 shows the frequency of the respondents' gender, year level, college, and religious affiliation. 67 of the respondents are male, which makes up 41.9% of the total sample population, and 93 are female,

which makes up 58.1%. In terms of year level, there are 146 fourth-year students (91.3%), 9 fifth-year students (5.6%), and 5 sixth-year students (3.1%).

The researchers targeted 20 (12.5%) respondents from eight (8) colleges in AUP. The colleges include the College of Arts and Humanities (CAH), the College of Business (COB), the College of Dentistry (COD), the College of Education (COE), the College of Health (COH), the College of Nursing (CON), the College of Science and Technology (CST), and the College of Theology (COT). College of Medicine (COM) because the scope of the study only includes undergraduate AUP students.

In terms of religious affiliation, the respondents were distributed in terms of Seventh-day Adventist (SDA) and non-Adventist AUP students. 140 (87.5%) respondents, and 20 (12.5%) were non-SDA.

Instrumentation

A self-constructed questionnaire was formulated to gather the data needed for the study. The questionnaire includes five (5) main sections: a letter to respondents, which includes informed consent; a demographic profile; knowledge questionnaires; belief questionnaires; and practice questionnaires.

The demographic profile contains optional space for name, gender, student load categories, year level, range of years of studying in AUP, college, options for enrolled Bible courses and other subjects, religious affiliation, and secondary institution categories.

The knowledge questionnaires are divided into Biblical Creation and Scientific Worldview categories, which contain fourteen (14) TRUE/FALSE answers. Knowledge questions for Biblical creation were formulated from topics on Creation in the Old Testament (Genesis 1 and 2) and Creation in the New Testament (Shea, 2000). Knowledge scientific worldview questionnaires contain scientific consensus on the origins of the universe and life on Earth, including timelines, terminology definitions, and evolution processes.

Validation of the Research Instrument

The research instrument was thoroughly examined and validated by a panel of experts from the Biology Department, College of Theology, and Languages Department. After the experts' review, the questionnaire was revised. Revisions include the removal of unnecessary terms, the elimination of the "uncertain" option in the knowledge variable, the sequencing of the Likert scale in ascending order from left to right, the removal and/or replacement of some questions with better-formulated questions derived from the annotated ideas of the experts, the addition of demographic characteristics, minimizing redundancy and shortening instructions, integrating negative questions, correcting punctuation and grammar, and the modification and simplification of terminologies.

The extraction of the demographic profile of students, including philosophical biology taker/non-taker, college affiliation, SDA/non-SDA category, gender, year level, and residence status; and the knowledge and beliefs of students regarding Adventist creationist and scientific worldviews.

Pilot Study

The researchers conducted a pilot survey before the actual study. The sample size for the pilot study was 16, which was 10 percent of the total target population, which was 160 (20 respondents per college) (Sample Size for a Pilot Study, n.d.). After the pilot survey, no survey questions were revised, and the researchers proceeded to the actual survey. In some cases where the sample size was too small, the sample from the pilot study was included in the final results (Van Teijlingen & Hundley, 2002). The researchers applied this idea to the final results since the target sample was only 160.

Ethical Considerations

The researchers had a consultation with the Data Privacy Office of AUP. In line with this, researchers assured the respondents that the information they will provide will be handled with strict confidentiality in accordance with Republic Act

10173 (Data Privacy Act of 2012). The respondents were also informed that their participation was voluntary and that all provided information would be used for academic purposes only.

Data Gathering Procedures

The data was gathered by conducting an online survey through Google Forms. The online questionnaire form was distributed using online platforms such as email and Facebook Messenger. The researchers closed the survey when a college reached a quota of 20 legitimate respondents.

The data was automatically compiled into Google Sheets. The researchers downloaded the data from Google Sheets for data analysis.

Data Analysis

The researchers used descriptive statistics to determine the extent of the respondents' level of knowledge, beliefs, and practices on Biblical creation and the scientific worldview. In terms of finding a significant difference in terms of gender,

college, years of studying at AUP, and religious affiliation, the researchers used a one-way ANOVA (non-parametric) Kruskal-Wallis analysis. Dwass-Steel-Critchlow-Fligner pairwise comparison was used when the variables reached the level of significance. The level of significance used in the study was $p < 0.05$ (Tenny, 2022).

Results and Discussion

This chapter discusses the research findings, interpretations, and implications based on the research problems mentioned in the first chapter. Furthermore, literature supporting the results was also presented in this chapter.

Level of Knowledge on Biblical Creation

The mean and standard deviation of the responses provided by the participants were examined and calculated to assess the extent of their knowledge of biblical creation. Table 2 presents the knowledge of the respondents as reflected by their correct and incorrect responses on Biblical creation.

Table 2

Frequency and Percent Distribution of Knowledge on Biblical Creation

No.	Items	Answer n=160 (100%) Correct (%)	Incorrect (%)	Verbal Interpretation
1.	God created without pre-existing matter (ex nihilo)	128 (80%)	32 (20%)	Good
2.	God created the Earth in six literal 24-hour days.	120 (75%)	40 (25%)	Good
3.	All things visible and invisible were created through God and for God.	145 (90.6)	15 (9.4%)	Very Good
4.	The first angel's message calls to fear God and worship Him as Creator.	146 (91.3%)	14 (8.8%)	Very Good
5.	Nothing was made except through Jesus.	138 (86.3%)	22 (13.8%)	Good
6.	On the fourth day, God created astronomical bodies like stars and planets.	134 (83.8%)	26 (16.3%)	Good
7.	God created birds and fish or sea creatures on the fifth day.	152 (95%)	8 (5%)	Very Good
8.	God created land animals on the sixth day.	135 (84.4%)	25 (15.6%)	Good
9.	God the Father, God the Son, and God the Holy Spirit made humans on the sixth day.	147 (91.9%)	13 (8.1%)	Very Good
10.	God rested on the seventh day, blessed it, and sanctified it.	158 (98.8%)	2 (1.3%)	Very Good
11.	God created mankind in His own image, both male and female.	155 (96.9%)	5 (3.1%)	Very Good
12.	God planted a garden specially prepared for Adam and Eve.	149 (93.1%)	11 (6.9%)	Very Good
13.	God took the man and put him into the garden of Eden to keep it.	150 (93.8%)	10 (6.3%)	Very Good
14.	God made Eve out of the dust of the ground and a rib from Adam.	131 (81.9%)	29 (18.1%)	Good

Note: Grading System: Very Poor (Below 49%), Poor (49%–61.9%), Fair (62%–74.9%), Good (75%–87.9%), Very Good (88%–100%)

Based on 14 items, students had *very good* (8 items) and *good* (6 items) knowledge on Biblical Creation. Item 10 (*God rested on the seventh day, blessed, and sanctified it*) had the highest number of correct responses (98.8%), and only two respondents had incorrect answers. On the other hand, item number 2 (*God created the earth in six literal 24-hour days*) had the lowest number of correct responses (75%). The overall knowledge of undergraduate students on Biblical Creation was *very good* (mean = 0.887, SD = 1.27) as presented in Table 3. The high percentage of Adventist respondents (87.5%) may explain this trend, since Creation was part of the 28 fundamental beliefs of Adventists (Ministerial Association of Seventh-Day Adventists, 2005).

Level of Knowledge on Scientific Worldview

Table 3 presents the knowledge of the respondents as reflected by their correct and incorrect responses to the scientific worldview. Based on 14 items, students had *very good* (one item), *good* (4 items), *fair* (3 items), *poor* (5), and *very poor* (one item) knowledge. Item number 5 (Plate Tectonics explains how the Earth's outermost layer is shaped by movements happening deep beneath) had the highest number of correct responses (92.5%). On the other hand, item number 1 (The universe began with a huge explosion called the Big Bang) had the lowest number of correct responses (28.1%).

Table 3

Frequency and Percent Distribution of Knowledge on Scientific Worldview

No.	Items	Answer n=160 (100%) Correct (%)	Incorrect (%)	Verbal Interpretation
1.	The universe began with a huge explosion called the Big Bang.	45 (28.1%)	115 (71.9%)	Very Poor
2.	The process of natural selection is also known as "survival of the fittest."	101 (63.1%)	59 (36.9%)	Fair
3.	Paleontology is the study of ancient life forms, including dinosaurs, plants, and animals that lived long ago.	145 (90.6)	15 (9.4%)	Very Good
4.	Fossils are the preserved remains of living organisms that lived millions of years ago.	130 (81.3%)	30 (18.8%)	Good
5.	Plate tectonics explains how the Earth's outermost layer is shaped by movements happening deep beneath.	148 (92.5%)	12 (7.5%)	Very Good
6.	Plate tectonics explains the creation of mountains, deep ocean trenches, and volcanoes.	134 (83.8%)	26 (16.3%)	Good
7.	All life on Earth shares a common ancestor.	110 (68.8%)	50 (31.3%)	Fair
8.	The Earth is approximately 4.5 billion years old.	93 (58.1%)	67 (41.9%)	Poor
9.	Life on Earth evolved over a period of millions of years through natural selection.	93 (58.1%)	67 (41.9%)	Poor
10.	Humans and chimpanzees share a common ancestor.	106 (66.3%)	54 (33.8%)	Fair
11.	Dinosaurs were a diverse group of reptiles that lived on Earth for around 160 million years.	94 (58.8%)	66 (41.3%)	Poor
12.	The Cambrian Explosion is when many major groups of animals abruptly appeared in the fossil record.	98 (61.3%)	62 (38.8%)	Poor
13.	The development of antibiotic resistance in bacteria is an example of microevolution.	126 (78.8%)	34 (21.3%)	Good
14.	The evolution of humans from chimpanzee-like ancestors is an example of macroevolution.	83 (51.9%)	77 (48.1%)	Poor

Note: Grading System: *Very Poor* (Below 49%), *Poor* (49%–61.9%), *Fair* (62%–74.9%), *Good* (75%–87.9%), *Very Good* (88%–100%)

A study on students' scientific literacy in Indonesia found that students' scientific literacy skills are still at a low to moderate level even before and after the COVID-19 pandemic, indicating a need for improvement in students' scientific knowledge (Melinda et al., 2021). One study conducted in Greece found that many high school graduate students have naive views regarding the nature of scientific knowledge, indicating a low level of understanding of scientific knowledge among students. According to the search results, students may have difficulty understanding evolution due to inherent misinformation, misunderstandings, and biases with which they approach the topic (Mohammadi et al., 2020). Furthermore, the curriculum and textbooks only cover the nature of scientific knowledge to a limited extent; teachers refer to some of these topics instinctively without evaluating the students' level of understanding. (Koumara & Plakitsi, 2020).

Level of Beliefs on Biblical Creation

Table 4 presents the beliefs of the respondents on Biblical creation. The mean and standard deviation of the responses provided by the participants were examined and calculated to assess the extent of their beliefs about biblical creation.

Table 4

Descriptive Statistics of Mean Beliefs on Biblical Creation

No.	Items	Mean	SD	Verbal Interpretation
1.	I believe God was created through His spoken word.	4.53	0.984	Very strong
2.	The process of natural selection is also known as "survival of the fittest."	4.46	1.132	Very strong
3.	I believe that the Sabbath day is sacred and holy.	4.60	0.953	Very strong
4.	I believe Jesus is worthy of praise and worship as the Creator.	4.72	0.745	Very strong
5.	I believe man and woman were made in the image of God and with a purpose.	4.67	0.805	Very strong
6.	I believe the days of creation in Genesis could mean thousands to millions of years.*	2.95	1.504	Average
7.	I believe God sustains His creation.	4.68	0.842	Very strong
8.	I believe the story of Noah's ark is only a myth.*	4.44	0.916	Very strong
9.	I believe nature speaks of God's love.	4.67	0.767	Very strong
10.	I believe God invites humans to participate in creative activities like tending the Garden of Eden and naming animals.	4.42	0.968	Very strong
Overall		4.414	0.9616	Very Strong

Note: *Reversed item: Very Weak Belief = 1.00-1.80, Weak Belief = 1.81-2.60, Average Belief = 2.61-3.40, Strong Belief = 3.41-4.20, Very Strong Belief = 4.21-5.00

Based on 10 items, the students had strong (9 items) and average (one item) beliefs. It was noteworthy that the beliefs of students on Biblical creation were mainly very strong, and there were no very weak, weak, or strong beliefs. However, item number 6 (I believe the days of creation in Genesis could mean thousands to millions of years) was the only average belief obtaining the lowest mean score (2.95, SD = 1.504). On the other hand, item number 4 (I believe Jesus is worthy of praise and worship as Creator) had the highest mean score (4.72, SD = 0.745).

Beliefs on the Scientific Worldview

Table 5 presents the beliefs of the respondents on the scientific worldview. The mean and standard deviation of the responses provided by the participants were examined and calculated to assess the extent of their beliefs in the scientific worldview.

Table 5

Descriptive Statistics of Mean Beliefs on Scientific Worldview

No.	Items	Mean	SD	Verbal Interpretation
1.	I believe that science is the only valid way of understanding the natural world.	2.30	1.20	Weak
2.	I believe that science is limited to what is observable, measurable, and testable.	3.89	1.09	Strong
3.	I believe the fossils found mean that dinosaurs lived millions of years ago.	2.94	1.39	Average
4.	I believe that a great meteor killed the dinosaurs.	2.44	1.19	Weak
5.	I believe that Earth is approximately 6,000 years old.*	2.75	1.24	Average
6.	I believe that dinosaurs existed in the past.	3.63	1.15	Strong
7.	I believe plants, animals, and other organisms share a common ancestor.	3.26	1.41	Average
8.	I believe life on Earth evolved over a period of millions of years through natural selection.	2.84	1.51	Average
9.	I believe that the Earth and its life forms are only possible because of natural events.	2.13	1.21	Weak
10.	I believe that the creation narrative in the book of Genesis is only adapted from stories and myths from other ancient cultures (Sumerian, Babylonian, etc.).	2.09	1.48	Weak
Overall Beliefs on Scientific Worldview		2.827	1.287	Average

Note: *Reversed item; Very Weak (1.00-1.80), Weak (1.81-2.60), Average (2.61-3.40), Strong (3.41-4.20), Very Strong (4.21-5.00)

Based on 10 items, students had strong (2 items), average (4 items), and weak (4 items) beliefs. There were no very strong beliefs among students regarding the scientific worldview. Item number 2 (*I believe that science is limited to what is observable, measurable, and testable*) had the highest mean sSD = 1.09)89, SD=1.09). This may indicate that most students were aware of the limitations of the scope of science. On the other hand, item number 10 (*I believe that the Creation narrative in the book of Genesis is only adapted from stories and myths from other ancient cultures (Sumerian, etc.)*) had the lowest mean score (2.09, SD = 1.48).

Practices on Biblical creation

Table 6 presents the practices of the respondents relating to Biblical creation. The mean and standard deviation of the responses provided by the participants were examined and calculated to assess the extent of their practices on Biblical creation.

Table 6

Descriptive Statistics of Mean Practices on Biblical Creation

No.	Items	Mean	SD	Verbal Interpretation
1.	I pray to Jesus personally, aside from religious services and before meals.	4.41	0.907	Very strong
2.	I do not meditate on God's word.*	4.01	1.043	Strong
3.	I do not attend worship services in the dormitory or at home.*	4.04	0.983	Strong
4.	I do not watch secular videos or movies during Sabbath.	3.12	1.178	Average

[table continues on the next page]

5.	I shop during the Sabbath.*	3.74	1.157	Strong
6.	I do not abstain from premarital sex.*	3.69	1.327	Strong
7.	I do not study for my school subjects on Sabbath.	3.93	1.234	Strong
8.	I intentionally visit creation science museums.	3.06	1.100	Average
9.	I take part in evangelistic activities like Bible studies or Voice of Youth.	3.91	1.109	Strong
10.	I smoke vape or cigarettes.*	4.67	0.783	Very strong
11.	I proclaim Jesus as Creator.	4.53	0.875	Very strong
12.	I support vegetarianism.	3.79	1.150	Strong
13.	I worship God through online or face-to-face church services.	4.38	0.895	Very strong
14.	I drink alcoholic beverages.*	4.02	1.246	Strong
15.	I do academic-related activities during the Sabbath.*	4.01	1.229	Strong
Overall Practice on Biblical Creation		3.702	1.082	Strong

Note: *Reversed item; Very Weak Practice = 1.00-1.80, Weak Practice = 1.81-2.60, Average Practice = 2.61-3.40, Strong Practice = 3.41-4.20, Very Strong Practice = 4.21-5.00

Based on 15 items, the students had very strong (4 items), strong (9 items), and average (2 items) practices. It was noteworthy that there were no weak or very weak Biblical creation practices among AUP students. The reversed item, number 10 (I smoke vape or cigarette*), obtained the highest mean score (4.67, SD = 0.783). On the other hand, item number 8 had the lowest mean score (3.06, SD = 1.100). The Creation Science Museum in AUP was just established in October 2022; this may explain the lowest mean score regarding the practice of visiting or exploring creation science museums (Adventist Review Media, 2022).

Overall, the practices of students on Biblical creation were strong (mean = 3.702, SD = 1.082). Literature suggests that Christian schools have a responsibility to teach students to view everything from God's perspective and that all components of Christian education, including discipline practices, should be based on the Bible (Effendy, 2020).

Practices on Scientific Worldview

Table 7 presents the practices of the respondents relating to the scientific worldview. The mean and standard deviation of the responses provided by the participants were examined and calculated to assess the extent of their beliefs about biblical creation.

Table 7
Descriptive Statistics of Mean Practices on Scientific Worldview

No.	Items	Mean	SD	Verbal Interpretation
1.	I attempt to replicate the experiments and findings of others.	2.76	1.080	Average
2.	I review the work of others to evaluate the accuracy and validity of their research.	3.62	0.977	Strong
3.	I do not use statistical methods to make sense of the data.*	3.63	1.002	Strong
4.	I analyze data collected from experiments and observations	3.76	0.961	Strong
5.	I share the evolution perspective during science discussions.	2.44	1.074	Weak
6.	I use scientific principles to guide my thinking about the world.	3.11	1.073	Average
7.	I collect data through direct observation of the natural world.	3.51	0.925	Strong

[table continues on the next page]

8. I do not conduct experiments to test my hypotheses.*	3.48	0.997	Strong
9. I base my academic reports, homework, and research on the science of evolution.	2.46	1.137	Weak
10. I do not submit my research findings to be reviewed by other experts in the field.*	3.62	1.009	Strong
11. I share Biblical perspectives during science discussions.*	2.19	0.962	Weak
12. I apply scientific knowledge to solve real-world problems.	3.38	0.977	Average
13. I do not research for scientific evidence before accepting claims about the natural world.*	3.26	1.102	Average
14. I refute or disprove claims that are not based on scientific knowledge.	2.94	0.933	Average
15. I do not use my senses to gather information about the world around me.*	4.01	0.908	Strong
Overall Practice in a Scientific Worldview	3.211	1.008	Average

Legend: Very Weak Practice = 1.00-1.80, Weak Practice = 1.81-2.60, Average Practice = 2.61-3.40, Strong Practice = 3.41-4.20, Very Strong Practice = 4.21-5.00

Based on 15 items, the students had strong (7 items), average (5 items), and weak (3 items) practices. It was noteworthy that there were not very weak or very strong scientific worldview practices among AUP students. Overall, the extent of the level of practice among the respondents was average (3.211, SD = 1.008).

The reversed item, number 15 (I do not use my senses to gather information about the world around me*), obtained the highest mean score (4.01, SD=0.908). On the other hand, item number 11 (I share Biblical perspectives during science discussions*) had the least mean score (2.19, SD=0.962), which implies that most students are used to sharing Biblical perspectives during science discussions.

AUP integrates faith in learning into the curriculum and classroom subjects; however, there was a need to encourage scientific practices as well. The first step in encouraging their involvement in scientific practices was giving students direction on the necessary actions. For instance, various ways seek to encourage students' active engagement in developing scientific knowledge by including them in the modification of variables (Berland et al., 2016).

Difference Between Knowledge on Biblical Creation and Scientific Worldview

The researchers used one-way ANOVA (non-parametric) analysis, and the p-value was

examined to determine if there was a significant difference ($p \leq 0.05$) between knowledge on Biblical creation and scientific worldview in terms of gender and religious affiliation. Significant differences were further evaluated using Dwass-Steel-Critchlow-Fligner (DSCF) pairwise comparisons.

Gender

The researchers determined if there was a significant difference between knowledge on Biblical creation and scientific worldview in terms of gender using Kruskal-Wallis one-way ANOVA. Table 8 shows the p-value of the comparison between knowledge on Biblical creation and scientific worldview in terms of gender. The result indicated that there was no significant difference between knowledge on Biblical creation ($p=0.816 > 0.05$) and scientific worldview ($p=0.432 > 0.05$) in terms of gender.

Table 8
Kruskal-Wallis Test Result Between Knowledge on Biblical Creation and Scientific Worldview

	χ^2	df	p	ε^2
Knowledge on Biblical Creation	0.0542	1	0.816	3.41e-4
Knowledge of Scientific Worldview	0.6165	1	0.432	0.00388

Note: $p < 0.05$ is significant

The result was in contrast with the studies of Woodhead (2012), Mitchell (2016), and James (2018), where it was known that females have higher religious practices compared to males. However, in terms of scientific practices, a controlled experiment involving participants of ages ranging from 6 to 18 years found that female participants performed as well as male participants in acquiring coding skills and problem-solving, suggesting that coding skills are acquired gender-independently in the K–12 system (Vico et al., 2019).

Religious Affiliation

The researchers determined if there was a significant difference between knowledge of biblical creation and scientific worldview in terms of religious affiliation using a Kruskal-Wallis One-way ANOVA. Table 9 shows the p-value of the comparison between knowledge on Biblical creation and scientific worldview in terms of religious affiliation. The result indicated that there was no significant difference on knowledge on Biblical creation ($p=0.209 > 0.05$) in terms of religious affiliation, however, there was a significant difference on scientific worldview knowledge ($p= <.001 < 0.05$) in terms religious affiliation.

Table 9

Kruskal-Wallis Test Result Between Knowledge on Biblical Creation and Scientific Worldview

	χ^2	df	p	ε^2
Knowledge on Biblical Creation	0.0542	1	0.816	3.41e-4
Knowledge of Scientific Worldview	0.6165	1	0.432	0.00388

Note: $p < 0.05$ is significant

Aside from having a small sample size in the study, the result of no significant difference in knowledge on Biblical creation may be due to the fact that the educational levels of the respondents were not spread out since most of the respondents were fourth-years (91.3%) and all of the respondents had taken at least three Bible courses. A study shared the association of educational level with the extent of knowledge in a particular field (Novoa et al., 2014).

Table 10 shows the pairwise comparisons between two groups: Seventh-day Adventist (SDA) and Non-Adventist. The p-value of $<.001$ indicates that the observed difference in scientific worldview knowledge between the two groups is statistically significant (< 0.05), in favor of non-adventists.

Table 10

Knowledge on Scientific Worldview Comparisons Between Adventist and Non-Adventist

Pairwise comparisons:

- Knowledge on Scientific Worldview

		W	p
Seventh-day Adventist (SDA)	Non-Adventist	4.82	$<.001$

Note: $p < 0.05$ = significant

This means the probability of obtaining such a large difference in knowledge by chance alone is very low. Therefore, there was strong evidence to suggest that knowledge of the scientific worldview differed significantly between Seventh-day Adventists and non-Adventists.

Table 11 shows the knowledge of Seventh-day Adventist and non-Adventist groups on the scientific worldview. Non-Adventists had good knowledge (83.2%), while Seventh-day Adventists had fair knowledge (62%).

Table 11***Level of Knowledge on Scientific Worldview in Terms of Religion***

AUP

	Religious Affiliation	N	Mean (Correct%)	SD	Verbal Interpretation
Knowledge of a Scientific Worldview	Seventh-day Adventist (SDA)	140	0.620 (62.0%)	0.268	Fair
	Non-Adventist	20	0.832 (83.2%)	0.186	Good

Note: Grading System: Very Poor (Below 49%), Poor (49%–61.9%), Fair (62%–74.9%), Good (75%–87.9%), Very Good (88%–100%)

Descriptive Statistics of Mean Knowledge on Scientific Worldview in terms of Religious Affiliation

AUP students were more likely to adhere to their religious knowledge as students in an Adventist institution that observes and promotes Adventist religious practices. One study analyzed data from 52 nations in the World Values Survey and found that religiosity is on average negatively associated with five different orientations towards science (Chan, 2018). This may explain why Adventist students at AUP had *fair* knowledge while non-Adventist students had good knowledge in terms of their scientific worldview.

Difference Between Beliefs on Biblical Creation and Scientific Worldview

In this section, the researchers determined if there was a significant difference between beliefs on Biblical creation and scientific worldview when religious affiliation was considered. Table 12 presents the results of the Kruskal-Wallis one-way ANOVA in determining if there was a significant difference between Biblical creation and the scientific worldview in terms of religious affiliation.

Religious Affiliation

Table 12 presents the results of the Kruskal-Wallis one-way ANOVA in determining if there was a significant difference between Biblical creation and the scientific worldview in terms of religious affiliation. The findings were statistically significant with p-values of 0.004 and 0.001 for Biblical creation and scientific worldview, respectively. Mahner et al.'s (1996) study revealed that it became clear that science and religion were not only dissimilar but also actually incompatible because they were interested in “different levels of reality.”

Table 12***Kruskal-Wallis Test Result Between Beliefs on Biblical Creation and Scientific Worldview***

	χ^2	df	p	ε^2
Biblical Creation Beliefs	8.19	1	0.004	0.0515
Scientific Worldview Beliefs	10.12	1	0.001	0.0637

Note: $p < 0.05$ is significant

Table 13 shows the pairwise comparisons between Biblical creation and scientific worldview. The comparison is in terms of religious affiliation, that is, between Seventh-day Adventists and non-Adventists.

Table 13

Comparisons on Scientific Worldview and Biblical Creation Beliefs Between Adventist and Non-Adventist

Pairwise Comparisons		W	p
Biblical Creation Beliefs			
Seventh-day Adventist (SDA)	Non-Adventist	-4.05	0.004
Scientific Worldview Beliefs			
Seventh-day Adventist (SDA)	Non-Adventist	4.50	0.001

Note: $p < 0.05$ is significant

Biblical creation beliefs. The p -value of $< .004$ indicated that the observed difference in Biblical creation beliefs in terms of religious affiliation was statistically significant (< 0.05) in favor of Seventh-day Adventists. There was strong evidence to suggest that Biblical creation beliefs differed significantly between Seventh-day Adventists and non-Adventists.

Scientific Worldview Beliefs. The p -value of < 0.001 indicated that the observed difference in scientific worldview beliefs in terms of religious affiliation was statistically significant (< 0.05), this time in favor of non-adventists. Results indicate that Seventh-day Adventists had stronger beliefs on Biblical creation compared to non-Adventists and that non-Adventists had stronger beliefs on a scientific worldview compared to Seventh-day Adventists. Adventist had stronger beliefs on Biblical creation because Creation is part of the Adventist's 28 fundamental beliefs (Ministerial Association of Seventh-Day Adventists, 2005). On the other hand, the good knowledge of non-Adventists on scientific worldview having a significant positive moderate correlation with their beliefs on scientific worldview explains why their scientific worldview beliefs are stronger compared to Adventists.

Difference Between Biblical Creation and Scientific Worldview Practices

The researchers also examined if there was a significant difference between Biblical creation and scientific worldview practices in terms of religious affiliation. Table 14 shows the Kruskal-Wallis test to determine if there is a significant difference between Biblical creation practices and scientific worldview practices in terms of gender. Based on the findings, there was no significant difference between practices on Biblical creation and scientific worldview in terms of gender ($p = 0.599 > 0.05$; $p = 0.341 > 0.05$).

Gender

Table 14 shows the Kruskal-Wallis test to determine if there is a significant difference between Biblical creation practices and scientific worldview practices in terms of gender. Based on the findings, there was no significant difference between practices on Biblical creation and scientific worldview in terms of gender ($p = 0.599 > 0.05$ $p = 0.341 > 0.05$).

Table 14

Kruskal-Wallis Test Result Between Beliefs on Biblical Creation and Scientific Worldview in terms of Gender

	χ^2	df	p	ϵ^2
Biblical Creation Practices	8.19	1	0.004	0.0515
Scientific Worldview Practices	10.12	1	0.001	0.0637

Note: $p < 0.05 = \text{significant}$

Nistor (2013, as cited in Yu, 2021) revealed that there was no significant difference across genders in learning outcomes. Furthermore, the study sample's gender imbalance may limit a conclusion's validity, particularly in terms of gender effects. The result may be due to the small sample size of the study, which may influence the statistical power and the ability to detect significant differences. A small sample size may not provide sufficient statistical power to detect a true effect, even if the effect size is large (Lininger & Riemann, 2018; Maher et al., 2013).

Religious Affiliation

Table 15 shows that the Kruskal-Wallis one-way ANOVA result indicates a significant difference between Biblical creation and scientific worldview practices in terms of religious affiliation with p-values of < 0.001 and 0.005.

Table 15

Kruskal-Wallis Test Result Between Beliefs on Biblical Creation and Scientific Worldview in terms of Religious Affiliation

	χ^2	df	p	ε^2
Biblical Creation Practices	17.58	1	<.001	0.1106
Scientific Worldview Practices	7.95	1	0.005	0.0500

Note: $p < 0.05$ = significant

Table 16 shows the pairwise comparisons between Biblical creation and scientific worldview practices in terms of religious affiliation. The results yield significant results.

Table 16

Comparisons on Scientific Worldview and Biblical Creation Practices Between Adventist and Non-Adventist

Pairwise Comparisons		W	p
Biblical Creation Practices			
Seventh-day Adventist (SDA)	Non-Adventist	-5.93	<.001
Scientific Worldview Practices			
Seventh-day Adventist (SDA)	Non-Adventist	3.99	0.005

Note: $p < 0.05$ is significant

Biblical Creation Practices. The p-value of <.001 indicated that the observed difference in Biblical creation practices in terms of religious affiliation was statistically significant (< 0.05) in favor of Seventh-day Adventists. This means that there was strong evidence to suggest that Biblical creation practices differed significantly between Seventh-day Adventists and non-Adventists.

Scientific Worldview Practices. The p-value of 0.005 indicated that the observed difference in scientific worldview practices in terms of religious affiliation was statistically significant (< 0.05), this time in favor of non-adventists. There was also strong evidence to suggest that scientific worldview beliefs differed significantly between Seventh-day Adventists and non-Adventists.

The stronger practice of Adventist respondents relating to Biblical creation compared to non-Adventist respondents ($W = 5.93$) may be due to the fact that Adventist respondents have stronger beliefs on Biblical creation compared to non-Adventists. According to Table 9.1, there is a significant moderate correlation between Biblical creation beliefs and practices.

In contrast, the stronger practice of non-Adventist respondents relating to Biblical creation compared to Adventist respondents ($W = 3.99$) may be due to the fact that non-Adventist respondents have stronger beliefs on scientific worldview compared to Adventists. According to Table 9.2, there is a significant, moderate correlation between scientific worldview beliefs and practices.

Relationship Between Knowledge and Practices on Biblical Creation and Scientific Worldview

In this section, the researchers determined if there was a significant relationship between knowledge and practices on Biblical creation and the scientific worldview using Pearson's r and Spearman's rho coefficients.

Biblical Creation Knowledge and Practices

Table 17

Correlation of Knowledge and Practices on Biblical Creation

Components	Biblical Creation	Verbal Interpretation
Pearson's r	0.184*	Negligible Correlation
p-value	0.020	
Spearman's rho	0.219**	Weak Correlation
p-value	0.005	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; * significant

Table 17 shows that Pearson's r and Spearman's ρ were determined and used as methods for evaluating the relationship between respondents' knowledge and practices of Biblical creation. Findings indicate that there was a significant relationship (p -value = 0.020; 0.005) between knowledge and practices in Biblical creation. In terms of Pearson's r , there was a negligible positive correlation ($r = 0.184$) between knowledge and practices; however, in terms of Spearman's ρ , there was a weak positive correlation ($\rho = 0.219$) between knowledge and practices on Biblical creation.

Scientific Worldview Knowledge and Practices

Table 18

Correlation of Knowledge and Practices on Scientific Worldview

Components	Scientific Worldview	Verbal Interpretation
Pearson's r	0.389***	Moderate Correlation
p -value	< .001	
Spearman's ρ	0.374***	Weak Correlation
p -value	< .001	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; *significant

Table 18 also shows that Pearson's r and Spearman's ρ were determined and used as methods for evaluating the relationship between respondents' knowledge and practices in the scientific worldview. Findings indicate that there was a significant relationship (p -value = 0.001, <0.001) between knowledge and practices in the scientific worldview. In terms of Pearson's r , there was a *moderate positive correlation* ($r = 0.389$) between knowledge and practices; however, in terms of Spearman's ρ , there was a *weak positive correlation* ($\rho = 0.374$) between knowledge and practices on Biblical creation.

Relationship Between the Respondents' Beliefs and Practices on Biblical Creation and Scientific Worldview

In this section, the researchers determined if there was a significant relationship between beliefs and practices on Biblical creation and the scientific

worldview using Pearson's r and Spearman's ρ coefficients. Table 19 shows the relationship between respondents' beliefs and practices about Biblical creation.

Biblical Creation Beliefs and Practices

Table 19

Correlation of Beliefs and Practices on Biblical Creation

Components	Biblical Creation	Verbal Interpretation
Pearson's r	0.628***	Moderate Correlation
p -value	< .001	
Spearman's ρ	0.554***	Moderate Correlation
p -value	< .001	

Findings indicate that there was a significant relationship (p -value = <0.001) between beliefs and practices in Biblical creation. In terms of Pearson's r , there was a moderate positive correlation ($r = 0.389$) between beliefs and practices; however, in terms of Spearman's ρ , there was a moderate positive correlation ($\rho = 0.374$) between beliefs and practices on Biblical creation.

Scientific Worldview Beliefs and Practices

Table 20 also shows the relationship between respondents' beliefs and practices and their scientific worldview. Findings indicate that there was a significant relationship (p -value = <0.001, <0.001) between beliefs and practices in the scientific worldview.

Table 20

Correlation of Beliefs and Practices on Scientific Worldview

Components	Biblical Creation	Verbal Interpretation
Pearson's r	0.441***	Moderate Correlation
p -value	< .001	
Spearman's ρ	0.427***	Moderate Correlation
p -value	< .001	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; *significant

In terms of Pearson's r , there was a moderate positive correlation ($r = 0.389$) between beliefs and practices; however, in terms of Spearman's rho, there was a moderate positive correlation ($\rho = 0.374$) between beliefs and practices on Biblical creation. Various studies reflect this significant correlation between beliefs and practices. Mansour (2009) shared that much research has shown that teachers' beliefs influence their classroom practice. For example, a study in China explored the relationship between pre-service mathematics teachers' knowledge, beliefs, and instructional practices and found that teachers' beliefs were significantly related to their instructional practices.

Conclusion and Recommendations

The study was conducted among 160 undergraduate respondents in Adventist University of the Philippines. The knowledge, beliefs, and practices of the respondents on Biblical creation was very good, very strong, and strong, respectively. On scientific worldview, the respondents' knowledge, beliefs, and practices was fair, average, and average, respectively.

There were no significant differences between knowledge and practices on Biblical creation and scientific worldview in terms of gender. However, there were significant differences found between beliefs and practices on Biblical creation and scientific worldview, and knowledge on scientific worldview in terms of religious affiliation. Finally, there was a significant relationship between knowledge and practices, and beliefs and practices on Biblical creation and scientific worldview.

The study suggests fostering an environment of open and polite discussion where Biblical and scientific perspectives can be examined to achieve a balanced and well-informed understanding. Create a forum where queries may be raised, and various perspectives can be discussed without any bias.

Look for information from reputable sources when examining biblical and scientific viewpoints.

Encourage one another to read the Bible thoroughly, taking into account its historical context and using reliable methods of interpretation. Promote scientific literacy in a similar manner by making use of reliable scientific literature, peer-reviewed research, and expert advice.

Instead of seeing Biblical and scientific ideas as being in opposition to one another, emphasize their potential for complementarity. Encourage one another to make links between Biblical teachings and scientific discoveries and to look for areas of agreement.

Encourage critical thinking and discernment by facilitating one another to know how to evaluate information critically from both a biblical and scientific standpoint. Teach others to assess claims, scrutinize the supporting evidence, and distinguish between legitimate points of view and subjective interpretations.

Consult knowledgeable mentors. Ask for advice from someone who are knowledgeable in both theological and scientific disciplines. Comprehensively knowledgeable pastors, theologians, and scientists may offer insightful guidance and assist in navigating any potential complications that may occur when reconciling the biblical and scientific views.

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The Efficacy of *Origanum Vulgare* Oil as a Fruit Fly Repellent Candle

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The presence of fruit flies is not simply an issue in the Philippines; it is a serious crisis. The little critters have contaminated over 60% of the country. It may appear that this is a one-country problem; however, the consequences of having fruit flies in agriculture are widespread. The purpose of this study was to assess the efficacy of *Origanum vulgare* oil as a safe plant-based fruit fly repellent. This study utilized an experimental research design. The species of fruit fly used for the study was *Drosophila melanogaster*. A commercial candle was lit in 60 minutes, and most of the fruit flies were going back and forth with no limitations. In the three tests of candles containing 5 mL, 15 mL, and 30 mL of *Origanum vulgare*, it was observed that the fruit flies stayed farther from the candle, and a few would be able to go back and forth and reach the screen for a few milliseconds, especially with the 30 mL. The results showed that the three candles incorporated with *Origanum vulgare* oil had a higher repellency rate than a commercial candle. This concludes that *Origanum vulgare* oil is an effective fruit fly repellent. Future researchers may conduct the experiment in a public place to test how effective the candle is since this study was done at home or in a closed space due to strict COVID-19 protocols. This could provide insights into whether *Origanum vulgare* oil has a considerably stronger effect in an open space.

Keywords: fruit fly, oil, repellent, candle, efficiency

Plant-based repellents have been utilized as a personal protection measure against host-seeking mosquitoes for generations in traditional practice. Ethnobotanical studies provide useful information about traditional repellent plants, which can be used to generate new natural products. Consumers have recently become more interested in commercial repellents containing plant-based components, which are often seen as “safe” in comparison to long-established synthetic repellents; however, this is not always the case. Insufficient investigations have followed the standard WHO Pesticide Evaluation Scheme guidelines for repellent testing up to this point (Maia & Moore, 2011).

It's not simply an issue with fruit flies in the Philippines; it's a serious crisis. The little critters have contaminated over 60% of the country, costing the economy up to \$200 million every year. This may be a one-country problem; however, the consequences of fruit flies on agriculture are widespread. In addition, Robert et al. (2019) stated that invasive fruit flies are a global hazard to food security and the economy, destroying crops and causing billions of dollars in losses each year.

One of the limitations in Maia and Moore's (2011) research, which is relevant to the chosen topic, was the safety of plant-based pesticides. The user's safety must be taken into account. More systematic research is required to better examine repellent compounds and produce new solutions that are both repellent and safe for users. To overcome the constraint of consumer safety, the researchers will conduct an experiment involving the use of *Origanum vulgare* oil in the production of a safe plant-based insecticide. Using several variables may aid researchers in discovering the best solution to a plant-based pesticide.

Methodology

Research Design

This study applied the experimental research design. The experimental research design is a

The Efficacy of *Origanum Vulgare* Oil as a Fruit Fly Repellent Candle research method used to investigate the interaction between independent and dependent variables, which can be used to determine a cause-and-effect relationship. (Study.com, 2022)

Instrumentation

A commercial candle was lit within 60 minutes, and most fruit flies went back and forth without limitations. In the three tests of candles containing 5 mL, 15 mL, and 30 mL of *Origanum vulgare*, it was observed that the fruit flies stayed farther from the candle, and a few would be able to go back and forth and reach the screen for a few milliseconds, especially with the 30 mL.

Data Gathering and Procedures

The first was the preparation of the fruit fly repellent candle and the experimental area. For the fruit fly repellent candle, the researchers gathered the materials needed, which were 200g of soy wax, 4 candle tins, a double boiler, a mixing spoon, 4 wicks, a sticker sheet, a wick clamp, and 50 mL of *Origanum vulgare* oil.

With the materials, the researchers were able to melt the wax, mix in the *Origanum vulgare* oil, and pour the mixture into the candle tins. The waiting time for the candles to completely solidify was 24 hours. For the experimental area, the researchers gathered the materials needed, which were a mosquito net, cardstock thick paper, tape, scissors, a pentel pen, a ruler, and a 10cm x 25 cm square jar. The researchers covered the opening of the jar with a mosquito net and used a ruler to mark the distances from the opening of the jar.

The second was the collection of fruit flies. For this part, the researchers used some mangoes to lure the fruit flies into the jar. The last procedure was the testing of the candles on the fruit flies. The candles were placed in front of the opening of the jar with a cardstock thick paper around it to let the odor go directly into the jar and also to prevent the wind from blowing out the candle. The researchers

then recorded how far each fruit fly was every ten minutes and made other observations. These records are to help determine the efficiency of each candle as a fruit fly repellent.

Data Analysis

The data collected from the experiments were tabulated in Microsoft Word and analyzed and interpreted using Microsoft Excel. The researchers used descriptive statistics to evaluate the efficiency of *Origanum vulgare* oil as a fruit fly-repellent candle. A 2-D column graph was used to show the comparison among the repellency rate differences between the normal candle, 5 mL, 10 mL, and 30 mL of *Origanum vulgare* oil candles.

Results and Discussion

The graph below shows that the normal candle was lit for 60 minutes with five fruit flies in the experimental area. Within 20 minutes, there would be 4 fruit flies going back and forth from the end of the experimental area up to the opening where the candle was placed and 1 fruit fly that would stay from 1.5 to 2.5 inches. After 30 minutes of the candle being lit, the 3 fruit flies stayed 4 to 5 inches away from the candle, with 2 fruit flies going back and forth. After 40 to 60 minutes of the candle being lit, 1 fruit fly would stay within a 5 to 7-inch distance from the candle while the other 4 fruit flies went back and forth.

Figure 1

Candle Test 1: Normal Candle Results

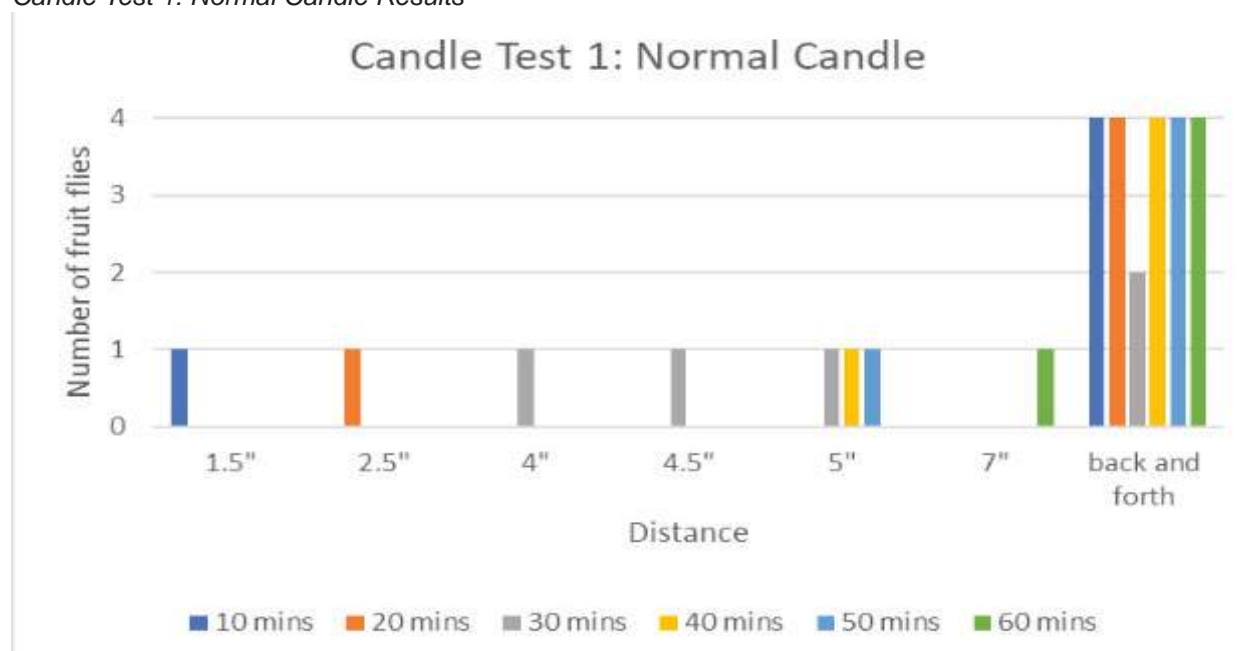


Figure 2 shows the results of the candle with 5 mL of *Origanum vulgare* oil. The candle was placed by the opening of the experimental area. In 10 minutes, the fruit flies would go back and forth but not further than 1.5 inches near the candle, while in 20 minutes, the fruit flies would also go back and forth but not further than 2 inches near the candle. After 30 minutes of the candle being lit, 2 fruit flies stayed within the range of 3 to 4 inches away from the candle, while the 3 other fruit flies went back and forth but not further than 1.5 inches near the candle. After 40 to 60 minutes, 2 to 3 fruit flies would stay within a distance of 6.5 to 9 inches from the candle, and 2 fruit flies would go back and forth but not further than 2 inches.

Figure 2

Candle Test 2: 5mL of Origanum Vulgare Oil Candle Results

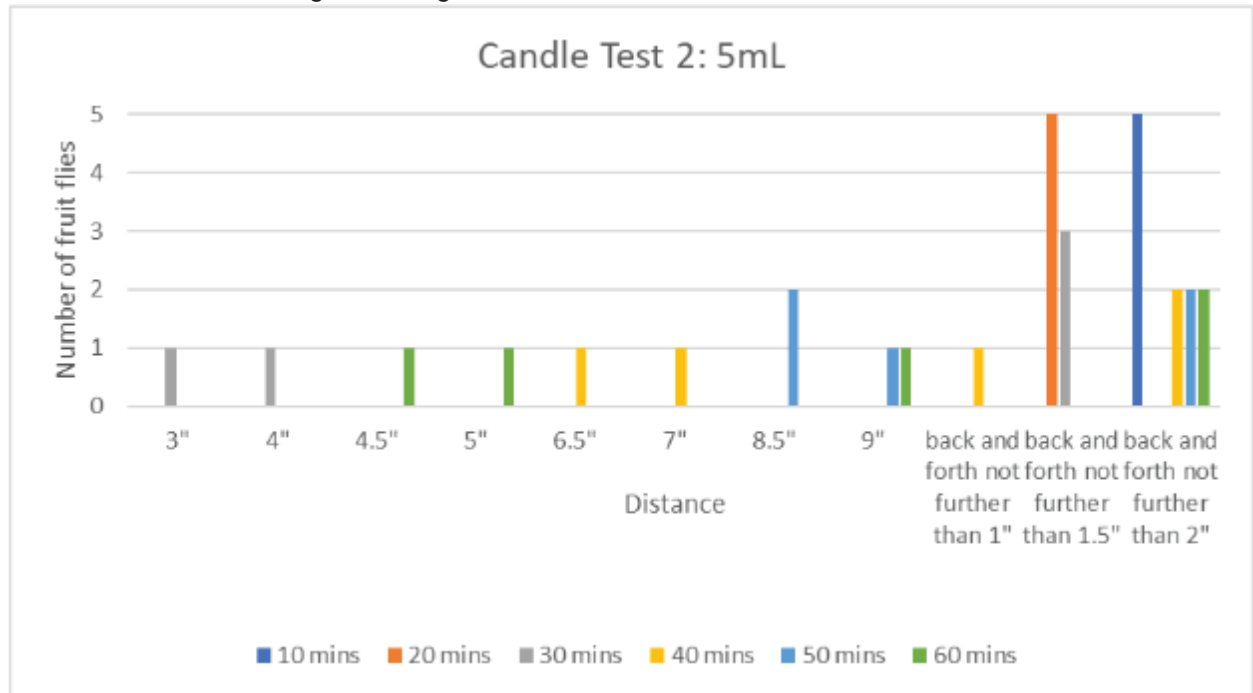


Figure 3

Candle Test 3: 15 mL of Origanum Vulgare Oil Candle Results

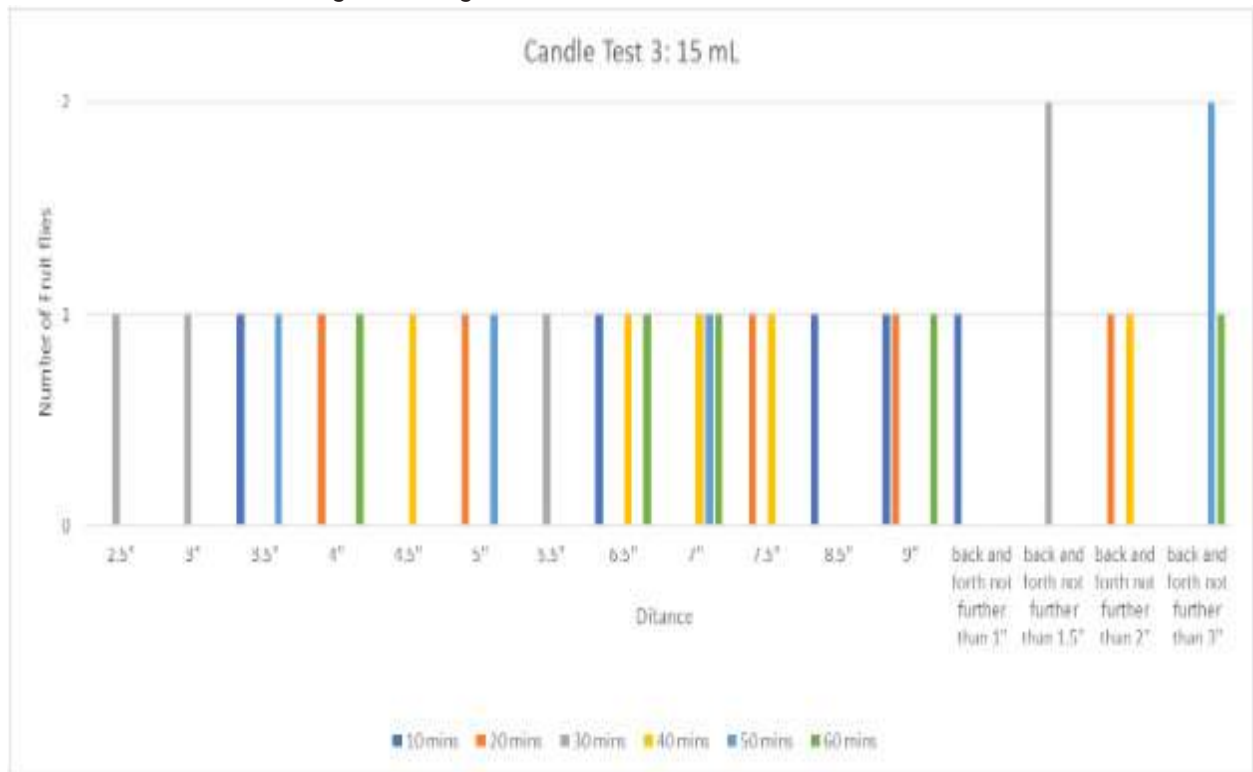


Figure 3 shows the results of the candle with 15 mL of *Origanum vulgare* oil. In 10 minutes, 4 fruit flies stayed at a distance of 3.5", 6.5", 8.5, and 9 inches, respectively, with 1 fruit fly going back and forth not further than 1 inch near the candle. In 20 minutes, fruit flies stayed at a distance of 4", 5", 7.5, and 9 inches, respectively, with 1 fruit fly going back and forth not further than 2 inches near the candle. After 30 minutes of the candle being lit, 2 fruit flies were able to be 2.5, 35, and 3 inches away from the candle, with 1 at 5.5 inches and 2 going back and forth not further than 1.5 inches. After 40 minutes, 4 fruit flies stayed at a distance of 4.5", 6.5", 7", and 7 inches, respectively, with 1 fruit fly going back and forth not further than 2 inches near the candle. Lastly, after 50 to 60 minutes, fruit flies were able to stay within a range of 3.5 inches to 9 inches, with 1 or 2 fruit flies going back and forth not further than 3 inches near the candle.

Figure 4

Candle Test 4: 30 mL of Origanum Vulgare Oil Candle Results

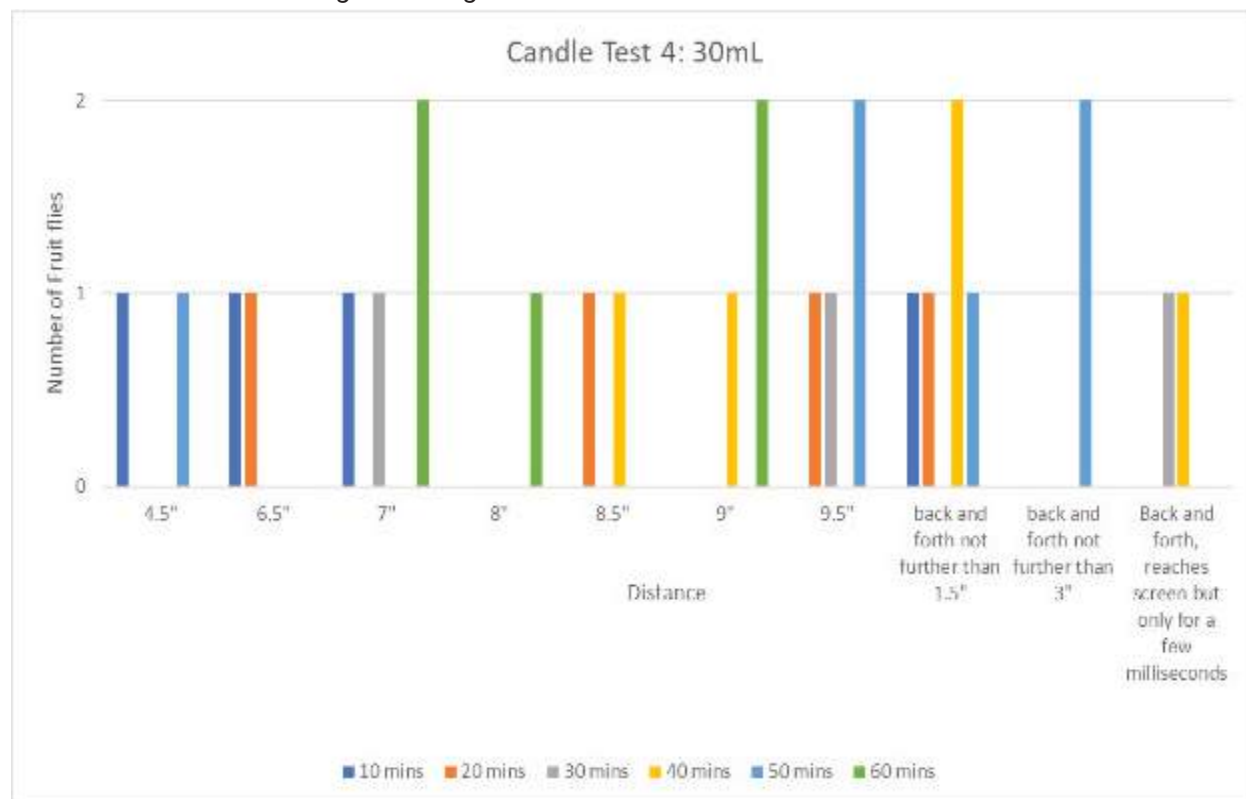


Figure 4 shows the results of the candle with 30 mL of *Origanum vulgare* oil. After 10 minutes of the candle being lit, fruit flies stayed at a distance of 4.5", 6.5", and 7 inches, respectively, with 2 fruit flies going back and forth not further than 1.5 inches near the candle. After 20 minutes, fruit flies stayed at a distance of 6.5", 8.5", and 9.5 inches, respectively, with 2 fruit flies going back and forth not further than 1.5 inches near the candle. After 30 to 40 minutes, fruit flies stayed in a range of 7 inches to 9 inches, with 1 to 2 fruit flies going back and forth and being able to reach the screen for a few milliseconds where the candle was placed in front. In 50 minutes, 1 fruit fly was able to stay 4.5 inches away from the candle, 1 at 9.5 inches, and 3 going back and forth, with 1 not going further than 1.5 inches near and 2 not further past 3 inches near the candle. Lastly, after 60 minutes, 2 fruit flies stayed at 7 inches, 1 at 8 inches, and 2 at 9 inches away from the candle.

Another observation from the experiment was that fruit flies during the testing of the candles with *Origanum vulgare* oil were able to go further than 1 inch near the candle, or sometimes they were able to stay by the screen whenever they stayed far from the candle for a few minutes. During candle test 4, the fruit flies started to weaken, and some stayed still at the end of the experiment.

After experimenting, the researchers noted some of the advantages and disadvantages that were observed. The benefits of utilizing *Origanum vulgare* oil as a fruit fly repellent include effectiveness and safety. *Origanum vulgare* oil was able to take effect and repel the fruit flies based on the collected data and observations. Because it does not contain any toxic chemicals, it is also an excellent fruit fly repellent. However, the disadvantage of using *Origanum vulgare* oil as a fruit fly repellent is that the candle may take around 5 minutes or more to take effect, and due to the *Origanum vulgare* Oil candle's use of fire, the researchers cannot guarantee absolute safety.

Conclusion and Recommendation

The results showed that the three candles incorporated with *Origanum vulgare* oil had a higher repellency rate than a commercial candle. This concludes that *Origanum vulgare* oil is an effective fruit fly repellent.

Future researchers may experiment in a public place to test how effective the candle is since this study was done at home or in a closed space due to strict COVID-19 protocols. This could provide insights into whether *Origanum vulgare* oil has a considerably stronger effect in an open space.

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Evaluation of Non-Type Specific *Escherichia Coli* as Contaminant to Adventist University of the Philippines Hydroponics Nutrient Solution and Its Response to Common Antibiotics

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A study was conducted at the Adventist University of the Philippines' hydroponics nutrient reservoir to evaluate *Escherichia coli*'s presence. A 150-ml water sample was taken from the hydroponics nutrient solution reservoir at 5:30 p.m. on March 6, which was surveyed prior to collection. The methods used for culturing and isolation were the spread plate and streak plate methods. An enriched sample was spread across McConkey, and the growth was subcultured and isolated to EMB. Growth on solid medium was confirmed for *Escherichia coli* using biochemical tube testing, specifically Sulfide-Indole-Motility (SIM), Methyl Red (MR), Voges Proskauer (VP), Citrate, Kligler Iron Agar (KIA), Lysine Iron Agar (LIA), and Catalase testing for confirmation. Results on confirmatory testing showed plates two to four were positive on SIM, MR, KIA, LIA, and catalase and negative on VP and citrate testing, which confirmed *E. coli* presence. Only plate 1 showed variable motility and was negative on McConkey culture and methyl red. Of the 50 isolates that were tested for susceptibility, 100% showed high resistance to ampicillin and 80% to amoxicillin. 100% susceptibility was seen in isolates tested with chloramphenicol, 88% with streptomycin, and 53% with kanamycin. 45% showed intermediate action on kanamycin and 8% on both amoxicillin and streptomycin. Minimal resistance was recorded for both kanamycin (1%) and streptomycin (4%). Similar studies must be done not only on *Escherichia coli* but also on significant food-borne pathogens. This would be the basis for a continued study regarding contamination and antimicrobial resistance in AUP.

Keywords: *evaluate, isolation, confirmation, susceptibility, resistance, contamination*

The hydroponics system is a method of growing plants in a nutrient solution in the absence of soil. This system may also be considered urban gardening. The plant roots are submerged directly into the nutrient solution, and the uptake of the nutrients needed by the plants for growth and development takes place. The nutrient solution being used in the system comes in many forms, and manufacturers include instructions on how to prepare them. One of the basic ingredients of the solution is raw water. Raw water has its own natural nutrients; however, there is a tendency for it to be contaminated through human induced activities. Thus, when contaminated raw water is used, apparent contamination both in the chemical and microbiological conditions is expected.

Ready-to-eat produce usually harvested from greenhouses such as the hydroponics system is rapidly gaining popularity and is meeting the needs of time-strapped, health-conscious customers (Clemens 2004; Lin 2004). Tremendous growth in the ready-to-use (RTU) vegetable industry is large due to increasing demand for fresh, healthy, and convenient foods. A substantial portion of vitamins and minerals in the diet comes from fruit and vegetable consumption (Klein, 1987).

While advances in agronomic practices, processing, preservation, distribution, and marketing have enabled the raw fruit and vegetable industry to supply high-quality produce to many consumers all year around, some of these same practices have also expanded the geographical distribution and incidence of human illness associated with increasing number of pathogenic bacterial, viral, and parasitic microorganisms (Beuchat, 1998).

Changes in the produce industry, social demographics, food consumption patterns, and awareness of fresh fruits and vegetables as potential vehicles of infection may also be contributing to an increase in documented produce-associated outbreaks of human illness (Beuchat, 1996). The end result of these changes is an increased exposure of the general public to fruits and vegetables, which has

exacerbated potential problems with contamination (Buck et al., 2003). Fresh fruits and vegetables are increasingly recognized as a source of foodborne outbreaks in many parts of the world (Lynch et al., 2009). For example, raw salad vegetables are normally consumed without heating, and therefore the possibility of food poisoning occurs (Aycicek et al., 2006)

Through the past years, reports have been absolute about the consumption of salad vegetables and fruits and its association with foodborne illness incidences (Beuchat, 1998). The rise in foodborne illness associated with salad vegetables can be attributed partly to higher consumption rates but also to the increase in ready-to-eat vegetable types (Warriner et al., 2003).

These microorganisms are natural contaminants of fresh produce and minimally processed fresh-cut products, and contamination arises from a number of sources, including postharvest handling and processing. Potential pre-harvest sources of contamination include soil, feces, irrigation water, water used to apply fungicides and insecticides, dust, insects, inadequately composted manure, wild and domestic animals, and human handling (Beuchat, 1996).

A related view of Johnston and Company (2005) included contamination through the use of biosolids or manure for fertilization, poor worker hygiene, and poor equipment sanitation. Feces have been suspected as sources of pathogens on contaminated fruits, vegetables, or minimally processed produce that have subsequently been associated with or confirmed as causes of human disease outbreaks (Beuchat, 1996).

Almost any ready-to-eat fruit or vegetable that has been contaminated with pathogens, either from the environment, from human or animal feces, or through storage, processing, and handling, could potentially cause diseases. (Aycicek, 2006). Despite knowledge to these details, epidemiological traceability is difficult for fruits and vegetables as carriers of foodborne pathogens (Beuchat, 2002)

Salmonella, *Escherichia coli* O157:H7, *Shigella* and *Listeria monocytogenes*, namely, were considered to be the most well-characterized outbreak related bacteria's, though certain outbreaks has been connected to other biological factors such as viruses, noroviruses and parasites (Beuchat, 1996; Ponka et al., 1999)

The Food and Drug Administration (2001) has linked past findings regarding the human pathogens implicated in foodborne illness associated with salad vegetables, *Salmonella*, *Escherichia coli* O157:H7, *Listeria monocytogenes*, *Yersinia enterocolitica*, and *Aeromonas Hydrophila*.

While every effort should be made to prevent contamination of fruits and vegetables during production, transport, and processing, much improvement is still needed in some parts of the world if hygiene production of fruits and vegetables is to be ensured. Furthermore, many microbial contaminants are part of the environment, and vegetables may be inadvertently contaminated (Beuchat, 1998).

The microorganisms normally present on the surface of raw fruits and vegetables may consist of chance contaminants from the soil or dust or bacteria or fungi that have grown and colonized by utilizing nutrients exuded from plant tissue (Beuchat, 1998).

Damage caused by spoilage bacteria/fungi can also enable human pathogens to enter the inner plant tissue and thereby become protected (Wells and Butterfield, 1997).

Bacteria can reside within the inner leaf through the leaf's stomata; they can provide entry into the substomatal cavity (Slonczewski and Foster, 1995; Warriner et al., 2003). This entry to the sub-surface provides protection from biocidal wash treatment (Han et al., 2000; Takeuchi and Frank, 2000; Burnett and Beuchat, 2001; Warriner et al., 2003). The bacterial pathogens can also reach the interior of the plants by a variety of routes. Once the pathogen is inside, surface washing or disinfection does not affect it. They can enter through wounds or bruises on the surface of a fruit or leaf (Janisiewicz et al., 1999).

Survival to biocidal washing has been demonstrated on lettuce leaves inoculated with *E. coli* O157:H7 which were shown to dwell within the leaf cut edges (Beuchat, 1999; Seo and Frank, 1999).

The association of environmental factors with antibiotic resistance is an emerging issue too (McMahon et al., 2007; Bush et al., 2011). The use of antibiotics is one of the factors contributing to resistance (Yagupsky, 2006; WHO, 2011).

Antimicrobial drugs have played an indispensable role in decreasing illness and death associated with infectious diseases in animals and humans. However, selective pressure exerted by antimicrobial drug use has also been the major driving force behind the emergence and spread of drug-resistance traits among pathogenic and commensal bacteria (Aarestrup et al., 2008).

In addition, resistance has developed after the advent of every major class of antimicrobial drugs, varying in time from as short as 1 year (penicillin) to >10 years (vancomycin) (Walsh, 2003; Levy and Marshall, 2004).

Studies have shown that resistance to certain antimicrobial agents is distinct when it have been in use for the longest time in human and veterinary medicine (FDA, 2008). The past two decades have witnessed major increases in emergence and spread of multidrug-resistant bacteria and increased resistance to newer compounds, such as fluoroquinolones and certain cephalosporins (Levy and Marshall, 2004).

In the natural environment, resistant bacteria and resistance genes of animal or environmental origin might transfer to humans (van den Bogaard and Stobberingh, 2000; Martinez, 2009). The impact of antibiotics or resistant bacteria on humans might happen in several ways. When contaminated food is ingested, the bacteria might transfer resistance determinants to other bacteria in the human gut, so called horizontal gene transfer (van den Bogaard and Stobberingh, 2000; Summers, 2006; Martinez, 2009).

Additionally, antibiotic residues in food products or water may allow the selection of antibiotic-resistant bacteria after the food or water is consumed (CLSI, 2010). Antibiotic resistant bacteria have the higher chance of survival and therefore can be located freely, especially among different hosts.

Translocation and movement of *E. coli* on lettuce plants has already been reported. From an inoculation site on the roots, *E. coli* moved to the shoots and to the edible portions of the lettuce (Solomon et al., 2002; Cooley et al., 2003). They can enter plants through the roots following experimental flooding with contaminated water. For example, in experimental greenhouse settings, *E. coli* O157 present at high levels in irrigation water is taken up by mature lettuce, and young tomato plants take up *Salmonella* of certain serotypes (Lynch et al., 2009)

Such a setting regarding greenhouse flooding and contamination is similar in general within the hydroponics facility of the Adventist University of the Philippines (AUP) campus. It is a facility built solely for the production of lettuce and has been a commodity for residents of the campus. The facility is a screened structure, therefore it is a closed chamber system and uses the Nutrient Film Technique (NFT). The hydroponics facility is located meters away from the agriculture building, where agricultural fields and garden plots surround it. Regardless of its close chamber system, farm animals graze within these fields, and its water system and nutrient reservoir start from the outside and are followed by pipes inside the greenhouse, where they can be repeatedly exposed to rainwater and ground flooding.

Although the precise mechanism of contamination in most produce-related outbreaks remains unexplained, field research following outbreaks is starting to shed light on the complicated ecology of the growing environment.

Research concerning contamination of fresh produce, specifically lettuce, from its exposed nutrient system has never been done under the

study. Knowledge of these details regarding exposure and contamination of reservoirs, the bacterial strain present, bacterial sensitivity to common antibiotics, and bacterial related disease outbreaks is essential for food safety and prevention of unwanted epidemics, hence this study.

Methodology

This section shows processes done to prepare instruments and media and the actual standard techniques needed for culturing, isolation, and confirmation of the bacteria of interest, *Escherichia coli*. The processes were followed according to Balows et al. Manual of Clinical Microbiology, 5th Edition (1991).

Study Site

The study was conducted at the Food Production Hydroponics Project nutrient-solution reservoir for water sample collection. The analyses of samples were made at the Microbiology Laboratory, College of Science and Technology, Adventist University of the Philippines.

Instrument Preparation and Sterilization

All instruments, materials, and laboratory wares used have undergone sterilization for 15 minutes using the pressure cooker set at 121°C and 15 psi.

Primary Media and Enrichment Preparation, Mac Conkey

14 g of Mac Conkey medium was suspended in 350 ml of purified water in a 500 ml Erlenmeyer flask and heated with frequent agitation for one minute, completely dissolving the medium. The flask was covered with foil, sterilized through a moist heat process at 121°C, 15 psi for 15 minutes, cooled down to 48°C, and dispensed into five sterile petri dishes. When the media was solid, the petri dishes were stored in the refrigerator in an inverted position.

Eosin Methylene Blue (EMB)

A 12 g of EMB medium was mixed with 350 ml of purified water in a 500 ml Erlenmeyer flask and heated until it became homogeneous. The flask was covered with foil and sterilized through a moist heat process at 121°C for 15 minutes, then cooled down to about 48°C before dispensing it into five sterile petri dishes. When the media was solid, the petri dishes were stored in the refrigerator in an inverted position. Mueller Hinton Agar (MH)

A 36 g of MH medium was dissolved in 1.5 liters of purified water and mixed through heating and agitation. The mixture was sterilized through a moist heat process at 121°C and 15 psi for 15 minutes, then cooled down to about 48°C before being dispensed to 50 sterile petri dishes with a depth of 4 mm, which is specified for sensitivity testing. Petri dishes were stored in the refrigerator in an inverted position.

Buffered Peptone Water

10 g of the medium was dissolved in 500 ml of purified water in an Erlenmeyer flask and was thoroughly mixed through shaking. The mixture was sterilized through a moist heat process at 121°C and 15 psi for 15 minutes, then let cool down before use.

Confirmatory Media Preparation

Krigler Iron Agar (KIA)

A 5.5 g of the KIA was dissolved in 100 ml of purified water in a 250 ml Erlenmeyer flask through heating until it became homogeneous. The mixture was dispensed into five tubes, five ml per tube; foil was used to cover tube mouth before sterilization through moist heat at 121°C and 15 psi for 15 minutes. Test tubes were cooled while in a slanted position, making a butt and a slant as they hardened and were stored in the refrigerator.

Citrate Agar

A 2.4 g of the citrate agar was dissolved in 100 ml of purified water in a 250 ml Erlenmeyer flask through heating until it became homogeneous.

Dispensing into five tubes, five ml per tube, foil was used to cover tube mouth before sterilization through moist heat at 121°C, 1 and 15 psi for 15 minutes. Test tubes were cooled while in a slanted position, making a slant as they hardened, and stored in the refrigerator.

Sulfide Indole Motility (SIM)

1.5 g of the medium was dissolved in 100 ml of purified water in a 250 ml Erlenmeyer flask through heating until it became homogeneous. Dispensing into five tubes, five ml per tube, foils were used to cover tube mouth before sterilization through moist heat at 121°C and 15 psi for 15 minutes. The cooling and storage of the tubes were done with refrigeration.

Figure 1

Biochemical Confirmatory preparation



Lysine Iron Agar

3.3 g of the LIA was dissolved in 100 ml of purified water in a 250 ml Erlenmeyer flask through boiling and constant agitation until it became homogeneous. Dispensing into five tubes, five ml per tube, foils were used to cover tube mouth before sterilization through moist heat at 121°C and 15 psi for 15 minutes. Tubes were cooled while in a slanted position, making a slant as they hardened and were stored in the refrigerator.

Methyl Red/Voges-Proskauer (MR-VP) Broth

1.7 g of the MR-VP medium was dissolved in 100 ml of purified water in a 250 ml Erlenmeyer flask. It was mixed thoroughly through moderation but continued agitation. The mixture was dispensed

into 10 tubes, three ml per tube, and was covered with foil prior to sterilization through moist heat at 121°C and 15 psi for 15 minutes. Tubes were cooled before being used for inoculation.

Catalase Test preparation

Five glass slides, 3% hydrogen peroxide, and inoculating loops/ needles were prepared for this test.

Sample Collection and Enrichment

A 250 ml water sample was taken from the hydroponics nutrient solution reservoir at 5:30 p.m. on March 6 and placed inside a sterile glass bottle. Within the time frame of two hours, it was transported to the laboratory. Upon arrival, the sample entered an enrichment process using buffered peptone water. 150 ml of BPW was mixed with the 150 ml of sample in a 500 ml Erlenmeyer flask and agitated continuously to determine a balanced mixture. The mixture was then incubated at 35°-37°C for 18-24 hours. The remaining 100 ml of sample was labeled as control.

Bacterial Culturing and Isolation

The enriched sample was cultured for non-type specific *E. coli* in MacConkey agar medium using spread plate method. Using a sterile glass dropper, a small amount of the enriched sample was transferred to five MacConkey agar plates. The enriched samples were spread across the plates using sterile L-rods and swabs. The plates were incubated in an inverted position, and after overnight incubation at 37 °C, cultures were checked for *E. coli*. *coli* growth and characteristic morphology. After being evaluated, plates underwent further sub-culturing and isolation using streak plate method in EMB medium. A small amount of specimen was transferred using a sterile swab. An inoculating loop was used to pass the initial inoculum by streaking it several times, making it the first quadrant. The plate was rotated 90 degrees and repeated the streaking by passing through the first set of streaks a few

times, making the second quadrant. Rotation and streaking of the plate were done twice for the third and fourth quadrants, and then the plates were incubated at 37°C for 24 hours.

Biochemical Testing and Confirmatory

Four to five suspected colonies from each bacterial plate were picked, cultured, and then identified by the various biochemical tests. Biochemical tests were performed to confirm *E. coli* using Indole production, Motility, Methyl Red, Voges-Proskauer, Citrate, Triple Sugar Iron, Lysine Decarboxylation and Catalase test (Singh et al., 2002).

Figure 2

Biochemical confirmatory slants preparation



Sulfide Indole Motility broth

From five different EMB plates, a “loopful” of isolate was inoculated into five SIM/tryptone broth tubes, each using sterile loops, and incubated for 24-48 hours at 35 ± 2°C in an aerobic atmosphere. After overnight incubation, indole production was tested. Five SIM tubes were added with 3-5 drops of Kovacs reagent.

MR-VP

Using an inoculating needle, the specimen was inoculated from five EMB plates into MR-VP tubes, one MR-VP tube per plate, using sterile needles. The tubes were incubated for 48 hours at 35 ± 2°C in an aerobic atmosphere. After incubation, MR tubes were filled with methyl red, and VP tubes were filled

with two drops of alpha-naphthol and one drop of KOH. MR tubes were observed for color change; VP tubes were gently agitated and let stand for 10-15 minutes before being observed for color change.

Citrate

Using an inoculating loop, an inoculum was streaked into the five-citrate agar slant from five EMB plates each using sterile loops, then incubated for 24 to 48 hours at $35 \pm 2^\circ\text{C}$ with a loose cap.

Lysine-iron Iron Agar Slant and butt

Using an inoculating needle, five LIA butts were stabbed twice, and slants were streaked with growth from a pure culture from five EMB plates each using sterile needles. Tubes were incubated with loosened caps for 18–48 h at $35 \pm 2^\circ\text{C}$ in an aerobic atmosphere.

Krigler Iron Agar

A pure culture from an isolated colony on five EMB plates was carefully touched with a cool, sterile needle, then stabbed into the butt of five KIA tubes, and then streaked back and forth along the surface of the slant, each using different needles. Tubes were incubated with loosened caps for 18–24 h at $35 \pm 2^\circ\text{C}$ in an aerobic atmosphere.

Susceptibility Testing

Preparation of Suspension and Plates

With a loop or sterile swab, the top of at least four to five well-isolated colonies was touched. The collected growth was transferred to a four-ml tube of saline and emulsified inside the tube to avoid clumping of the cells. The inoculum was compared to 0.5 McFarland Standard and was adjusted by its turbidity, which was similar to the standards. Comparison to the 0.5 McFarland standard was done using paper with black lines. The inoculum was adjusted by placing more saline to match that of the standard. Within 15 minutes of preparing the adjusted inoculum, a sterile cotton swab was dipped into the inoculum. The swab was rotated

several times and pressed firmly on the inside walls of the tube to remove the excess fluid from the swab. The swab was streaked all over Mueller Hinton agar plates, fifty plates using different sterile swabs. The plate was rotated 60° , streaked again, and repeated once more for the third time. After the streaking, the rims of the plates were passed by the swab to complete the process. The agar was allowed to absorb any excess moisture on the agar surface prior to applying the antimicrobial disks by leaving the lid of the plate ajar for three to five minutes (WHO, 2011; CLSI, 2010).

Disk Diffusion

Susceptibility testing was performed by the disk diffusion method (CLSI, 2012). Antimicrobial agents: ampicillin (10 μg), amoxicillin (25 μg), chloramphenicol (30 μg), kanamycin (30 μg), and streptomycin (10 μg) were dispensed using sterile forceps on the agar surface. Before and after placing the disks, the forceps were sterilized by flaming them with an alcohol flame, but without overheating them. The disks were tapped at the top to ensure that they had made complete contact with the agar surface, also ensuring that they did not drift away. Plates were incubated at $35\text{--}37^\circ\text{C}$ for 16–18 hours (WHO, 2011; CLSI, 2010). Interpretations of resistance status of isolates were determined using the Clinical and Laboratory Standards Institute (CLSI, formerly NCCLS) interpretive guidelines (Table 3) (WHO, 2011)

Results and Discussion

Culture and Biochemical reactions

Escherichia coli presence was confirmed, as shown in Table 4, when compared with standards for biochemical confirmation (Table 1). A parallel result with IMViC (Indole, MR, VP, Citrate) reaction of ++-- is one indication that *E. coli* existence is positive. (Balows et al., 1991; Mahon et al., 1995)

The lactose-fermenting colonies were initially assessed by their characteristic growth on MacConkey agar. Each isolate was further

confirmed by standard biochemical tests designated for E. coli (indole, methyl red, Voges-Proskauer, and citrate utilization test) (CLSI, 2010).

Lactose-fermenting colonies that were indole-positive were also considered to have met criteria for presumptive non-type-specific E. coli identification (Dargatz et al., 2005). Morphological characteristics in selective media also show suspected indications of E. coli presence. E. coli culture characteristics show colonies with green metallic sheen in EMB and pink or red colonies in McConkey medium (Balows et al., 1991). Overall, E. coli was strict positive in 4 culture plates that went to biochemical testing. Plate 1 (Table 4) showed certain parameters, like negative on

McConkey (lactose fermenter) and Methyl red, but were considered variable overall with E. coli since it is positive for EMB and Indole production.

Table 1

*Selected Biochemical Test Characteristics of Escherichia coli**

Biochemical test	Reaction	Appearance
Indole Production**	+	red surface, when added with Kovacs reagent
Motility**	+	hazy white color on stabbed area
Sulfide**	+	blackening on subsurface area
Methyl Red	+	red surface, when added with Methyl red
Voges-Proskauer	-	no change of color even when added with KOH and alpha-naphthol (+ is a red complex)
Simmon's Citrate	-	no change of color (+ is blue from green)
Triple Sugar Iron		A/AG and H ₂ S production yellow slant/yellow butt (lactose fermentor), medium is lifted due to gas production, blackening (hydrogen sulfide)
Lysine Decarboxylation	+	butt changes from purple to yellow then back to purple
Catalase	+	rapid bubble reaction

* CLSI, 2010

** All three belong to one tube test, SIM (sulfide indole motility)

Table 2

*Antimicrobials tested, concentration and zone diameter for interpretation**

Antimicrobial	Concentration (µg/ml)	Zone Diameter, Nearest Whole mm		
		Resistant	Intermediate	Susceptible
Ampicillin	10 µg	≤ 13	14-16	≥ 17
Amoxicillin**	25 µg	≤ 13	14-16	≥ 17
Chloramphenicol	30 µg	≤ 12	13-17	≥ 18
Kanamycin	30 µg	≤ 13	14-17	≥ 18
Streptomycin	10 µg	≤ 11	12-14	≥ 15

* CLSI, 2012

** Amoxicillin susceptibility is inferred to ampicillin

Susceptibility Test

Overall, only two antimicrobial agents showed greater inhibition to microbial growth, chloramphenicol and streptomycin. A greater half (53%) of isolates in kanamycin showed susceptibility while, 45% were under intermediate. No *E. coli* isolates were resistant to chloramphenicol and only 4% was observed as resistant to streptomycin putting 8.1% as buffer zone (intermediate). Resistance was most commonly identified for ampicillin (100%), amoxicillin (80%) (Table 3). For each of the remaining antimicrobials, fewer than 10% of the isolates were identified as resistant, streptomycin (4%) kanamycin (1%). Co-resistance (resistance to two antibiotic groups) and multi-resistance (resistance to at least three different antibiotic groups) were recorded. Table 3 shows the number of antimicrobials to which any *E. coli* isolates were resistant, four, excluding chloramphenicol.

Table 3

*Antimicrobial susceptibility of nts-Escherichia coli by agar disk diffusion method**

Antimicrobial	Escherichia coli, (n=50)*		
	Resistant	Intermediate	Susceptible
Ampicillin	50 (100%)	0	0
Amoxicillin**	40 (80%)	4 (8%)	6 (12%)
Chloramphenicol	0	0	50 (100%)
Kanamycin	1 (1%)	22 (45%)	26 (53%)
Streptomycin	2 (4%)	4 (8.1%)	43 (88%)

*n=49 for Kanamycin and Streptomycin

Table 4

Culture morphology, characteristic and biochemical-confirmatory test of isolated nts-Escherichia coli

Sample	BPW	Plate	Mc Conkey pink/red colonies	EMB Green MS	Sulfide	Indole	Motility	Methyl Red	Voges Proskauer	Citrate	TSI	LIA	Catalase
Control	w/o	1	-	+	+	+	v	-	-	-	A/AG	decarb	+
	w/	2	+	+	+	+	+	+	-	-	A/AG+H ₂ S	decarb	+
	w/	3	+	+	+	+	+	+	-	-	A/AG+H ₂ S	decarb	+
	w/	4	+	+	+	+	v	+	-	-	A/AG+H ₂ S	decarb	+
	w/	5	+	+	+	+	+	+	-	-	A/AG+H ₂ S	decarb	+

The present research pertains to the isolation of *E. coli* with assumption of contamination in nutrient solution. Five isolated plates that have undergone biochemical confirmation have shown absolute indication of *E. coli* occurrence.

Of the antimicrobial agents tested, ampicillin agent showed the highest rate of non-sensitivity followed by amoxicillin. Due to the rather high rate of non-sensitivity, industrial conditions and handling procedures should be methodically developed while limiting or denying the use of any antibiotics that should be so utilized as to reduce the development of resistance. Although the rate of *Escherichia coli* resistance was much lower in chloramphenicol and streptomycin, the occurrence of a number of multidrug resistant strains indicates that the sensitivity of 5 antimicrobial agents should be more closely monitored and efforts invested to identify direct reasons for the resistance and if possible the genes responsible for this resistance. The

antimicrobial agents chloramphenicol, streptomycin and kanamycin showed considerably better sensitivity. The study have been limited to only five antimicrobials agents, despite these limitations, this analysis provides foundational information for resistance development at an agricultural setting, laying the groundwork for understanding evolution of multidrug resistance at the native level. As there is a lack of studies similar to ours in the University it is difficult to say whether combined influence of these environmental features and outliers has any contribution towards our results.

Recommendation

It is recommended that a greater effort in the development of the nutrient solution system, its reservoir and protocols regarding location, storage and the possibility of exposure to open environment should be made. Also to monitor latest protocols regarding antimicrobial agents sensitivity or susceptibility through research with greater number antimicrobial agents that are closely related with both human and veterinary medicine while also monitoring not only Escherichia coli but also certain strains related to food borne agents (e.g. Salmonella enterica and Listeria monocytogenes)

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Identification of IT Governance Process Prioritization at The PT Telkom, Manado Branch using COBIT 2019 Framework

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In today's highly competitive business world, the importance of Information Technology (IT) governance cannot be overemphasized enough. Using IT efficiently is crucial for a company's competitiveness. It requires continuously adapting to changes in the IT landscape to get the most out of investments. To measure the success of IT projects and how well they match business goals, this study uses the COBIT framework (Control Objectives for Information and Related Technologies) to assess IT governance. Implementing effective IT governance can be challenging because it needs to align with business goals and industry standards. To tackle this challenge, PT Telkom's Manado branch (TMB) conducted a thorough review of its IT governance. This proactive step aimed to prevent potential problems like data loss or misuse, considering the sensitive nature of the data involved. In this review, three areas were identified as essential for IT governance: BAI02 (Requirements Management), BAI03 (Solution Development), and BAI11 (Project Management). Improving these areas will lead to clearer project goals, more efficient solution development, and better project results. In summary, PT Telkom's Manado branch (TMB) should prioritize and allocate more resources to enhance BAI02, BAI03, and BAI11 within the COBIT 2019 framework. These areas are the foundation of effective IT governance, promising success in IT projects, alignment with business goals, and continued competitiveness in today's ever-changing business environment.

Keywords: COBIT 2019, IT governance, design factors, audit

In today's increasingly competitive business environment, the development of information technology has a significant impact on a company's competitiveness. To compete effectively, companies must continually monitor and keep up with every development and advancement in information technology. The goal of implementing information technology for a company is to derive value from it, which can benefit every aspect of the business that is oriented toward it (Awamleh & Ertugan, 2021). To achieve this, an evaluation of information technology governance must be carried out to determine the value of IT success and to measure whether IT is used effectively and efficiently (Nel, 2022).

IT Governance recommendations are made to enhance IT performance, and in this study, the COBIT framework (Control Objectives for Information and Related Technologies) is used, highlighting the importance of a structured framework in aligning IT with business objectives and ultimately boosting a company's competitiveness in the modern business landscape (Wang et al., 2022). The implementation of IT Governance poses a challenge for organizations. Ensuring that IT aligns with business objectives and complies with existing standards is a challenge for any organization (Whytock, 2022). An audit of information technology governance is conducted to ensure the success of the operational sustainability used by PT Telkom's Manado branch (PT. TBM). This audit assesses whether existing information technology is used optimally. If not used properly, it can lead to various issues or losses, such as data loss, data misuse, computer misuse, and inaccurate information, as the data in this system is confidential and sensitive (ISACA, 2016) (Hanna, 2021).

COBIT 2019 is the most used IS/IT audit service for quickly, accurately, and interactively auditing information systems. The audit results indicate that business and IT management are aware of the impact of not being able to manage rapidly, accurately, and interactively. Performance is generally assessed based on individual system evaluations and knowledge and capacity support (Cooke, 2020).

Methodology

In this research article, the researchers delve into a COBIT 2019 audit conducted on a company's IT governance system, highlighting the crucial phases of the audit process. As shown in Figure 1, it all begins with problem identification, as stated in the introduction section, where weaknesses and inefficiencies are pinpointed within the IT governance framework. Subsequently, data is gathered meticulously, encompassing policies, procedures, and controls. The gathered data, obtained through open-ended interview, is then analyzed using COBIT 2019's toolkit, where we will get governance and management object prioritization. Notably, the analysis extends beyond mere compliance, focusing on the alignment of the governance framework with the organization's strategic goals. The ultimate recommendation will be to elevate the governance and management objectives to meet the high standards advocated by COBIT 2019. The collected data is highly specific to the ten Design Factors outlined in COBIT 2019. Below, we provide descriptions for each of these Design Factors (ISACA, 2018)

Figure 1
Research Methodology



Problem Identification

The research process commences by identifying challenges, recognizing prevalent obstacles in IT management, and assessing governance issues within the organization. This identification stems from an initial interview, revealing a noteworthy observation. Despite the company undergoing various IT audits, it is evident that none of them have employed the latest COBIT framework—specifically, COBIT 2019. This signifies a gap in aligning the organization's IT practices with the most current and comprehensive standards outlined in the COBIT 2019 framework.

Data Gathering for IT Governance System

In this phase, we conducted an interview with the company representative to assess the scope of governance systems according to COBIT 2019 framework, Design Factors (DF) 1 to DF 10.

Enterprise Strategy (DF 1)

DF 1 explores the strategies implemented by the company in its business. Four types of enterprise strategies are discussed within DF 1: growth/acquisition, innovation, cost leadership, and client service/stability.

Enterprise Goals (DF 2)

DF 2 covers the goals of the company. There are 13 types of Enterprise Goals (EG) in COBIT 2019, including competitive product and service portfolios, business risk management, compliance with laws and external regulations, financial information quality, customer service-oriented culture, business service sustainability, management information quality, internal business process optimization, cost process optimization, employee skills, motivation and productivity, compliance, internal policies, digital transformation programs, and product and business innovation (ISACA, 2018).

Risk Profile (DF 3)

DF 3 addresses the risks that the company may face. There are 19 categories of questions within DF 3, including IT investment decision-making, portfolio definition and maintenance, program and project lifecycle management, IT cost and oversight, IT expertise, skills, and behavior, enterprise/IT architecture, IT operational infrastructure incidents, unauthorized actions, software adoption/usage problems, hardware incidents, software failures, logical attacks (hacking, malware, etc.), third-party/supplier incidents, non-compliance, geopolitical issues, industrial action, acts of nature, technology-based innovation, environmental issues, and data and information management [4].

I&T-Related Issues (DF 4)

DF 4 discusses IT-related issues that occur in PT. TBM. This section identifies management risks, audits, senior management, or external stakeholder risks. There is a list of 20 issues related to I&T (ISACA, 2018).

DF 5 to DF 10

- Threat Landscape (DF 5): addresses the common threats faced by the company and their level of impact on the work environment.
- Compliance Requirement (DF 6): assesses the company's compliance with local government regulations, categorized as low, normal, or high.
- Role of IT (DF 7): discusses the four roles of IT in COBIT 2019: support, factory, turnaround, and strategic roles.
- Sourcing Model of IT (DF 8): discusses the sources of IT, whether through outsourcing, cloud services, insourcing, or hybrid models.
- IT Implementation Methods (DF 9): addresses the methods of IT implementation, including agile, devops, traditional, and hybrid approaches.
- Technology Adoption Strategy (DF 10): assesses how quickly the company adopts new technology, whether it's a first mover, a follower, or a slow adopter.

Concluding Governance System Design

The final stage in the audit process using COBIT 2019 involves implementing the answers into tools that provide measurable results. The results for each DF are then analyzed to gather important information and knowledge about the governance system at PT. TBM.

Results and Discussion

Interviews were conducted with PT. TBM staff, Mr. Jonathan and Mr. William, to obtain information for filling out the design factors gathered during the interview process. There are 10 design factors that have priority values regarding the company's IT governance, including corporate tactics, corporate objectives, risk profiles, current IT-related issues, potential threats, needs, and compliance, the role of IT, IT sourcing model, IT implementation methods, and technology adoption strategy.

Design Factors Interview Analysis

Company Strategy

At PT. TBM, based on the interviews conducted, it is mentioned that the company primarily focuses on innovation supported by growth. Innovation takes the forefront in their company's strategy because PT. TBM itself operates by providing comprehensive telecommunications services to all Indonesians. As for the second focus of the company, innovation is key to achieving the company's main goals. This involves innovating to launch affordable, quality products accessible to customers, thus supporting the four crucial aspects of this design factor.

Table 1

Result of Company Strategy (Design Factor 1)

IT-Related Issue	Importance (1-5)	Baseline
Growth/Acquisition	4	3
Innovation/Differentiation	5	3
Cost Leadership	1	3
Client Service/Stability	1	3

Enterprise Goals

In the second design factor stage, which involves identifying the business goals to be achieved at PT. TBM, the assessment closely resembles the assessment in design factor 1. The interview results yielded responses to 13 Enterprise Goals (EG) questions, as follows: EG01, EG03, EG04, EG05, EG06, EG10, and EG13.

Table 2

Result of Enterprise Goals (Design Factor 2)

Value	Importance (1-5)	Baseline
1. Enterprise Goal 01—Portfolio of competitive products and services	5	3
2. Enterprise Goal 02: Manage business risk	3	3
3. Enterprise Goal 03—Compliance with external laws and regulations	5	3
4. Enterprise Goal 04: Quality of financial information	5	3
5. Enterprise Goal 05: Customer-oriented service culture	5	3
6. Enterprise Goal 06—Business-service continuity and availability	5	3
7. Enterprise Goal 07—Quality of management information	4	3
8. Enterprise Goal 08—Optimization of internal business process functionality	3	3
9. Enterprise Goal 09: Optimization of business process costs	4	3
10. Enterprise Goal 10—Staff skills, motivation, and productivity	5	3
11. Enterprise Goal 11—Compliance with internal policies	4	3
12. Enterprise Goal 12—Managed digital transformation programs	4	3
13. Enterprise Goal 13—Product and business innovation	5	3

Based on the information provided in the interview with PT. TBM, the company, operates in a field of operations that yields a portfolio, and compliance with government regulations is a top priority. As PT. TBM is a government-owned company, it is obligated to adhere to all government regulations, including the AKHLAK value.

Since 2020, five pillars—trust, competence, teamwork, adaptability, and loyalty—have become the lifeblood of Indonesian BUMNs (state-owned companies). Open communication fuels trustworthy decisions, while skilled employees, thanks to robust training, make informed choices. This ethical foundation strengthens good governance across all levels. But AKHLAK isn't just words; it's woven into daily life. Performance evaluations value ethics as much as skills, and collaborative spirit thrives in regular meetings and online platforms. Adaptability fuels innovation, steering BUMNs through change, while loyalty binds the organization, driving a shared purpose for Indonesia's economic well-being. AKHLAK isn't just values; it's the heart of these BUMNs, pumping them towards success.

To measure this, BUMNs use the AKHLAK Culture Health Index (ACHI). It's like a check-up, revealing strengths and weaknesses. For example, one company's strong training boosted competence, but siloed departments hurt collaboration. ACHI recommended cross-functional projects and team building, helping them bridge divides and strengthen their AKHLAK culture. This shows how ACHI adapts to individual BUMN needs, ensuring their success (Telkom, n.d.) (ACT, 2021). Further, PT. TBM conducts extensive training for staff, particularly those from external outsourcing companies. These outsourced workers are IT experts brought in from abroad with knowledge of the installation and use of the infrastructure. Given that most of the PT. TBM's infrastructure comes from outside Indonesia, which provides valuable new insights to the staff responsible for overseeing the outsourced workforce.

Risk Profile

Hasil Wawancara, PT. TBM terhadap desain factor tiga sebagai berikut :

Table 3

Result of Risk Scenario (Design Factor 3)

Risk Scenario Category	Impact (1-5)	Likelihood (1-5)	Risk Rating	Baseline
1. IT investment decision-making, portfolio definition and maintenance	1	2	2	9
2. Program and project life cycle management	2	4	8	9
3. IT cost and oversight	4	2	8	9
4. IT expertise, skills and behavior	4	1	4	9
5. Enterprise/IT architecture	3	1	3	9
6. IT operational infrastructure incidents	2	1	2	9
7. Unauthorized actions	5	2	10	9
8. Software adoption and usage problems	3	1	3	9
9. Hardware incidents	3	2	6	9
10. Software failures	5	2	10	9
11. Logical attacks (hacking, malware, etc.)	5	1	5	9
12. Third-party/supplier incidents	4	2	8	9
13. Noncompliance	5	2	10	9
14. Geopolitical Issues	4	1	4	9
15. Industrial action	5	3	15	9

[table continues on the next page]

16. Acts of nature	4	2	8	9
17. Technology-based innovation	3	1	3	9
18. Environmental	2	1	2	9
19. Data and information management	5	1	5	9

As a government-owned enterprise, PT. TBM Investments has always been open to public, and when it comes to PT,. TBM's budget doesn't stand alone because there are shareholder meetings within PT. TBM. Therefore, all investments must be transparent. While investment failures can impact the company, the likelihood of such risks is relatively low because of PT. TBM is open to the public when it comes to investments.

PT. TBM provides specialized training for the use of various infrastructure technologies. Most of the technology used by PT. TBM is imported from abroad, and it is directly installed by the company providing the technology, with direct assistance from PT. TBM staff. In addition to training, PT. TBM seeks employees who are competent in the field of IT. PT. TBM adopts new technologies that have been tested beforehand, so when choosing vendors, they prioritize competence and accountability. This approach helps minimize potential risks. PT. TBM also pays close attention to its infrastructure, including the layout of equipment and ensuring the appropriate temperature for IT infrastructure, and conducts regular maintenance.

In the ever-evolving landscape of technology, PT. TBM remains vigilant against potential threats. The company has implemented robust cybersecurity measures to protect against unauthorized actions, including hacking attempts and malware intrusions. To ensure the security of its hardware infrastructure, PT. TBM conducts regular assessments and maintains contingency plans to address potential hardware incidents swiftly. In addition, the company closely monitors software performance to mitigate the risk of unexpected software failures. Furthermore, PT. TBM keeps a watchful eye on geopolitical developments, considering their potential impact on the global technology landscape, and has contingency strategies in place to navigate any related challenges. Environmental sustainability is also a key concern, with the company actively seeking ways to reduce its carbon footprint and minimize the environmental impact of its IT operations. PT. TBM takes a proactive approach to address these additional IT-related issues, ensuring a robust and resilient IT environment.

IT-Related Issue

Based on the results of interviews with IT staff at PT,. TBM, the risk profile of the company, is attached in the figure below.

Table 4

Result of IT-Related Issue (Design Factor 4)

	Issue Level (1-3)	Baseline
Frustration between different IT entities across the organization because of a perception of low contribution to business value	1	2
Frustration between business departments (i.e., the IT customer) and the IT department because of failed initiatives or a perception of low contribution to business value	2	2

[table continues on the next page]

Significant IT-related incidents, such as data loss, security breaches, project failures, and application errors linked to IT	2	2
Service delivery problems by the IT outsourcer(s)	2	2
Failures to meet IT-related regulatory or contractual requirements	1	2
Regular audit findings or other assessment reports about poor IT performance or reported IT quality or service problems	1	2
Substantial hidden and rogue IT spending, that is, IT spending by user departments outside the control of the normal IT investment decision mechanisms and approved budgets	1	2
Duplications or overlaps between various initiatives, or other forms of wasted resources	1	2
Insufficient IT resources, staff with inadequate skills or staff burnout or dissatisfaction	2	2
IT-enabled changes or projects frequently fail to meet business needs and delivered late or over budget	1	2
Reluctance by board members, executives or senior management to engage with IT, or a lack of committed business sponsorship for IT	2	2
Complex IT operating model and/or unclear decision mechanisms for IT-related decisions	1	2
Excessively high cost of IT	2	2
Obstructed or failed implementation of new initiatives or innovations caused by the current IT architecture and systems	2	2
Gap between business and technical knowledge, which leads to business users and information and/or technology specialists speaking different languages	1	2
Regular issues with data quality and integration of data across various sources	1	2
High level of end-user computing, creating, among other problems, a lack of oversight and quality control over the applications that are being developed and put in operation	1	2
Business departments implementing their own information solutions with little or no involvement of the enterprise IT department (related to end-user computing, which often stems from dissatisfaction with IT solutions and services)	1	2
Ignorance of and/or noncompliance with privacy regulations	2	2
Inability to exploit new technologies or innovate using I&T	1	2

At PT. TBM, based on the information obtained from PT. For TBM staff, there are common issues related to departments achieving business objectives. In each department, there is a spirit of collaboration, where the company works together across departments to address any issues that arise, resulting in a normal situation within the company.

The company faces typical issues related to dissatisfaction within the IT and Business departments because the company encourages them to provide feedback on their performance.

As for incidents like data loss, security breaches, project failures, or application errors, these have not occurred at PT. Although there have been rumors of data loss, it has never actually happened.

Issues related to IT contracts have been minimized because agreements were in place from the beginning, ensuring that when problems arise, they are not as significant as one might imagine. To prevent overlaps, they are implementing sophisticated project management software and have successfully managed the problem of duplication and resource waste, fostering efficient resource allocation. Secondly, they invested in staff training, addressing skill gaps, preventing staff burnout, and effectively tackling the issue of insufficient IT resources. The company's commitment to aligning IT with business needs shone through by engaging business stakeholders in project planning, ensuring clear requirements and on-budget, on-time delivery.

Furthermore, they orchestrated regular workshops and presentations to showcase IT's strategic value to top executives, resolving the reluctance issue. By simplifying their IT operations, optimizing costs, and enhancing governance practices, they systematically transformed complex IT issues and high IT costs into "Small Issues." In addition to that, through proactive collaboration and cross-training initiatives, they bridged the gap between business and technical knowledge. CBM established clear governance policies and quality control measures, ensuring oversight and standardization over applications developed by end-users. It also improved collaboration between business departments and the enterprise IT department, addressing dissatisfaction with IT services and ensuring better involvement in solution development. As for privacy issues, the company conducted comprehensive privacy training and implemented strict compliance procedures, ensuring that all employees were aware of and adhered to privacy regulations. And lastly, the company, through their IT team, closely monitored emerging technologies and integrated them into their operations when possible.

Threat Landscape

At PT. TBM, it was found that they have an 80% High and 20% Normal rating in the IT Threat Landscape. In design factor 5, there are only two categories: High and Normal. The results indicate that the company faces a potential risk of natural disasters in the workplace because the company's location is near the sea, which could lead to flooding. However, the likelihood of flooding is low and infrequent, so the company can adhere to the regulations in place to mitigate this risk.

Compliance Requirements

Based on the three categories given to PT. TBM, the company's compliance percentage with every regulation in design factor 6, is found to be High Compliance Requirements, which is 100%.

PT. TBM adheres to every directive and regulation provided by the government, including in the field of IT. What the government communicates is followed by the PT. TBM.

Role of IT

In design factor 7, we will identify the role of IT in PT. TBM. Through the interviews conducted, it was found that the role of IT in PT. TBM is both a turnaround with a score of 5 and strategic with a score of 4. IT is considered a driver and a crucial element in the company to help PT. TBM innovates in its business processes and services.

IT Sourcing Model

In design factor 8, through interviews with PT. TBM, it was found that the company's IT resources come from three sources. Equipment is obtained through partnerships with third-party vendors; cloud services are used for data storage and as a connection between vendors and PT. TBM, and operations are directly managed by PT. TBM staff and employees.

IT Implementation Methods

Design factor 9 involves understanding how IT is implemented in PT. TBM. There are three implementation categories: agile, DevOps, and traditional. Through interviews with the company, it was found that IT implementation in PT. TBM is agile because software development is done iteratively and gradually adapted to the company's needs.

Technology Adoption Strategy

In design factor 10, information was gathered about the company's strategy for adopting new technology. There are three options for adopting IT: first mover, where the company quickly adopts new technology when it emerges; follower, where the company waits for others to prove the new technology's performance before adopting it; and slow adopter, where the company is slow to adopt new technology. Through interviews with PT. TBM,

it was found that the company follows a first-mover strategy for adopting new technology, considering PT. TBM is an IT service provider.

Objectives Score Calculation

The Design Toolkit

The COBIT 2019 Design Toolkit [6] is a free, Excel-based tool that helps organizations design and implement a tailored governance system based on the COBIT 2019 Framework. It produces results through a step-by-step process:

The COBIT 2019 Design Toolkit [6] is a free, Excel-based tool that helps organizations design and implement a tailored governance system based on the COBIT 2019 Framework. It produces results through a step-by-step process:

1. Identifying Design Factors:

The toolkit starts by guiding us through five core design factors:

- Enterprise Strategy: Understanding the organization's goals and aspirations (Design Factor 1)
- Organizational Maturity: Assessing the current state of I&T governance. (Design Factor 2)
- Risk Profile: Identifying and prioritizing I&T-related risks. (Design Factor 3)
- I&T Questions: Addressing specific concerns or challenges your organization faces. (Design Factor 4)
- Non-IT-related questions: While not related to IT, they may affect overall governance, including IT outlook of the company (Design Factor 5-10)

2. Evaluating Inputs and Importance:

On this part, we assign values and importance levels to each design factor based on the organization's context—that is, the interview.

3. Analyzing Results:

The toolkit calculates and displays the impact of each design factor on the various COBIT 2019

management and governance objectives. This highlights which objectives deserve the most attention based on your specific design factors.

4. Refining and Prioritizing:

Based on the analysis, you can refine the scope of your governance system by prioritizing goals and objectives.

The toolkit allows you to adjust factors and importance levels to find the optimal balance for your needs.

The COBIT 2019 Framework outlines 40 management and governance objectives across five key domains, empowering organizations to effectively manage their enterprise information and technology (I&T). These domains guide strategic alignment, resource management, service delivery, performance monitoring, and continuous improvement. They are:

1. Align, Plan, and Organize (APO): This domain lays the foundation by ensuring I&T goals are aligned with the overall enterprise strategy. It sets clear governance responsibilities, manages resources effectively, and prioritizes risk mitigation while upholding ethical practices.
2. Build, Acquire, and Implement (BAI): This domain focuses on bringing I&T plans to life. It ensures efficient project and program management, allocates resources wisely, and maintains robust infrastructure and applications. Data and information governance are also addressed within this domain.
3. Deliver, Service, and Support (DSS): This domain revolves around seamless service delivery. It covers the management of service operations, incident and problem resolution, disaster preparedness, and effective stakeholder relationships. Additionally, the development and maintenance of I&T knowledge and skills are emphasized.

4. Monitor, Evaluate, and Assess (MEA): This domain ensures constant optimization. It focuses on monitoring performance against objectives, conducting internal and external audits, and effectively managing risks. Continued compliance with legal and ethical standards is also a crucial aspect.
5. Evaluate, Direct, and Monitor (EDM): This domain promotes continuous improvement. It provides strategic direction and oversight, ensures effective governance processes, fosters stakeholder engagement, and encourages self-assessment. Ultimately, this domain strives to refine and optimize the entire I&T governance system.

These objectives serve as a comprehensive roadmap for organizations seeking to harness the power of I&T for optimal achievement. Whether implemented individually or in combination, they provide a valuable framework for tailored governance systems that align with specific organizational needs and priorities.

Through the COBIT 2019 Design Toolkit, we will get the governance/management objective importance where the IT governance system can be built onto or that is recommended for PT. TBM. The toolkit can be obtained from the ISACA COBIT 2019 website here for free: <https://store.isaca.org/s/store#/store/browse/detail/a2S4w000004Ko9BEAS>. From the interview and analysis, we input all the answers into COBIT 2, which the toolkit will generate based on the calculation explained below.

Calculation and Analysis

The COBIT 2019 framework uses a coefficient to measure how much an element impacts the governance or management domain. The coefficients were initially set in the COBIT 2019 framework. A higher coefficient means a greater impact. For instance, consider the element EDM04, which focuses on ensuring efficient use of resources

in IT-enabled activities. This includes having the right people, processes, and technology in place, managing IT budgets, tracking resource use, and always seeking improvement. EDM04 has a high coefficient in the “Cost Leadership” area of Design Factor 1 because it strongly emphasizes getting the most value from every resource. It prioritizes initiatives based on return on investment, optimizes technology and processes, and consistently seeks improvement to minimize IT costs while maximizing business impact. This shows how EDM04 in COBIT 2019 plays a crucial role in guiding efficient IT spending and resource allocation with a focus on cost leadership.

While it may not fit to put everything on this paper, below is a quick walkthrough of 1 government/management objective in Design Factor 1 (DF1), one of the 10 design factors, calculation, and how it contributes to the Governance and Management objectives. From Table 1, we get the average of the importance value divided by the average of the baseline. We will get 3/2.75 or 1.1.09; we will call it Z. Now, each value in Table 1 will have a corresponding coefficient for each of the governance and management objectives, as shown in Table 5 below.

Table 5
Coefficient of Each Governance/Management Objective on DF1

Design Factor 1	Growth and Acquisition	Growth and Acquisition	Cost Leadership	Client Service and Stability
EDM01	1,0	1,0	1,5	1,5
EDM02	1,5	1,5	2,0	3,5
EDM03	1,0	1,0	1,0	2,0
EDM04	1,5	1,5	4,0	1,0
EDM05	1,5	1,5	1,0	2,0
APO01	1,0	1,0	1,0	1,0
APO02	3,5	3,5	1,5	1,0
APO03	4,0	4,0	1,0	1,0
APO04	1,0	1,0	1,0	1,0

[table continues on the next page]

APO05	3,5	3,5	2,5	1,0
APO06	1,5	1,5	4,0	1,0
APO07	2,0	2,0	1,0	1,0
APO08	1,0	1,0	1,0	3,5
APO09	1,0	1,0	1,5	4,0
APO10	1,0	1,0	3,5	1,5
APO11	1,0	1,0	1,0	4,0
APO12	1,0	1,0	1,0	2,5
APO13	1,0	1,0	1,0	2,5
APO14	1,0	1,0	1,0	1,0
BAI01	4,0	4,0	1,5	1,5
BAI02	1,0	1,0	1,5	1,0
BAI03	1,0	1,0	1,5	1,0
BAI04	1,0	1,0	1,0	3,0
BAI05	4,0	4,0	1,0	1,5
BAI06	2,0	2,0	1,0	1,5
BAI07	1,5	1,5	1,0	1,5
BAI08	1,0	1,0	1,0	1,0
BAI09	1,0	1,0	1,0	1,0
BAI10	1,0	1,0	1,0	1,0
BAI11	3,5	3,5	1,5	1,0
DSS01	1,0	1,0	1,0	1,5
DSS02	1,0	1,0	1,0	4,0
DSS03	1,0	1,0	1,0	3,0
DSS04	1,0	1,0	1,0	4,0
DSS05	1,0	1,0	1,0	2,5
DSS06	1,0	1,0	1,0	1,5
MEA01	1,0	1,0	1,0	1,0
MEA02	1,0	1,0	1,0	1,0
MEA03	1,0	1,0	1,0	1,0
MEA04	1,0	1,0	1,0	1,0

Each value in Table 1 will be multiplied according to the coefficient. So, for example, for EDM01, we will have:

Growth/Acquisition: $5 \times 1 = 5$

Innovation/Differentiation $4 \times 1 = 4$

Cost Leadership: $1 \times 1.5 = 1.5$

Client Service/Stability $1 \times 1.5 = 1.5$

Score = $5 + 4 + 1.5 + 1.5 = 12$

As for baseline, we will get the all-baseline value, which is 3, from Table 1

$$3 \times 1 + 3 \times 1 + 3 \times 1.5 + 3 \times 1.5$$

Baseline score = 15

As for the relative importance first, we get the X value earlier and calculate it below:

$(Z \times 100 \times \text{score}) / \text{baseline score}$ and round them to nearest multiplication of 5 and subtracted by 100.

So on this case:

$$= (1.09 \times 100 \times 12) / 15$$

$$= 87,2$$

Round to the nearest "5"

$$= 85 - 100$$

Relative Importance = 15

Then we will have all the Governance/Management Objective's Relative Importance as shown below.

Table 6

Scores on Governance/Management Objective on Design Factor 1

Governance/Management Objective	Score	Baseline Score	Relative Importance
EDM01	12	15	-15
EDM02	16,5	24	-25
EDM03	12	15	-15
EDM04	16	22,5	-20
EDM05	16,5	18	0
APO01	11	12	0
APO02	34	28,5	30
APO03	28	24	25
APO04	26	21	35
APO05	37,5	33	25
APO06	16	22,5	-20
APO07	15	15	10
APO08	16	21	-15
APO09	14,5	22,5	-30
APO10	14	21	-25
APO11	14	21	-25
APO12	15	18	-10
APO13	12,5	16,5	-15
APO14	11	12	0

BAI01	29	27	15
BAI02	11,5	13,5	-5
BAI03	11,5	13,5	-5
BAI04	13	18	-20
BAI05	28,5	25,5	20
BAI06	20,5	19,5	15
BAI07	18,5	18	10
BAI08	23,5	19,5	30
BAI09	11	12	0
BAI10	11	12	0
BAI11	31,5	27	25
DSS01	11,5	13,5	-5
DSS02	14	21	-25
DSS03	13	18	-20
DSS04	14	21	-25
DSS05	12,5	16,5	-15
DSS06	11,5	13,5	-5
MEA01	11	12	0
MEA02	11	12	0
MEA03	11	12	0
MEA04	11	12	0
MEA04	11	12	0

Lastly all relative importance scores will be compiled, and we will get each objectives scores. The higher the score the higher the importance of that governance/management objective. Table 7 shown the overall objectives scores of PTS. TBM

Table 7

Relative Importance score for each Governance/Management Objectives

Design Factors:	Enterprise Strategy	Enterprise Goals	Risk Profile	IT-Related Issues	Threat Landscape	Compliance Req's	Role of IT	Sourcing Model for IT	IT Implementation Methods	IT Adoption Strategy	Objectives Score
EDM01	-15	-5	-5	5	-15	50	15	0	0	40	30
EDM02	-25	0	-30	-5	0	0	30	0	0	55	10
EDM03	-15	-5	-10	-5	-20	100	-5	-10	0	40	30
EDM04	-20	0	0	-5	0	0	10	0	0	25	5
EDM05	0	0	5	5	-10	50	10	0	0	40	45
APO01	0	0	0	5	-15	35	10	0	0	60	45
APO02	30	5	-40	0	0	0	30	0	0	35	25
APO03	25	0	-25	-10	-15	0	20	0	-10	75	25
APO04	35	5	-50	0	0	0	40	0	0	40	30
APO05	25	0	-30	0	0	0	30	0	0	60	40
APO06	-20	0	-10	-5	0	0	10	0	0	-25	-20

[table continues on the next page]

APO07	10	5	0	0	-10	0	5	0	-5	105	50
APO08	-15	5	-30	0	0	0	25	0	0	80	30
APO09	-30	5	10	5	-10	0	5	15	0	5	0
APO10	-25	0	20	10	-15	50	0	15	0	60	50
APO11	-25	0	20	-5	-10	0	10	0	0	5	0
APO12	-10	-10	35	0	-20	100	0	10	-5	35	60
APO13	-15	-5	35	0	-20	50	10	0	0	0	25
APO14	0	-5	20	-10	-15	35	10	0	0	30	30
BAI01	15	0	-15	-10	0	0	25	0	65	35	50
BAI02	-5	0	-20	-10	0	0	30	0	135	45	80
BAI03	-5	0	0	-5	0	0	30	0	140	60	100
BAI04	-20	0	30	10	-10	0	0	0	0	5	5
BAI05	20	0	-25	0	0	0	10	0	95	50	70
BAI06	15	0	5	0	-15	0	-10	0	135	30	70
BAI07	10	0	15	0	0	0	20	0	80	45	75
BAI08	30	5	0	-5	0	0	10	0	0	40	35
BAI09	0	0	30	-15	0	0	10	0	0	0	10
BAI10	0	5	20	5	-15	0	0	0	30	40	40
BAI11	25	0	30	-5	0	0	20	0	105	45	100
DSS01	-5	5	-15	5	0	0	-10	0	-15	0	-15
DSS02	-25	0	-10	15	-15	0	0	0	-5	0	-20
DSS03	-20	0	-15	10	-10	0	5	0	-5	40	0
DSS04	-25	0	25	5	-20	50	5	0	0	40	35
DSS05	-15	-5	25	10	-15	100	5	0	0	40	65
DSS06	-5	0	0	-15	-15	0	10	0	0	0	-10
MEA01	0	0	10	0	-15	0	10	10	35	50	45
MEA02	0	0	10	0	-10	0	10	0	0	0	5
MEA03	0	-5	15	0	-15	100	5	0	0	0	45
MEA04	0	-5	10	0	-15	75	10	0	0	0	35

As shown in the above table The COBIT 2019 Design Toolkit results prioritize objectives BAI03 and BAI11 (scoring 100), and BAI02 (scoring 80). The COBIT 2019 Design Toolkit results point to clear priorities for the company, with four objectives scoring exceptionally high:

1. BAI03: Scoring a perfect 100, *Managed Solutions Identification & Build* takes center stage. This emphasizes the company's commitment to strategically designing and developing solutions that seamlessly align with its needs. It prioritizes identifying optimal solutions, considering factors like cost, feasibility, and integration with existing

infrastructure. This deliberate approach minimizes risks and ensures successful implementation of tailored solutions that drive business value.

2. BAI11: Close behind with a score of 100, *Managed Projects* reveals a strong emphasis on effective project management. This entails meticulous planning, resource allocation, risk mitigation, and clear communication throughout the project lifecycle. By prioritizing this objective, the company ensures projects are delivered on time, within budget, and with desired outcomes. Efficient project management

translates to reliable execution of I&T initiatives, solidifying its contribution to overall business strategy.

3. BAI02: Scoring an impressive 80, *Managed Requirements Definition* underscores the importance of accurate and thorough needs assessment before solution acquisition or development. This objective focuses on gathering, analyzing, and documenting stakeholder requirements comprehensively. By prioritizing this, the company minimizes miscommunications, reduces rework, and ensures the final solution truly meets all intended purposes. This meticulous approach lays the foundation for successful I&T implementation and avoids costly adjustments post-deployment.

By prioritizing objectives focusing on designing solutions, managing projects, and defining requirements with exceptional rigor, the company demonstrates a clear strategy for building a highly efficient and effective I&T foundation. This dedication to optimized operations positions I&T as a reliable engine for propelling business forward.

Conclusions and Recommendations

In summary, this research highlights the crucial role of Information Technology (IT) governance in today's competitive business world. Efficient IT usage is vital for a company's competitiveness, requiring organizations to continually adapt to technological advancements to maximize their IT investments. Evaluating IT governance is essential to gauge the success of IT projects and ensure their efficient use. This study used the COBIT framework to assess IT governance, providing insights into IT performance and alignment with business goals. Implementing IT governance can be challenging, as it must align with business objectives and industry standards. PT Telkom's Manado branch conducted an audit to assess its IT governance, preventing issues like data loss and misuse.

Notably, BAI02 (Requirements Management), BAI03 (Solution Development), and BAI11 (Project Management) emerged as crucial areas in IT governance. Enhancing these areas will lead to clearer project goals, streamlined solution development, and improved project outcomes. In conclusion, PT Telkom's Manado branch should prioritize improving BAI02, BAI03, and BAI11 within the COBIT 2019 framework. This will boost IT initiatives, align with business goals, and enhance the company's competitiveness in the dynamic business landscape. In the upcoming studies, the research should conduct an audit process, concentrating on these three objectives to determine if the company has reached the suggested benchmark and analyze the gap.

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Development of a Mobile-first, User-Centric Sabbath School Digital Attendance System using RAD with API Integration: A Case Study of Universitas Advent Indonesia

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In the contemporary digital era, the value of adopting agile and user-centric strategies when developing digital solutions is clear. Our research aimed to create a mobile-first, user-centric Sabbath School digital attendance system specifically for Universitas Advent Indonesia. The existing attendance mechanisms were hindered by the inefficiencies of traditional paper-based methods. To address this, we developed a unique single-page application (SPA) optimized for fast load times and continuous user interactions, removing the need for repeated page reloads. Built using Rapid Application Development (RAD) principles and enhanced by iterative processes, this mobile-first SPA is anchored by a strong API, ensuring dependable integrations and reliable data handling. Our new system addresses the drawbacks and environmental issues associated with paper-based attendance. It features real-time tracking, versatile status categories (e.g., present, excused, sick, late), and the ability to produce a range of attendance reports. Furthermore, the system supports group-specific attendance records, detailed metrics, easy-to-use scheduling for attendance-centric meetings, and streamlined student group management. Users can also create groups with individual names, locations, and statuses. The introduction of our approach resulted in a marked improvement in efficiency and user satisfaction, significantly surpassing the old paper-based methods. Given its flexible design, the system's potential uses could extend beyond educational institutions into wider community areas, including churches. Moving forward, research should investigate the many ways this innovative digital tool can be applied, opening up opportunities for various institutions to harness its benefits.

Keywords: *mobile-first approach, rapid application development (RAD), digital attendance system, user-centric design, API-based system*

In today's rapidly changing educational landscape, there's a palpable urgency for institutions to shift from traditional, manual operations to more agile, digital alternatives. This shift is propelled by the need to enhance operational efficiency and meet the swift pace of current academic and administrative demands. In this context, the reliance of Universitas Advent Indonesia on paper-based attendance systems presents a stark dichotomy. As an institution grounded in Seventh-day Adventist educational traditions, it encounters unique challenges that render the implementation of a contemporary attendance system not just beneficial but essential.

The drawbacks of manual attendance are manifold. They are prone to human error, compromising data integrity (Ali et al., 2022), consume excessive time that could otherwise be devoted to teaching (Ali et al., 2022), and the handling and storage of physical records are inefficient (Haleem, Javaid, Qadri, & Suman, 2022). In an era where environmental concerns are paramount, the excessive paper usage also raises sustainability issues (Haleem, Javaid, Qadri, & Suman, 2022). Moreover, the susceptibility of paper to damage or loss poses a risk to the long-term maintenance of records.

For Universitas Advent Indonesia, these challenges are not merely hypothetical but are amplified by its unique needs and the cultural nuances of the Seventh-day Adventist educational model. These challenges become particularly conspicuous during Sabbath School, where the logistical demands of managing large congregations underscore the inefficiencies inherent in paper-based systems (Haleem, Javaid, Qadri, & Suman, 2022).

Our research endeavors to develop a mobile-first, user-centric Sabbath School digital attendance system that transcends the limitations of conventional methodologies. It aims to be a system that's not only aligned with the digitalization trend but also flexible, intuitive, and responsive to the

specific needs of the community. By leveraging a smart classroom attendance management system integrated with Internet of Things technology, previous research could achieve precise attendance tracking and gain valuable insights into attendance trends (Zhao, Zhao, & Qu, 2022), ultimately enhancing student engagement and pedagogical effectiveness (Valverde-Berrocso, Acevedo-Borrega, & Cerezo-Pizarro, 2022).

Acknowledging these imperatives, the goal of our research is not just to replace paper with pixels but to ensure that the digital solution is finely tuned to user requirements and the nuances of the digital age. The aspiration is to craft a system that is adaptable, intuitive, and meets the dynamic demands of modern users, particularly within the energetic academic and religious milieu of Universitas Advent Indonesia. Through this initiative, we aim to pioneer in setting a new standard for attendance management, leading the way to a future where operational efficiency and exceptional user experience are paramount.

Recognizing these pressing challenges, our research's primary objective is not merely to offer a digital alternative but to ensure that the proposed solution is deeply aligned with the user's needs and the modern digital era. The aspiration is to design a mobile-first, user-centric Sabbath School digital attendance system that transcends the confines of traditional methods. A system that is agile, intuitive, and responsive to the dynamic requirements of today's users, especially within the vibrant academic and religious community of Universitas Advent Indonesia. Through this endeavor, we aim to set a new benchmark in attendance tracking, heralding a future where efficiency and user experience are at the forefront.

Methodology

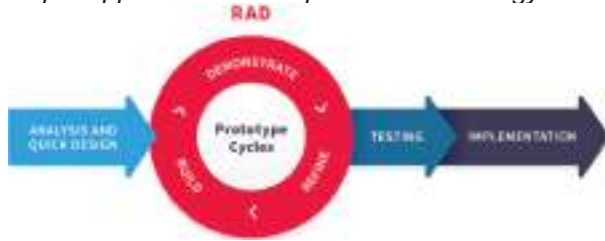
Application Development

Figure 1 illustrates the iterative and dynamic Rapid Application Development (RAD) process (Bonar, 2021). This was utilized in the creation of

the UNAI Sabbath School Attendance System. The RAD model facilitated a quick and responsive development environment that enabled the team to align closely with end-user requirements while simultaneously allowing for continuous refinement of the system through successive iterations (Martin, 1991).

Figure 1

Rapid Application Development Methodology



This RAD cycle diagram underscores the adaptability and efficiency of the development process, highlighting the effectiveness of iterative design in delivering a tailored attendance system. The methodology proved to be integral to achieving the significant improvements in user satisfaction and operational efficiency reported in our research findings. The following are the key steps in using RAD.

- o **Analysis and Quick Design:** The initial phase in our RAD approach involved a brief analysis, which led to the establishment of a foundational design. Here, we identified key user needs and system requirements specific to the Universitas Advent Indonesia setting. This stage laid the groundwork for developing the first prototype of the attendance system, emphasizing mobile-first and user-centric design principles.
- o **Prototype Cycles (Build, Demonstrate, Refine):** At the heart of the RAD model are the prototype cycles. Through these cycles, we built successive versions of the system, each informed by user feedback and performance analysis. These cycles involved:

- o **Build:** constructing incremental prototypes that incorporated functionality required for the system, which included managing attendance records, reporting, meeting scheduling, and group management.
- o **Demonstrate:** presenting these prototypes to users to gather insights and to validate the design against user experiences and expectations.
- o **Refine:** refining the system based on feedback, which included enhancing the user interface, improving data handling, and ensuring that the application's responsiveness met the needs of a mobile-first approach.

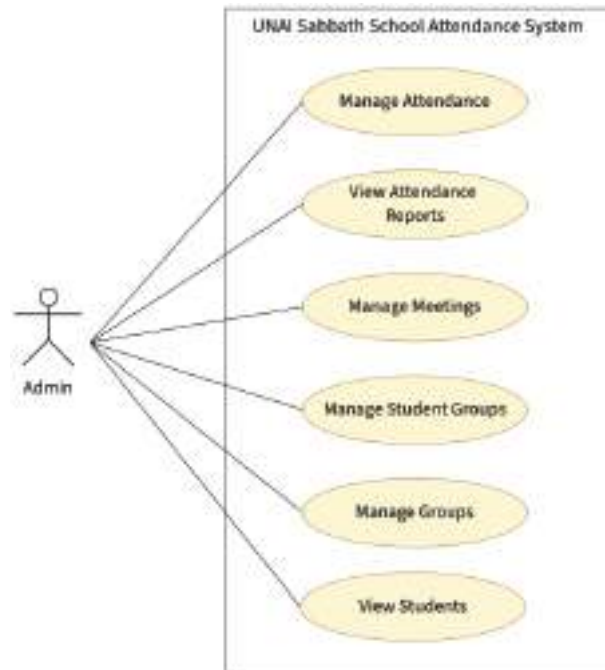
- o **Testing:** Following the prototype cycles, comprehensive testing was conducted to ensure the reliability and stability of the system. This phase focused on identifying and rectifying defects, optimizing performance, and verifying that the application met the prescribed functional and non-functional requirements.
- o **Implementation:** The final phase involved deploying the fully developed attendance system into the operational environment of Universitas Advent Indonesia. Implementation was the culmination of the RAD cycles, delivering a robust and user-friendly digital solution that effectively replaced the obsolete paper-based attendance tracking.

Application Design

Figure 2 is an outline of the functionalities that the UNAI Sabbath School Attendance System offers to administrators. This Use Case Diagram encapsulates the system's interactions with the administrative users, highlighting the mobile-first, user-centric design approach adopted in its development.

Figure 2

Use Case Diagram of the Proposed System



It defines the scope of operations that the admin can perform, which are critical to the digital transformation of attendance management processes within Universitas Advent Indonesia. These processes include the following:

- o **Manage Attendance:** This functionality equips administrators with the ability to log and modify the attendance records of students. It supports the dynamic nature of attendance statuses, facilitating administrators to mark attendance with multiple descriptors like present, absent, excused, late, or sick, thus mirroring the system's capacity for comprehensive status tracking.
- o **View Attendance Reports:** The system empowers administrators with the capability to generate detailed reports on attendance. These can range from summaries of attendance over selected meetings and groups, to detailed individual student attendance histories, enabling administrators to extract data-driven insights for academic and administrative purposes.
- o **Manage Meetings:** Administrators can utilize this function to organize, schedule, and

maintain records of various school meetings where attendance needs to be documented. This feature is essential for the planning and execution of school schedules, ensuring that attendance tracking is seamlessly integrated into the institutional framework.

- o **Manage Student Groups:** The administrator has the capacity to define and oversee student groups, which are instrumental for assigning students into different groups. This function is indispensable for organizing the student body into manageable subsets, a feature that resonates with the system's focus on user-centric design.
- o **Manage Groups:** This function is narrowly tailored to the administration of groups specifically within the context of the attendance application. It allows for the management of groups, facilitating a structured approach to attendance administration, where groups are exclusively defined for attendance purposes rather than broader institutional organizational needs.
- o **View Students:** Providing a comprehensive overview, this feature allows administrators to access a detailed view of student profiles, encompassing their academic and attendance information. This is the cornerstone of functionality for maintaining up-to-date and accurate student attendance records.

The functionalities detailed in this use case diagram are reflective of the system's agile framework and iterative development lifecycle, underscoring its robustness and scalability. The diagram supports the research findings detailed in the paper, specifically the enhancements in efficiency and user engagement achieved by the system over traditional paper-based methods. It illustrates the system's potential applicability in varied settings, signifying its role as a transformative tool for attendance management within the educational sector.

In alignment with contemporary practices of leveraging agile and user-centric methodologies, our study delves into the creation of a tailored digital solution — a Sabbath School Digital Attendance System for Universitas Advent Indonesia. The impetus for this innovation stemmed from the imperative to transcend the limitations of antiquated paper-based attendance systems, which are notably inefficient and environmentally unsustainable.

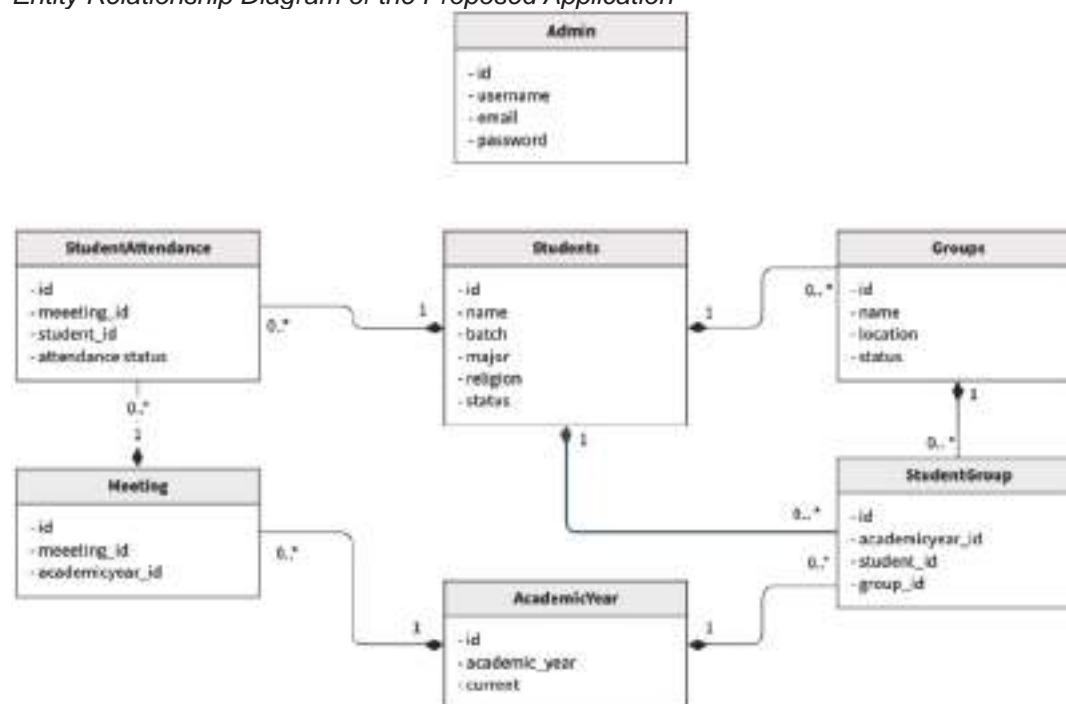
Figure 3 shows the architecture of the system is encapsulated in an Entity-Relationship Diagram (ERD) that serves as the backbone of a meticulously designed single-page application (SPA). This SPA is meticulously optimized for mobile devices, ensuring expedited load times and fostering uninterrupted user engagement without the necessity of page refreshes. The ERD outlines the following components:

Entities and Attributes:

- o **Admin:** Reflects system administrators with credentials to oversee and manage the system.
- o **Students:** Encompasses details pertinent to the students, including their attendance statuses.
- o **Groups:** Defines various congregations such as study groups, with attributes that allow for identification and organization.
- o **Student Group:** Functions as a connective entity that links students with multiple groups, catering to the dynamic associations within the university community.
- o **Meeting:** Represents the scheduled academic congregations, integral to the system for monitoring attendance.
- o **Student Attendance:** Serves as a record for each student's participation in meetings, enhanced with diverse status labels as per our SPA's capabilities.
- o **Academic Year:** Delineates the academic periods, crucial for organizing and contextualizing the attendance data.

Figure 3

Entity Relationship Diagram of the Proposed Application



Through the application of Rapid Application Development (RAD) principles and iterative development cycles, this system is underpinned by a robust API that guarantees seamless integration and dependable data management. The result is a digital system that eclipses its paper-based predecessor in terms of efficiency, user satisfaction, and environmental consciousness. This diagram not only represents the logical structure of our SPA but also encapsulates the innovation and foresight that underlie our design—a design that not only serves the immediate needs of Universitas Advent Indonesia but also possesses the adaptability to be implemented in broader community contexts, such as churches.

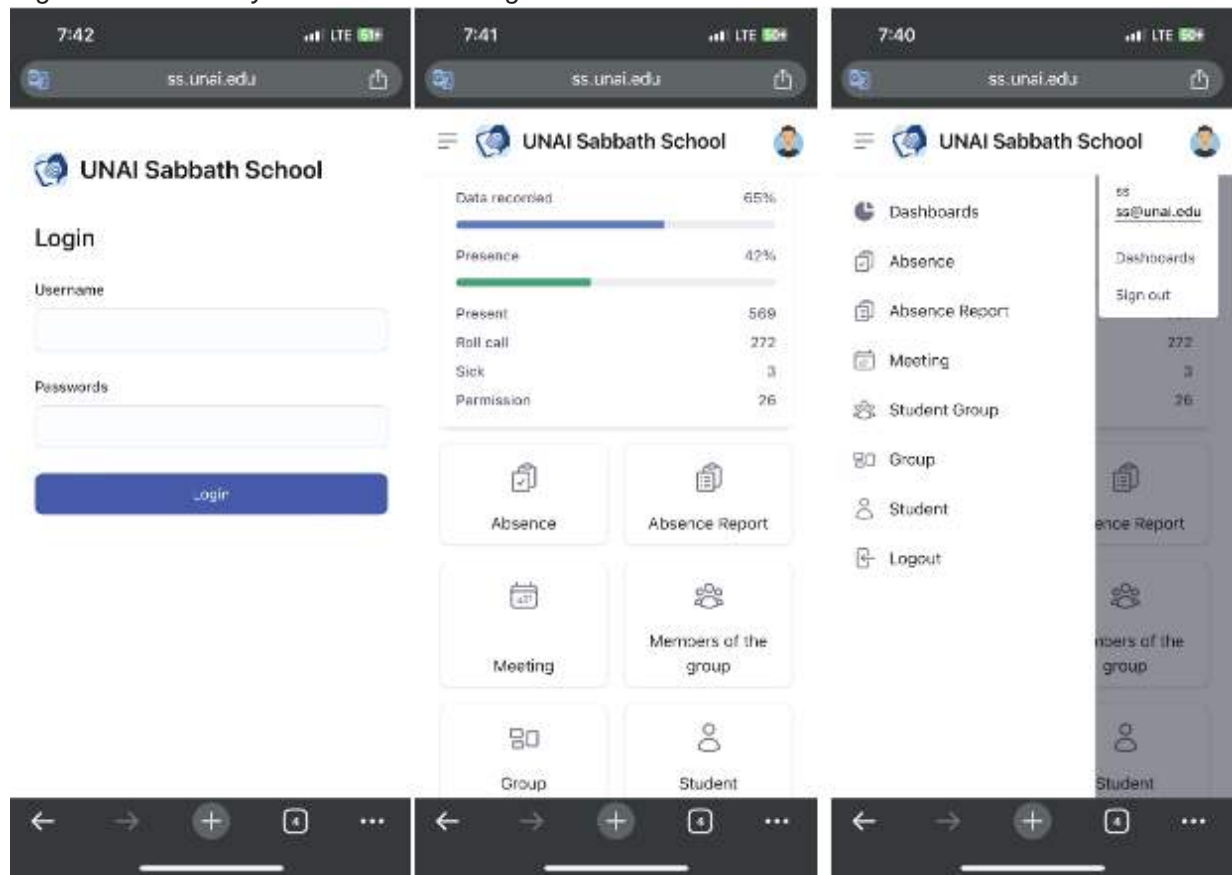
In essence, the ERD is a visual testament to the scalable, flexible, and efficient framework that our research proposes. It underpins a system poised to revolutionize attendance tracking and management in educational and potentially wider community settings. Future research is envisaged to explore the multifaceted applications of this digital tool, thereby enhancing institutional capabilities in the digital era.

Results and Discussion

Figure 4 presents a triptych of screenshots from the UNAI Sabbath School's digital attendance management system as accessed on a mobile device. These screenshots highlight the user interface's transition from the initial login screen to the core functionality dashboard and navigation menu, reflecting the system's seamless user journey.

Figure 4

Digital Attendance System Accessed Using a Mobile Device



The first screen on the left demonstrates the mobile adaptation of the login page, maintaining the clean and intuitive design principles noted in the desktop version. It is optimized for mobile access with the necessary fields—username and password—arranged for ease of data entry on touchscreen devices. The blue login button remains prominent, facilitating a straightforward user action.

Centered is the dashboard interface, which gives a summary of attendance data in real time. The progress bar at the top suggests a dynamic tracking feature, perhaps indicating the proportion of attendance data captured versus the total expected entries. Below, a categorical breakdown provides quick insights into attendance status with quantitative metrics—numbers for 'Present,' 'Roll call,' 'Sick,' and 'Permission'—giving an immediate sense of current and cumulative attendance statuses. This page is an example of effective data visualization, offering at-a-glance information that aligns with the research's emphasis on improved efficiency.

The third screen on the right reveals an overlay navigation menu that extends from the dashboard. This menu structure presumably enables users to delve deeper into the system's features, such as detailed reports ('Absence Report'), group management ('Meeting', 'Student Group'), and profile management ('Sign Out'). The design consistency across the menu integrates well with the rest of the interface, maintaining user experience coherence.

Figure 5

Digital Attendance System – Setting Meeting and Managing Group Members

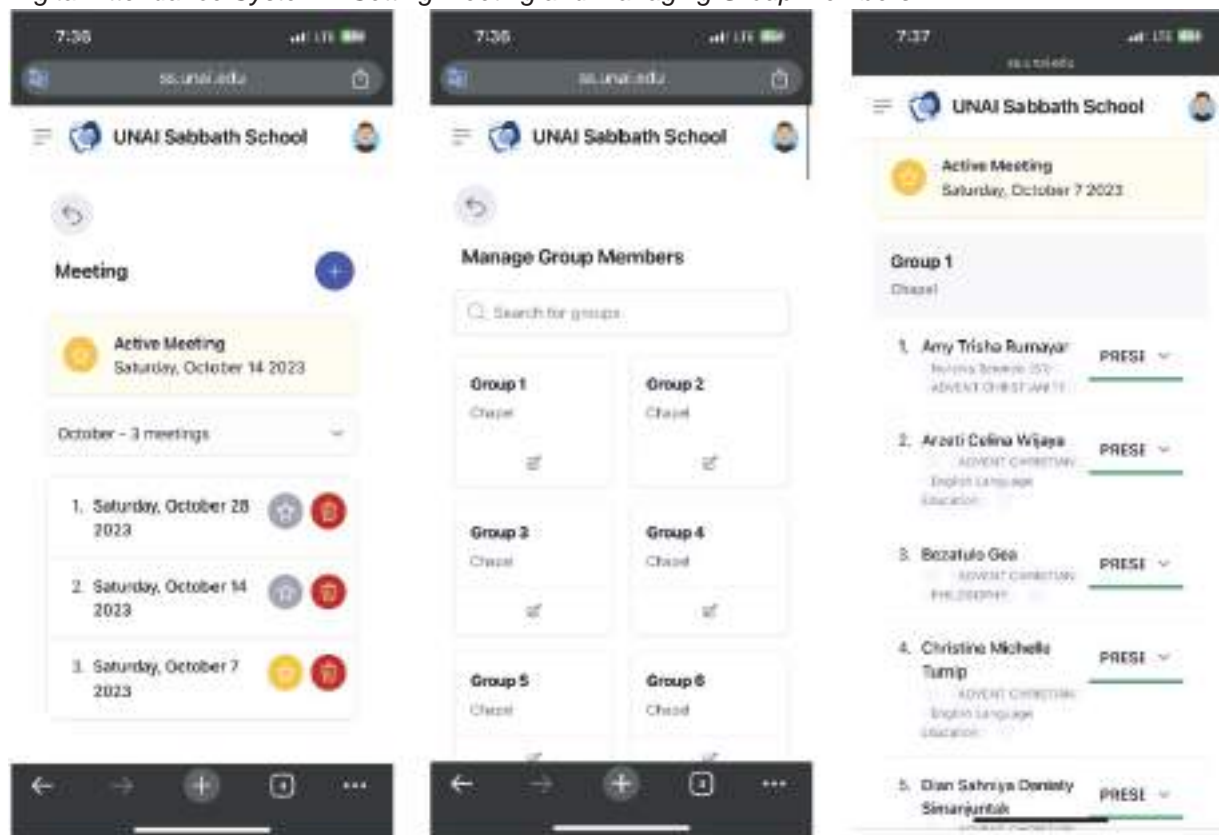


Figure 5 shows three screenshots of the developed digital attendance system. This image on the left displays the main attendance interface, where users can view and manage meetings. The “active meeting” highlighted indicates an ongoing session for the Sabbath School on October 14, 2023. Below the active session, a drop-down menu allows users to review past meetings within the chosen month, with individual sessions listed and marked with icons denoting their status—indicative of the real-time tracking capabilities of the system.

The second image illustrates the group management dashboard within the application. The interface shows an organized layout where users can navigate between different groups, labeled Group 1 through Group 6. Each group is associated with a location, specified here as “Chapel,” which suggests that the system supports multiple meeting locations. The edit icons signify the system’s streamlined group management feature, allowing for easy modification and organization of group details.

The final image provides a detailed view of the attendance tracking for a specific group, “Group 1.” It enumerates individual participants, displaying their names, respective fields of study, and religious denominations. Each member’s attendance status is marked as “present,” shown by the tag “PRESENT,” which is part of the versatile status categories feature. This level of detail in tracking underscores the system’s capability to handle intricate attendance records, providing a comprehensive understanding of student engagement.

Figure 6

Reporting Features of the Sabbath School Digital Attendance System

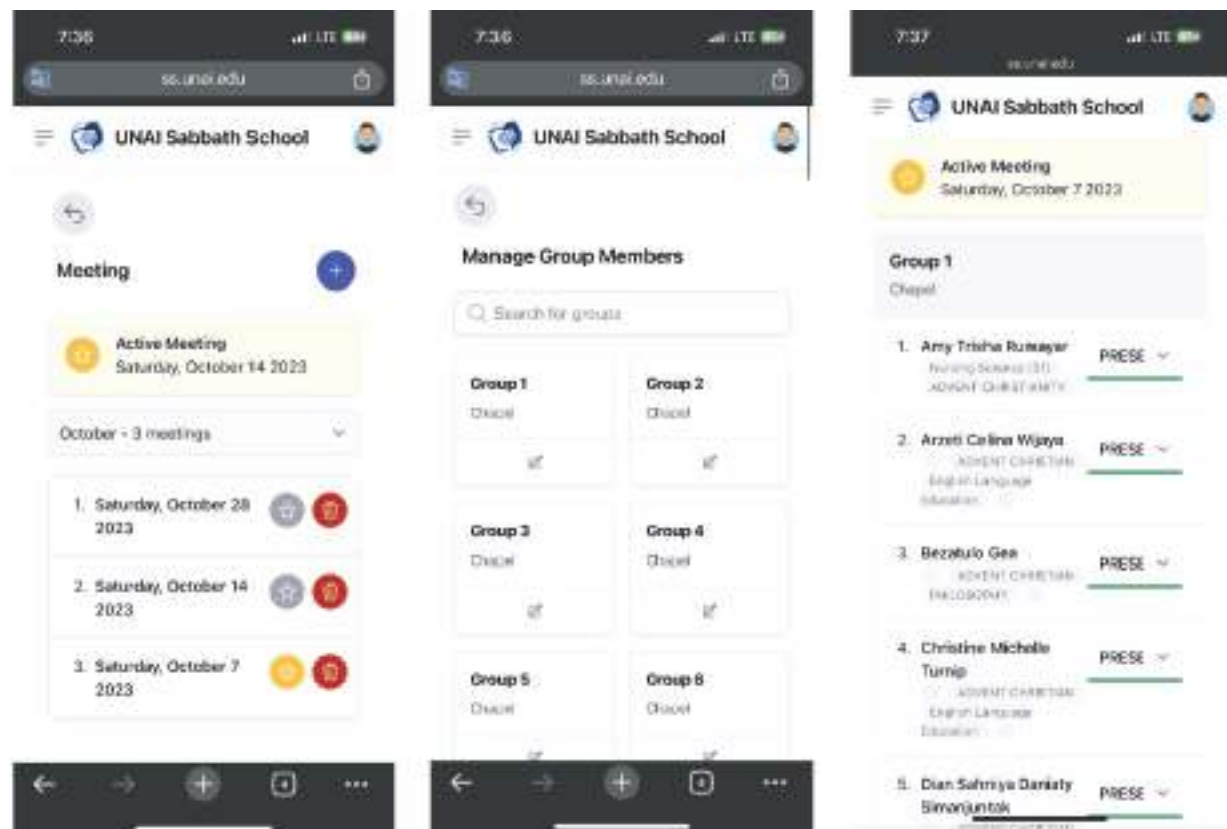


Figure 6 showcases the reporting features of the Sabbath School Digital Attendance System, demonstrating the application's capacity for generating comprehensive attendance reports. The system provides an extensive analysis of attendance data, allowing for efficient monitoring and management of student presence across various groups and meetings.

The first image displays the absence reporting module, which serves as a hub for generating different types of attendance reports: group attendance reports, meeting attendance reports, and student attendance reports. Each option is represented by an icon, offering a simplified path for users to access detailed attendance analytics. This modularity is crucial for tailoring reports to specific administrative needs and showcases the system's flexibility.

The second screenshot details the Group Attendance Report interface. It allows users to search for and select specific groups to view their attendance statistics. For instance, "Group 1" is displayed with a presence rate of 95.65%, accompanied by a numerical and visual representation of attendance data (present, roll call, sick, permission). The "View details" link suggests additional layers of data accessible for deeper insights, reinforcing the system's comprehensive tracking and reporting capabilities.

The final screenshot zooms further into the detailed attendance metrics for various groups, sorted by presence in descending order. It illustrates the user-friendly visualization of attendance rates, such as the 100% presence rate for "Group 40," with a breakdown of the status categories (present, roll call, sick, permission). This granularity not only provides immediate visibility into attendance health but also allows for quick assessments and interventions by educators and administrators. The presence of a "View details" option suggests further drill-down capabilities into more granular attendance data.

Collectively, these interfaces underscore the system's commitment to a user-friendly and efficient digital solution for attendance management. The continuity in design across different operational stages of the system demonstrates a thoughtful approach to user interaction, optimizing the experience for performance on mobile devices. This approach contributes to the user satisfaction and efficiency improvements outlined in the research paper.

Conclusion and Recommendation

This study provides substantial evidence that the implementation of a digital attendance system heralds a significant advancement in operational efficiency for educational institutions. The digitization process has led to a pronounced reduction in time and labor that was once the hallmark of manual attendance methods.

The tangible improvements demonstrated by this study offer a solid base for the validity of our research. Operational indicators, such as enhanced efficiency and reduced errors, have been tangibly improved and quantified, providing definitive proof of the system's effectiveness. These findings are in harmony with our initial research goals and theoretical predictions, thereby reinforcing the validity of our hypotheses and contributing valuable insights to the literature on digital transformation in attendance management.

Furthermore, the digital system's flexibility and scalability stand out as pivotal benefits. The positive outcomes at Universitas Advent Indonesia suggest that this system holds promise for widespread adoption. Its design allows for easy customization to fit diverse educational settings, paving the way for a potential overhaul in how attendance is managed across various institutions.

Concluding, the UNAI Sabbath School Attendance System exemplifies the potential of digital approaches in streamlining educational administration. This successful realization of the project's objectives not only affirms the

system's effectiveness but also encourages its consideration as a model for similar educational environments.

For future research, it is recommended that the scope of the Sabbath School Attendance System's application be expanded to the global Seventh-day Adventist Church network. Investigating its adaptability and impact across different cultures and administrative structures would provide valuable data. This could lead to a unified, efficient attendance management system that enhances engagement and operational excellence for the Adventist Church worldwide.

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Assessment of Arbuscular Mycorrhizal Inoculum on the Growth and Development of *Melocactus disciformis*

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Arbuscular mycorrhizal fungi (AMF) are soil fungi that form a mutualistic symbiosis with plants, are essential members of the root microbiome, and can serve as biofertilizers for sustainable agriculture. By examining the effectiveness of arbuscular mycorrhizal inoculation (AMI) in promoting the rapid proliferation of cacti, this study aimed to mitigate the economic and environmental consequences associated with the use of chemical fertilizers by growers. Moreover, it is intended to enhance commercial production of cacti and assist in the restoration of wild populations of these plants. Using *Melocactus disciformis* to test the effectivity of AMI, we found out that the group exposed to medium concentration exhibited the highest average plant diameter of 5.725 cm, followed by high concentration (5.6625cm) and low concentration (5.3875 cm), while the control group displayed the lowest average of 5.025cm. Examining plant height, the medium concentration group has the highest mean of 5.4125, followed by the high concentration (5.2 cm), the low concentration (5.0625 cm), and the control group with the lowest mean height of 4.7875cm. Turning to root length, plants subjected to a high concentration exhibited the longest average root length at 15.2875cm followed by the low concentration (4.8625 cm), the medium concentration (12.6cm), and the shortest, the control group (9.1875 cm). It was observed that there are significant differences between the control group and the medium AMI concentration group in terms of both plant diameter and height. However, no significant distinctions were found between the control group and the low or high concentration groups for any of the parameters studied. These results highlight the potential of AMI in promoting plant growth, particularly with a medium concentration.

Keywords: arbuscular, inoculums, mycorrhizal fungi, cactus

The arbuscular Mycorrhizal Inoculum (AMI) is one of the most important members of the root microbiome that can be used as biofertilizers that are stable for the sustainability of agriculture and other plants (Gianinazzi & Vosátka, 2004). It was also found to be a good source of soil health restoration, enhancing plant growth and crop yields, and dealing with biotic stress (Asmelash et al., 2016). Arbuscular mycorrhizal inoculum is considered a potential source for biocontrol (Agnolucci et al., 2019) and is recognized as an indirect contributor due to its influence on soil aggregation, plant physiology, and community composition (Rillig, 2004). In addition to safeguarding plants against infections and root herbivores, it is essential for the acquisition of nutrients including nitrogen, phosphate, and potassium (Rillig, 2004; Ali et al., 2021; Agnolucci et al., 2019).

AMI may provide advantages for crop production, but before it can be used in cropping systems, more study and the implementation of its agronomic practices at the field scale are needed. It has the ability to boost the amount of micronutrients in grains, promote soil resilience and structure, safeguard plants from herbivores and diseases, and raise vigilance against soil acidity, toxic metals, drought, and salt (Wahab et al., 2023; Kalamulla et al., 2022; Khan et al., 2022). The AMI can also help improve the plants' biotic and abiotic resistance (Marro et al., 2022; Piotrowski et al., 2004; Begum et al., 2019). The microorganisms that are present will then directly increase the mycorrhizal colonization and abundance of fungal propagules (Valera-Cervero, 2016; Nasslahsen et al., 2022).

One of the major problems for plants in arid and semi-arid regions is the drought. AM interactions assist plants by improving their nutrient supply as well as their tolerance to salinity and drought (Cheng et al., 2021). However, cactaceae are drought-tolerant plants, as this can also be a source of sustainable food and feed. In spite of that, its growth and development are restricted during dry conditions (Meddich, 2022). The main branch of

succulent plants, the Cactaceae (Caryophyllales, Angiosperms), is distinguished by its astounding diversity and is thought to have originated during the Eocene-Oligocene transition (Franco et al., 2022; Hernández et al., 2014). Cacti were used as food, fodder, and for medicinal purposes. At this time, cacti were also being used as ornamental plants for some landscaping purposes in the arid areas, i.e., xeriscaping, due to their drought-tolerant properties. Given the efforts made so far to sample traditional molecular markers for the Cactaceae family and how genomic sampling in Cactaceae has been encouraged by the increasing accessibility to modern sequencing technologies (Franco et al., 2022; Romeiro-Brito et al., 2022). Cacti are an important part of the ecosystem, as they provide shade, water, and sources of food for various species.

Common to all succulents is the nearness of large cells for water capacity (Griffiths & Males, 2017). The succulent plants have been the subject of interest for centuries, but their significance as water management has maybe never been more prominent than now (Hernández & Hernández et al., 2014b). According to Raza et al. (1995), succulents are quite effective in removing carbon dioxide from the environment. Succulent plants are now one of the most common plants that can be seen indoors or in displays and can be found or bought anywhere. The development land in the anthropogenic areas is getting smaller, and some succulent species are going extinct because of this unbalanced scenario. Arbuscular Mycorrhizal Inoculum are biofertilizers that can be bought at affordable prices and can be used in ornamental plants. The purpose of using arbuscular mycorrhizal inoculum in the succulent plant is to understand the factors that it can contribute to ornamental plants, such as succulent species, and ultimately to identify the changes in the plant's growth, to avoid the extinction of some succulent species in anthropogenic areas, to speed up growth and development, and to produce seedlings. The utilization of biofertilizers, such as arbuscular mycorrhizal inoculation (AMI), offers

multiple benefits to cactus and succulent growers. By replacing chemical fertilizers, biofertilizers not only reduce costs but also address the adverse effects associated with chemical fertilizer usage, both on the environment and living organisms. Often, the use of organic or chemical fertilizer or pesticides has been proven to cause damage to soil, plants, and even humans, as it damages the food product's quality and the health of the soil, air, and water systems (KumasystemsDev, 2017).

Previous studies have proven that arbuscular mycorrhizal inoculum gives direct satisfaction to host crops, leading to increased crop production (Campbell, 2015). The research paper presents an overview of some studies that have been published that discuss the effect of Arbuscular Mycorrhizal Inoculum on different plants. The study focuses on the changes in the diameter, height, and length of the roots of *Melocactus disciformis* over a span of 19 weeks.

Methodology

Research Design

The study is quantitative research that utilizes the cause-and-effect relationship between the independent arbuscular mycorrhizal inoculum variable and the dependent growth and development variable of *Melocactus disciformis*.

Plant materials

The plant specimens utilized in this research were obtained from Prickly Beauties Nursery, located in Poonc 2, Silang, Cavite. The seedlings were locally grown and have undergone acclimation to the specific microclimate conditions of the area.

Preparation of Mykovam

The Mykovam biofertilizer was procured from Green Thumb Inc., the official online store of the University of the Philippines, Los Baños organic biofertilizers. The weighing process of Mykovam took place on September 22, 2022, using an analytical balance located in the equipment room

of the Biology Department in the College of Science and Technology Building at the Adventist University of the Philippines. The biofertilizer was divided into three different concentrations: low, medium, and high. Each concentration was carefully packaged in small individual packs to maintain separation and organization. The specific weights for each concentration were as follows: low concentration: 1.25 grams; medium concentration: 2.50 grams; and high concentration: 3.75 grams.

Soil Preparation

The components that went into the soil mixture were bought online. To get rid of impurities and pathogens before usage, the pumice was properly cleaned and allowed to air dry. Eight liters of cocopeat, six liters of pumice, and six liters of vermicast were meticulously measured for the soil mixture. In order to ensure a suitable combination of the ingredients, the researchers blended these measured amounts of soil components in a container.

Experimental Set-up

The experimental phase of the study commenced on September 20, 2022, at Prickly Beauties, located at 128 Poonc 2, Silang, Cavite. On the same day, the researchers collected succulent seedlings and recorded their initial diameter, height, and number of leaves in centimeters using a ruler. On September 22, 2022, the length of the roots was measured using a ruler.

The pots were filled halfway with the designated potting medium, and Mykovam was applied on top. The seedlings were then carefully planted in the pots and secured with additional soil mix until the pots were filled to the brim. Subsequently, the replanted seedlings were transferred to a 50% shade net area within the nursery, allowing them to receive adequate sunlight.

Throughout the study period, the length of the roots, diameter, and height were monitored and measured. The researchers initiated data collection and the first watering on the 29th day of September

2022. The study was conducted for a duration of 19 weeks, spanning from September 29, 2022, to February 2, 2023.

Statistical Analyses

The data analysis in this study involved employing one-way ANOVA, Tukey's post-hoc test, and Kruskal-Wallis analysis. The objective was to gain valuable insights into our specific topic by thoroughly analyzing the collected data. To initiate the data analysis process, the researchers transformed the data into a suitable format for comprehensive analysis.

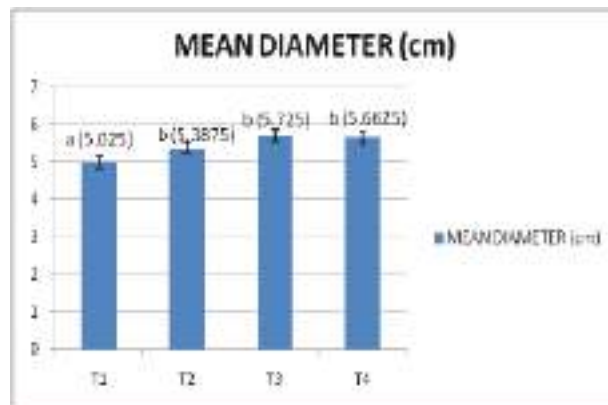
Results and Discussion

Diameter of the Body of *Melocactus disciformis*

Figure 1 shows the mean diameter of the body of *Melocactus disciformis* at different concentrations of AMI. The plants exposed to medium concentrations of AMI have the highest mean plant diameter of 5.725, followed by those in the high concentration group with a mean of 5.6625, followed by the low concentration group with a mean of 5.3875, while those in the control group have the lowest mean plant diameter (5.025).

Figure 1

Mean Diameter of the Body of *Melocactus disciformis*



Using the significance level of $p = 0.05$, the mean plant diameter of *M. disciformis* in

different concentrations of AMI has a p -value of 0.000053, which means that there is a significant difference between the means of the different groups. Comparing the results between the different groups, the control group has a significant difference between the plants exposed to medium and high concentrations of AMI but no significant difference between those exposed to low concentrations.

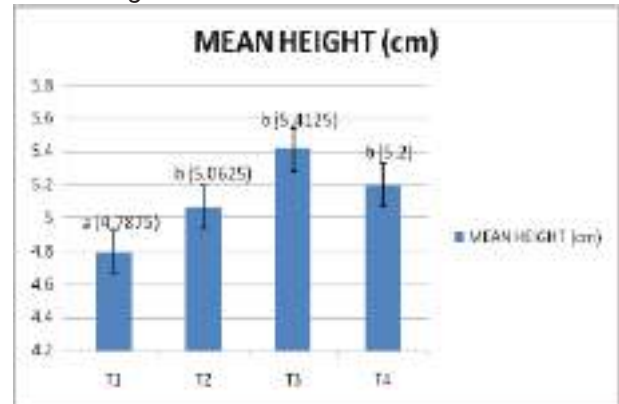
Using the post hoc test, there is a significant difference between treatment 1 and treatment 3 ($Q = 7.34$); the same goes for treatment 1 and treatment 4 ($Q = 6.68$), which is the plant diameter of *M. disciformis* after 19 weeks of observation.

Height of *Melocactus disciformis*

Figure 2 shows the mean height of *Melocactus disciformis* at different concentrations of AMI. The plants exposed to medium concentrations of AMI have the highest mean plant height (5.4125), followed by those in the high concentration group (5.2), then those in the low concentration group (5.0625), while those in the control group have the lowest mean (4.7875).

Figure 2

Mean Height of *Melocactus disciformis*



Using the significance level of $p = 0.05$, the mean plant height of *Melocactus disciformis* in different concentrations of AMI has a p -value of .027637, which means that there is a significant difference between the means of the different

groups. Comparing the results between the different groups, there is a significant difference between the plants exposed to medium concentrations of AMI and the control group, but no significant difference between those in low and high concentrations.

The post hoc test is presented in Table 1. It shows that there is a significant difference between treatment 1 and treatment 3 ($Q = 4.48$), which is the plant height of *Melocactus disciformis* after 19 weeks of observation.

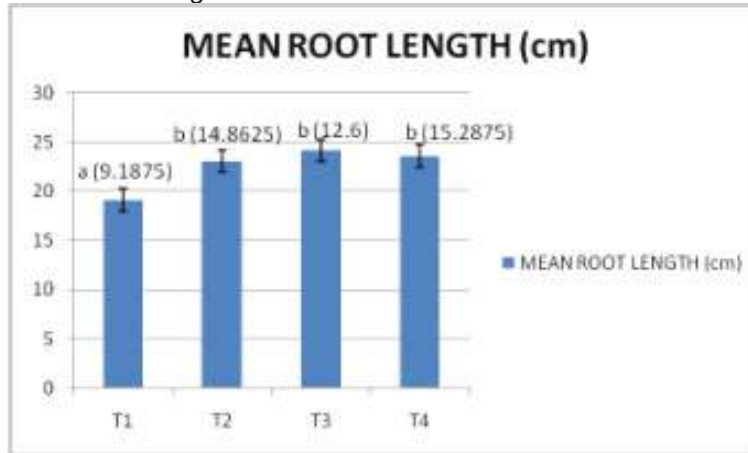
Table 1

One-way ANOVA analysis of Mean Height in Melocactus disciformis and Pairwise Comparisons of Plant Height in Melocactus disciformis

Between-treatments	1.6459	3	0.5486	F = 3.52645
Within-treatments	4.3563	28	0.1556	P = 0.027637
Total	6.0022	31		
Pairwise Comparisons	HSD .05 - 0.5385	Q.05 -	Q.01 - 4.8296	
	HSD .01 - 0.6735	3.861 2		
T1:T2	M1 = 4.79	0.28	Q = 1.97 (p=.51319)	
T1:T3	M2 = 5.06 M1 = 4.79	0.63	Q = 4.48 (p=.01821)	
T1:T4	M4 = 45.41 M1 = 4.79	0.41	Q = 2.96 (p=.18052)	
T2:T3	M4 = 5.20 M2 = 5.06	0.35	Q = 0.99 (p=.89729)	
T2:T4	M3 = 5.41 M2 = 5.06	0.14	Q = 0.99 (p=.89729)	
T3:T4	M4 = 5.20 M3 = 5.41 M4 = 5.20	0.21	Q = 1.52 (p=.70581)	

Note: The f-ratio value is 3.52645. The p-value is .027637. The result is significant at $p < .05$.

Figure 4 shows the mean root of *Melocactus disciformis* at different concentrations of AMI. The plants exposed to high concentrations of AMI have the highest mean root height (15.2875), followed by those in the low concentration group (14.8625), then those in the medium concentration group (12.6), while those in the control group have the lowest mean (9.1875).

Figure 4*Mean Root Length of Melocactus disciformis*

Using the significance level of $p = 0.05$, the mean plant diameter of *Melocactus disciformis* in different concentrations of AMI has a p -value of .042242 which means that there is a significant difference between the means of the different groups. Since the data does not distribute normally, the Kruskal-Wallis test was utilized to analyze the differences between the groups. Comparing the results between the different groups, as presented in Table 2, in the control group, there is a significant difference between the plants exposed to low and high concentrations of AMI but no significant difference between those exposed to medium concentrations.

Table 2

One-way ANOVA Analysis of Mean Root Length in Melocactus disciformis and Pairwise Comparisons of Root Length in Melocactus disciformis

Between-treatments	187.1659	3	62.3886	F = 3.10968
Within-treatments	561.7563	28	20.0627	P = 0.042242
Total	6.0022	31		
Pairwise Comparisons	HSD .05 - 6.1147	Q.05 -	Q.01 - 4.8296	
	HSD .01 - 7.6482	3.8612		
T1:T2	M1 = 9.19	5.68	Q = 3.58 (p=.07621)	
T1:T3	M2 = 14.86	3.41	Q = 2.15 (p=.43734)	
T1:T4	M4 = 12.60	6.10	Q = 3.85 (p=.05073)	
T2:T3	M4 = 15.29	2.26	Q = 1.43 (p=.74482)	
T2:T4	M3 = 12.60	0.42	Q = 0.27 (p=.99752)	
T3:T4	M4 = 15.29	2.69	Q = 1.70 (p=.63192)	
	M3 = 12.60			
	M4 = 15.29			

Note: The f -ratio value is 3.10968. The p -value is .042242. The result is significant at $p < .05$.

Further, using the post hoc test, in Figure 5, there is no visual highlight between the two group treatments but a significant difference in p-value. Even when there is no obvious difference between the groups, statistical tests like the t-test and ANOVA can identify differences between the groups. It's crucial to remember that statistics do not always equate to relevance or importance in real-world situations. Although a slight difference between groups may be statistically significant,. Furthermore, statistical analyses can result in false positives or false negatives since they are not always accurate (Oja, 2022).

Conclusion

Melocactus disciformis exhibited positive results in terms of diameter, height, and root length when exposed to arbuscular mycorrhizal inoculum. The plants treated with arbuscular mycorrhizal inoculum demonstrated significant differences in diameter, plant length, and root length compared to the control group. These findings indicate the beneficial effects of arbuscular mycorrhizal inoculum on the growth parameters of *M. disciformis*.

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Designing of a Drug Information System of Bitung City Health Office Based on the Web

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This study presents the design of a Drug Information System (DIS) at the Bitung City Health Office to provide real-time insights into the status of drug stocks stored within the health department's warehouse. The system's primary users include the Head of Bitung City Health Office, the Mayor of Bitung, and the Vice Mayor of Bitung. This research applies software engineering methodologies, specifically the Scrum model process—a well-known iterative prototyping framework. Scrum's adaptability to changing client needs makes it suitable for this context. The DIS enables a comprehensive view of the Bitung City Health Office's drug warehouse, displaying vital information such as drug intake and outtake dates, quantities received and distributed, and drug expiration dates. A search function based on drug names or types further enhances accessibility. Notably, the system operates exclusively through web browsers, streamlining access without the need for specialized software installations. By facilitating real-time access to drug information, the DIS accelerates report management processes and provides timely insights. The system generates weekly and monthly reports, ensuring that stakeholders are consistently informed about drug stock dynamics. The DIS significantly simplifies the process of obtaining drug-related data, enhancing overall efficiency in inventory management. Noteworthy is the system's user-friendly presentation of drug data through a dedicated drug table interface, offering a rapid and easily navigable overview. In conclusion, the implementation of the Drug Information System at the Bitung City Health Office exemplifies how technological advancements can augment drug inventory management. The real-time nature of the system, combined with its user-friendly interface, contributes to more informed decision-making processes for stakeholders involved in healthcare management. By embracing agile methodologies like Scrum, this study underscores the adaptability and relevance of contemporary software engineering practices in addressing dynamic healthcare demands.

Keywords: *information system, drug, scrum, health office, web*

The Bitung City Health Department is responsible and authorized for formulating plans and executing developmental programs in accordance with the Regional Health System. It also endeavors to enhance the regional health system to further health service efforts (*Peraturan Walikota Bitung Nomor 44 Tahun 2013*, 2013). Therefore, all efforts made by the Bitung City Health Department are geared towards ensuring the Bitung community can comfortably access available health facilities.

One of the ways the Bitung city government fulfills its obligation to improve the welfare of the people is by providing comfortable healthcare facilities. A key aspect of delivering quality healthcare services to the community is ensuring the provision of essential and suitable medicines. During interviews conducted by the researcher at the Bitung City Health Department, it was noted that when the Head of the Health Department requests data regarding available medicines in the pharmacy, the required information is often delayed in being provided. In light of this observed situation, this study was initiated with the aim that whenever key policymakers, including the Head of the Bitung City Health Department, the Mayor of Bitung, and the Deputy Mayor of Bitung, wish to access real-time drug data, they can do so through the drug information system. Hence, the focus of this research is to develop such a system.

Information systems, characterized by their structured methodologies to gather, administer, and regulate data, play a pivotal role in aiding businesses to seamlessly handle routine transactional activities while aligning with overarching strategic organizational imperatives. Such systems not only facilitate specific insights pivotal for decision-making (Sofyan et al., 2021) but also encapsulate the intricacies of daily transactional data processing needs, undergird operations, and mirror both the managerial and strategic ambitions of institutions. Furthermore, they produce essential documentation tailored for select external stakeholders (Fauzi, 2021). This robust architecture

ensures data is systematically archived, rendering it readily accessible and organized for immediate requisitions. Such attributes have galvanized their ubiquitous integration across myriad institutional frameworks (Taufiq et al., 2020).

Similar drug or medicine information systems have been developed for different contexts. The study by Ayudhia et al. (2017) and Syafariani et al. (2021) developed an information system to handle the pharmacy's sales transactions, drug inventory management, and reporting functions. In a separate study (Kazemi et al., 2016), a comparable pharmacy information system that supports the distribution and management of pharmaceuticals, displays drug and medical device inventory, and facilitates the preparation of required reports was evaluated. The system was a hospital information system subsystem. In this study, the researchers intended to develop a drug information system for Bitung City as an emblem of the harmonization between modern information infrastructures and urban development agendas. Specifically, its alignment with Bitung City's aspirations for a smart city program underscores the potential of such systems to augment community welfare and comfort.

Methodology

The software engineering technique based on the Scrum process model will be employed in this research. The Scrum process model is a framework characterized by iterative prototyping (Prabowo & Wiguna, 2021). The Scrum method is chosen due to its adaptability to changing and rapidly evolving client needs and desires during system development. It organizes development into work cycles known as sprints. The outcomes of the Scrum phase include the product backlog, sprint backlogs, sprints, and software work increments, addressing issues of time, scope, and cost. The system can be completed in accordance with client requirements. The implementation of the Scrum model is a collaborative team activity. Developing applications

using the Scrum model enables users to conduct preliminary testing, obtain a fundamental program overview, and produce high-quality information systems in a short timeframe.

The reason for the researcher's choice of the Scrum method is to facilitate the interaction between the researcher and the client during the application development process. This enables the researcher to easily model the software that will be created if the product backlog changes, allowing for the possibility of iterating the application development if further changes are required.

The Scrum method also facilitates the researcher's work within a small team, as tasks will be divided among team members and completed within predetermined timeframes (Fairuzabadi et al., 2023). Figure 1 depicts the Scrum method, outlining the steps that must be followed to undertake software development using the Scrum methodology.

Figure 1
Scrum Methodology



The researcher employed both primary and secondary data in this study. Initial information for the research was gathered by directly visiting the drug storage warehouse of the Bitung City Health Department and conducting interviews with the personnel. To gather information about the development of a web-based healthcare drug information system, references such as e-books,

scientific journals, and various thesis examples will be used in this research to collect secondary data.

The data collection methodology for this study involves interviews, observations, and a literature review. The interviews will be conducted with the Head of the Drug Warehouse at the Bitung City Health Department, aiming to gain deeper insights into the intended system of the proposed application. Direct observations will be made within the drug storage warehouse of the Bitung City Health Department to closely observe the operations pertaining to medicine dispensation and receipt. Additionally, a comprehensive literature review will be employed to synthesize data from various sources, such as books, journals, and relevant research, enriching the contextual understanding required for the application's development.

The data collection procedure in this study consists of the stages of data collection, data processing, and research report preparation. In the data collection stage, interviews are conducted with the drug storage facility at the Bitung City Health Department. The data collection method involves several steps, including direct requests and initial discussions with the Bitung City Health Department and the Faculty of Computer Science at Klabat University. Prior to interviewing the drug storage facility, written permission is obtained from the faculty. Questions are prepared in advance to guide the interview with the Bitung City Health Department. Once the interview appointment is scheduled, the researcher conducts the interview based on these questions to gather the necessary data.

The outcomes of the interviews are then collected as research data. The information collected from observations and interviews will be analyzed during the data processing stage. The conclusions drawn from this data will form the conceptual framework for the system. The final step involves creating the research report after the data collection and processing are complete. The researcher will also utilize the literature review to design the proposed system model.

Results and Discussion

In the context of this study, the interactions within the user system were elucidated using a use case diagram. To provide a comprehensive understanding of the functionalities of each use case, the researchers also presented use case scenarios corresponding to every use case embedded in the system (Hadi & Diana, 2019). This detailed representation allows for a deeper analysis of system interactions and offers valuable insights into potential user experiences and system functionalities. In the realm of system analysis, a use case diagram, characterized by actors and their interrelationships, serves as a pivotal tool for deciphering conclusions from information system requirements (Syarif & Nugraha, 2020). These diagrams elucidate processes, providing insights into the system's behavior from the vantage point of user interactions conducted by both actors and the information system. An actor, as delineated in this context, can be visualized as a human figure or a system entity executing specific tasks within the system (Ruliyanto et al., 2021). Furthermore, a use case, presented in Figure 2, acts as a conduit between users and models, distinctly defining and specifying the prerequisites that a system must fulfill (Chonoles, 2018).

Figure 2
Drug Information System

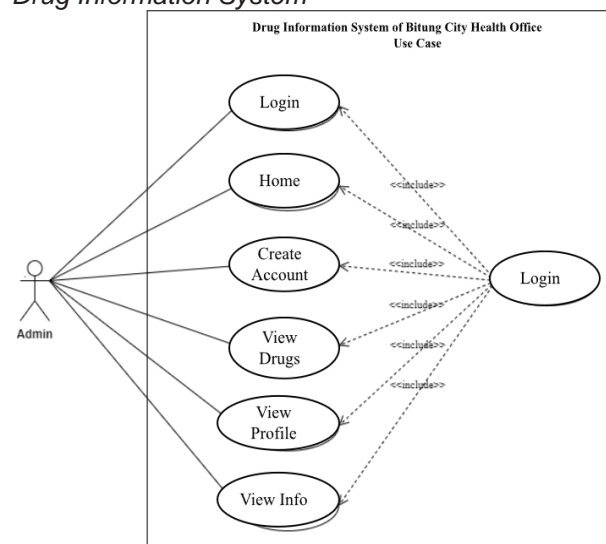
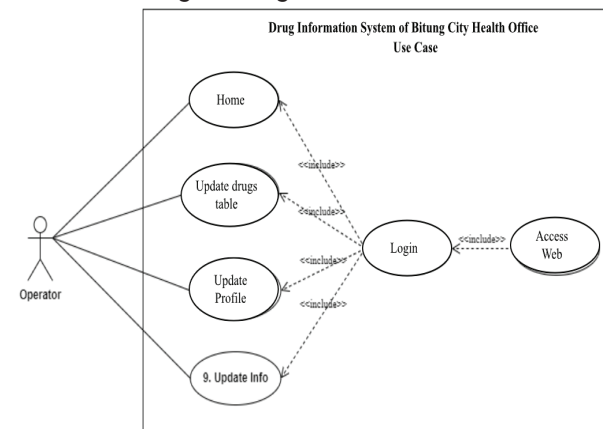


Figure 3 shows that the admin logs in with a username and password on the login page. Upon successful login, the admin is directed to the system's homepage. If the login fails, the admin can retry by entering the correct username and password. Once on the homepage, the administrator has the ability to create accounts for both users and operators. The administrator must possess the necessary data for users and operators and then select the 'create account' menu. The system will display a registration form that allows the admin to input user and operator data. This data is then stored in the database. Additionally, the admin also has the capability to view the drug table. The admin can choose the drug table menu on the homepage, and the system will present a table containing information about medications.

Figure 3
Use Case Diagram Log-in

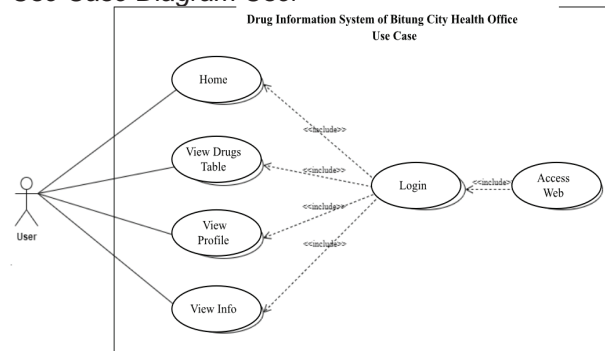


In the use case diagram image of the operator figure 3, an operator logs in successfully and, upon doing so, enters the system's homepage. The operator can view the homepage and then open another website to log in again, which subsequently redirects them back to the homepage.

Next, the operator selects the "Update Drug Table" menu, where they have data related to drugs that need to be updated. They make changes to information such as entry date, exit date, expiration date, and drug stock in the drug table. These changes are saved in the database.

Furthermore, the operator makes changes in the “Profile” menu. They have data related to the mayor, vice mayor, head of the health department, as well as the vision and mission of the Bitung city health department. The operator successfully updates this profile information. Then, they select the “Info” menu, and the data is saved by the system.

Figure 4
Use Case Diagram User



In the user use case diagram Figure 4, successful login authentication is the first step, granting access to the user’s homepage, which is consistently displayed upon login and subsequent visits. However, incorrect credentials trigger an error message. Within the system, the “Tabel Obat” menu option guides cashiers to the drug table page, where they can conveniently access essential pharmaceutical details such as entry dates, expiration dates, and stock levels, all seamlessly presented by the system when the menu is selected.

Figure 5
Activity Diagram Login

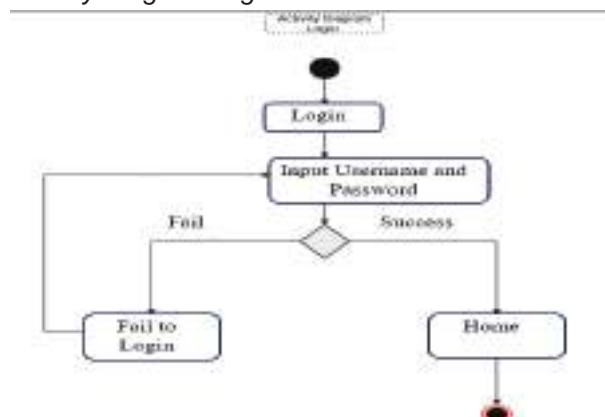


Figure 5 shows users will perform web access by opening a web browser and then navigating to the web link. Admins, operators, and users will log in to the website. Initially, users must be on the login page and then enter their username and password. If the username and password match, the user successfully logs in and is directed to the website’s home page. Conversely, if the username and password are incorrect, the user fails to log in, and therefore, the user is required to re-enter the correct username and password.

Figure 6
Creating Account

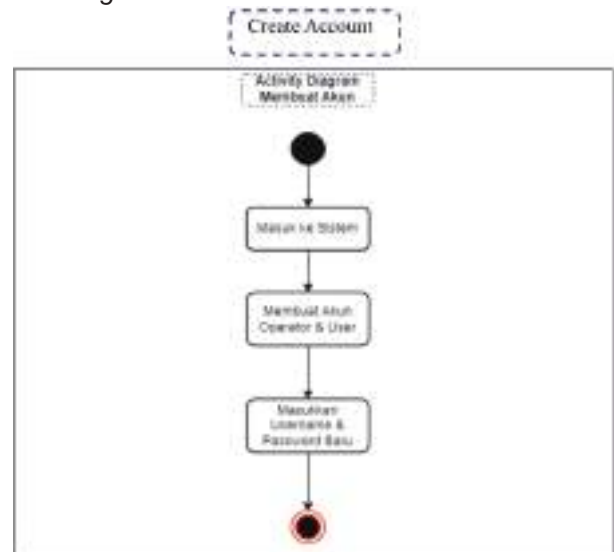


Figure 6 explaining how an admin creates specific accounts for pharmaceutical warehouse operators and users. Where the admin selects to log into the system and chooses the ‘create account’ menu, then the admin selects to input new usernames and passwords for operators and users who will access the web. After completing the input, the new account data will be stored in the database.

Figure 7
Operator Updates

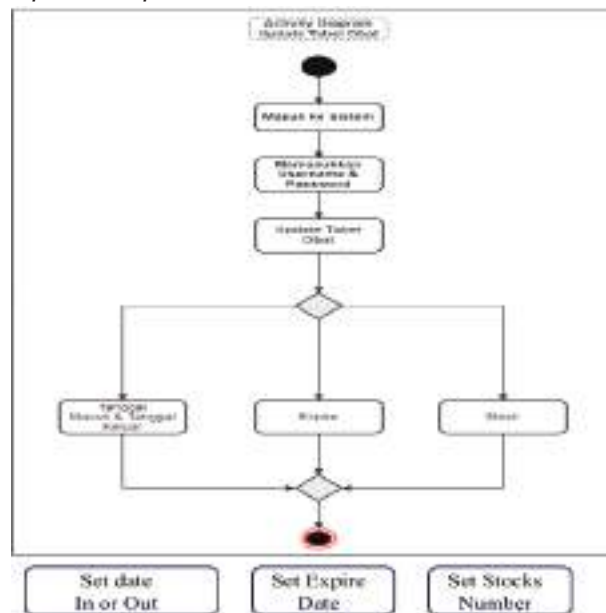
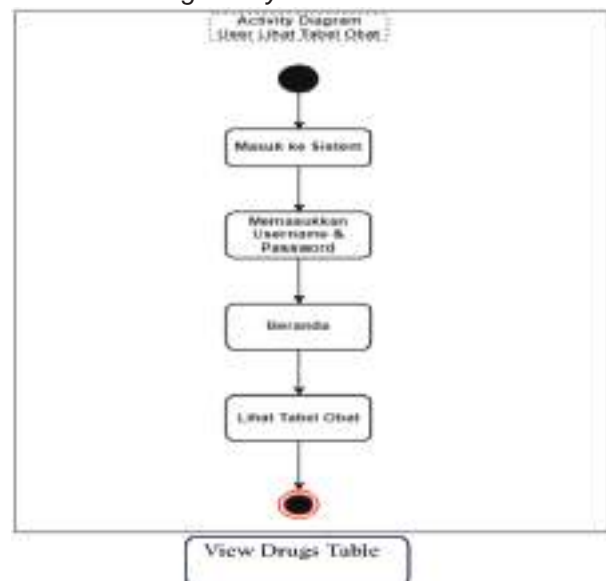


Figure 7 explaining how an operator updates data for the existing drugs in the drug table. The operator logs into the system, selects the drug table, and performs updates based on the latest available data. The updates include entering the date of drug entry, date of drug withdrawal, expiration date of the drug, and also updating the stock levels of all the existing drugs in the table.

Figure 8
User Accessing the System



In Figure 8, it depicts how a user accesses the system. Initially, the user enters the system by providing their username and password, which then leads them to the homepage. From there, the user can navigate to view the drug table. The drug table displays updated information, including the entry date of drugs, the withdrawal date of drugs, drug expiration dates, and the stock levels of all drugs within the Bitung City Health Department's drug warehouse.

Conclusion and Recommendation

Based on the research conducted, it can be concluded that the web-based drug information system for the Bitung City Health Department has several key advantages. The system is accessible and operates exclusively within a web browser, making it convenient for users. Management reporting has become faster and more real-time, as the information system provides updated weekly and monthly reports. Accessing information about drug data is now easier and more efficient. The system enables quick and user-friendly access to drug data through the drug table page. The system effectively presents the contents, concepts, and information related to the Bitung City Health Department's drug warehouse. It displays crucial information such as the entry date of drugs, the withdrawal date of drugs, the quantity of drugs in stock, the quantity of drugs withdrawn, and drug expiration dates. The system includes a search feature based on drug names or types, enhancing user-friendliness. However, it's worth noting that the information system developed by the researcher is not yet perfect.

Therefore, there are opportunities for further improvement and development. For the recommendation, Enhance accessibility to broaden its utility, consider transforming the system from a private to a public-access system. This would allow a wider audience to benefit from the information provided. Regular updates, continuously update the system with the latest information about available drugs. This ensures that the data remains current

and accurate. Improved user interface, make efforts to enhance the system's user interface to make it more visually appealing and user-friendly. An intuitive and attractive interface can improve user satisfaction and engagement. Multilingual support, consider adding support for languages other than the local language, such as English. This can help users who are more comfortable with other languages to access and use the system effectively.

In conclusion, while the web-based drug information system for the Bitung City Health Department offers valuable benefits, there is room for improvement and expansion to maximize its utility and reach a broader audience. These recommendations can guide future development efforts to make the system even more effective and user-friendly.

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Development of Talaud Language Bible Applications

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The diversity of regional languages is one of Indonesia's distinctive features. However, despite having hundreds of regional languages, it turns out that some of them are in critical condition or facing the risk of extinction. One of the endangered languages is the Talaud language. This has prompted researchers to develop a Talaud language Bible application that can be run on Android smartphones, allowing users to access it anytime and anywhere. The aim of this research is to create a complete electronic Talaud language Bible application as a contribution to preserving the Talaud regional language. In the development of this application, the researcher used the spiral method. The spiral method allows for iterative development, where phases can be revisited if there are any mistakes. The technology used in the development includes the JavaScript programming language with the React Native framework and SQLite as the database. The output of this research is a Talaud language Bible application containing both the Old and New Testaments, equipped with features such as verse annotations, verse bookmarks, and verse sharing. For future research, it is recommended to focus on improving word search functionality and implementing a feature for suggesting words with similar meanings or identifying related words with the assistance of artificial intelligence.

Keywords: *Talaud language, react native, Bible, SQLite*

As the convenience brought about by technological advancements reaches every aspect of life, it provides ease in daily living. In March 2020, at the onset of the Covid-19 pandemic in Indonesia, where people had to maintain physical distance, nearly all activities shifted from in-person to virtual interactions (Kompas 2021; Ministry of Finance of the Republic of Indonesia 2021). In response to these measures, churches also adapted to the new way of life during the pandemic by transitioning from conventional worship to digital worship services (Sitanggang, 2021, p. 1-19). Furthermore, technology is also making its presence felt in the realm of theology, with many digital versions of the Bible now available (Tanutama, 2012). Conventional Bibles have seen numerous translations in various languages, including regional languages in Indonesia.

Furthermore, with the advancement of science and technology, there is hardly any culture that has not been affected by other cultures, including the use of regional languages in daily life. According to data from the Language Development and Maintenance Agency, as presented in the Language Statistics Book of 2019 and the Language, Literature, and Publishing Statistics Book of 2020, it was found that in 2019, there were a total of 801 languages spread across the provinces. Validated data for language vitality in 2019 included 98 regional languages. Among these 98 languages, 37% were classified as safe, 19% as stable but endangered, 3% were in decline, 25% were endangered, 5% were critical, and 11% were already extinct. In the North Sulawesi province, based on language vitality validation, two regional languages, Ponosakan and Sangihe Talaud, were classified as endangered.

Through an interview with the Department of Tourism and Culture of Talaud Regency, represented by Ms. M. Beti Nebangka, S.Pd on November 23, 2021, it was noted that the Talaud language is still widely used by the Talaud community in their daily communication. However, the interviewee explained that the Department of

Tourism and Culture of Talaud has been making efforts to preserve the Talaud language, including the creation of a Talaud language dictionary in digital format (Unimus 2021). With the development of this Talaud language Bible application, researchers can contribute to the preservation of the Talaud language. This is because, with the availability of this application, Christians who understand or have some knowledge of the Talaud language can use it. It can lead to increased use of the Talaud language, especially in the field of literacy. Based on data obtained from the Central Statistics Agency of Talaud Regency in 2019, the majority of the population in Talaud Regency practices Christianity, with a total of 65,570 believers (Drane 2021). It serves as the rationale for the researcher's decision to develop the Talaud language Bible application.

Based on the issues previously discussed, the rapid spread of globalization has significantly impacted the use of regional languages and the researcher's concern for culture, particularly in terms of language, which is gradually facing endangerment, one of which is the language of the Talaud Islands. Moreover, considering that a significant portion of the Talaud population adheres to the Christian faith, the researcher embarked on developing a Talaud language Bible application. In previous research, an application for the New Testament was designed, but this prompted the researcher to expand it into a comprehensive Talaud language Bible application, encompassing both the Old and New Testaments. As a result, the use of the Talaud language can be revitalized in everyday life through Bible readings. It also serves as the researcher's contribution to the preservation of Talaud culture, specifically the Talaud language.

Bible

The Bible is a sacred book intended for Christians. The term "Bible" is derived from the Arabic language, where "Al" is a common word in Arabic, and "Kitab" literally means "book." In English, the Bible is referred to as "that scripture"

or “that book,” which is taken from the Greek word “biblos,” meaning “book.” The Bible is a collection of 66 books and letters written by more than 40 authors over approximately 1,500 years (Ministry of Maritime Affairs and Fisheries 2021).

The Bible has two main parts: the Old Testament and the New Testament. The Old Testament consists of 39 books, while the New Testament contains 27 books. It is called the “Old Testament” because it contains records of God’s interactions with humanity from the time of creation until the years prior to the advent of Jesus. The 39 books written before the coming of Jesus detail life under the Old Covenant, which is why this part is referred to as the Old Testament. The Old Testament contains the essence of God’s promises, specifically His promise to bless and save humanity from sin and death. The books written after Jesus’ ascension to heaven detail God’s new covenant with humanity. The New Testament, written by early Christians, encompasses the fulfillment and renewal of these promises (Talaud Regency Government 2021).

Talaud

Geographically, the Talaud Islands are situated between 03° 38’ - 05° 33’ North Latitude and 126° 38’ - 127° 10’ East Longitude. The Talaud Islands Regency is located north of Sulawesi Island, bordering the Philippines’ Davao del Sur province to the north, the Maluku Sea to the south, the Pacific Ocean to the east, and the Sangihe Islands Regency to the west (Language Development and Fostering Agency 2021).

Talaud officially became one of the regencies in North Sulawesi following its separation from the Sangihe-Talaud Regency in 2002. At that time, the Sangihe-Talaud Regency was divided into two regencies, namely the Talaud Islands Regency and the Sangihe Islands Regency.

The Talaud Islands Regency comprises three major islands and several smaller ones. The three main islands are Karakelang Island, Salibabu Island, and Kabaruan Island. The total area of the

Talaud Regency is 27,061.16 km², with a land area of 1,288.94 km² and a marine area of 25,772.22 km². The estimated population in 2020 was approximately 94,521 people (Ekanayake 2020).

Talaud Language

The Talaud language belongs to the Austronesian language family and is closely related to the Sanger, Bantik, Pasan, and Sangil languages in the Philippines. It is the distinctive language of the Talaud ethnic group for communication. The Talaud language has at least six dialects, namely Kabaruan, Miangas, Karakelang, Essang, Sali-Babu, and Nanusa. The determination of dialects is based on the location and geographical relationships of specific regions. For example, the Kabaruan dialect is associated with the Kabaruan Island region, and the same applies to the other dialects. However, the use of the Talaud language in everyday conversations has become less common. Nowadays, the Talaud community predominantly uses the Manado Malay language as their everyday means of communication (W3Schools 2021).

React Native

React Native is a JavaScript framework for developing mobile applications that can run natively on Android and iOS. It was initially introduced in 2015 and is based on ReactJS, which was developed by Facebook. ReactJS is a component-based declarative framework for developing web user interfaces (UI) (Garfolo, 2003, p. 715–735). In this research, the researcher chose to use React Native because the programming language used in the application’s development is JavaScript, which is required for the application to be developed for the Android operating system.

SQLite

SQLite is a database engine and is recognized as one of the most widely used database engines in the world (Litslink 2021). It is open-source

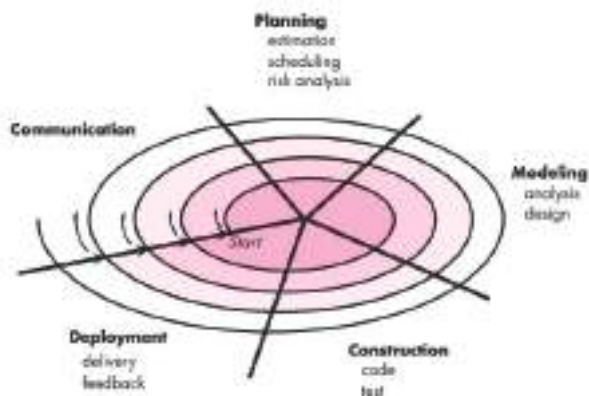
software and falls under the category of RDBMS (Relational Database Management System) with native support for Android devices (Ramayani et al., 2021). SQLite can be implemented without extensive configuration and doesn't require a server (Djabbar & Azis, 2021). This software enables users to interact with relational databases. What distinguishes SQLite from other database engines is its unique approach of storing the entire database in a single file (Putra et al., 2020). SQLite supports standard relational database functions, such as SQL syntax and transactional capabilities. Additionally, SQLite is known for its minimal runtime memory requirements (Codecademy Team 2021).

Methodology

The methodology employed in this research follows the spiral software development engineering model introduced by Barry Boehm. This development model is a gradual and iterative process. It combines aspects of two software development models: prototyping and waterfall. The choice of this development model allows for the iterative nature of the development stages, where phases can be revisited if errors or changes are identified. The stages of the spiral model are shown in Figure 1.

Figure 1

Stages of the Spiral Model



1. Communication: Developers establish effective communication with potential application users to understand their requirements and meet the needs of application development.
2. Planning: The planning phase determines the necessary facilities and tools, project timelines, risk analysis, both technically and in terms of project management, and relevant information related to the application.
3. Modeling: During this stage, a prototype is created to represent the visual design of the developed application.
4. Construction: The construction phase involves software or application development, testing to ensure its usability, and quality.
5. Deployment: The application, once ready for use, is presented to potential users for implementation and feedback collection.

Results and Discussion

Application Analysis

The researcher employs the Unified Modeling Language (UML) as a tool to illustrate the flow and workflow processes of the application. UML serves as a valuable aid in depicting the application's operational and process aspects. Figure 2 and 3 describe the usecase and the class diagrams.

Figure 2

Usecase Diagram

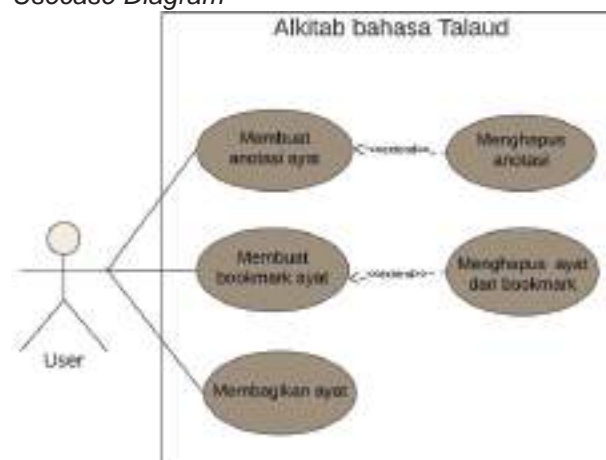
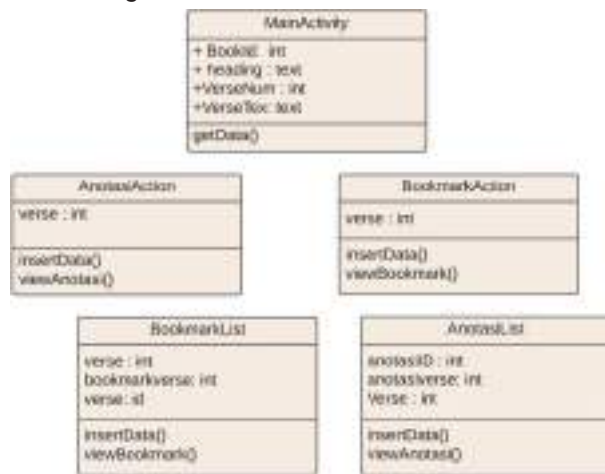


Figure 3
Class Diagram



Figures 4 - 20 are screenshots of the different features of the app. These include the application user interface design, main interface, menu display and others.

Figure 4
Application User Interface Design



Figure 5
Main Interface



Figure 6
Menu Display



Figure 7

Reading View and Pop-up Menu



Figure 8

Adding Verse Bookmarks Interface



Figure 9

Adding Verse Annotations Interface



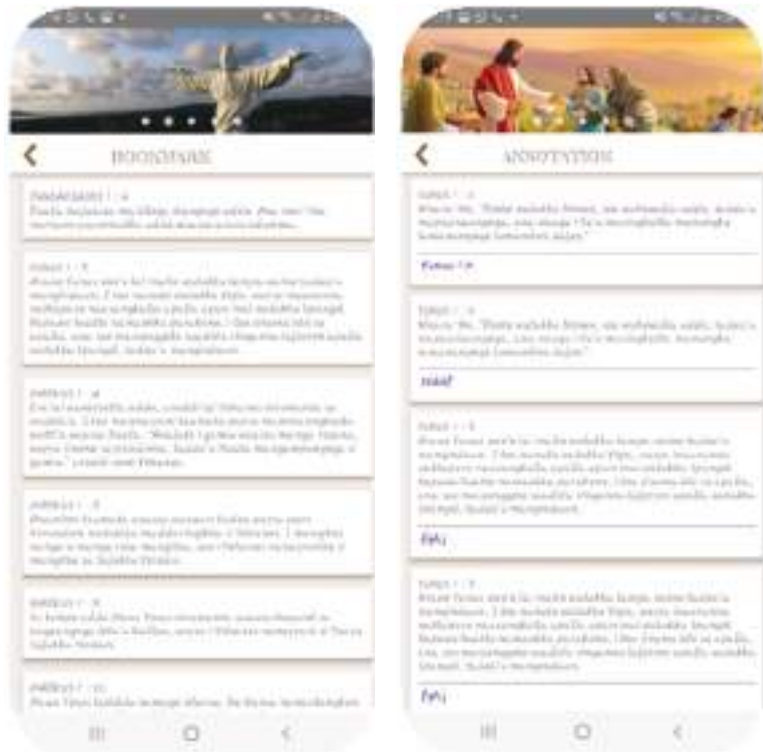
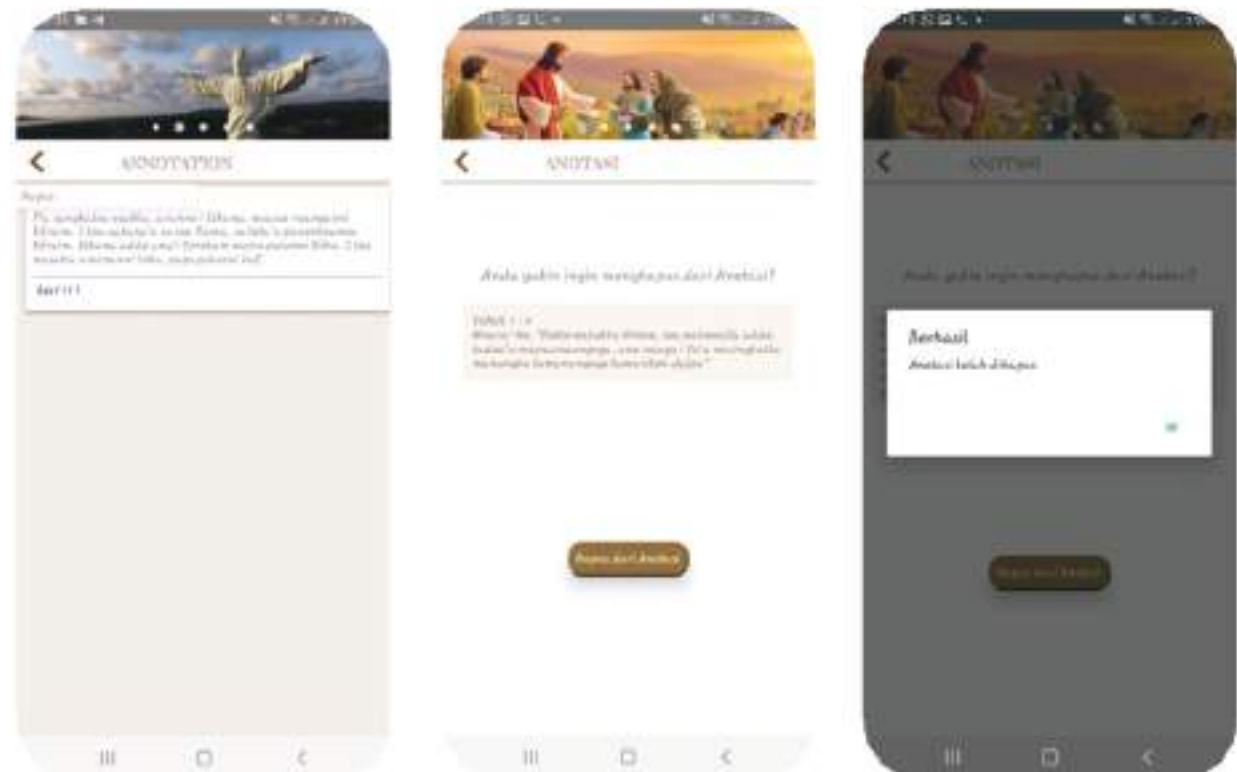
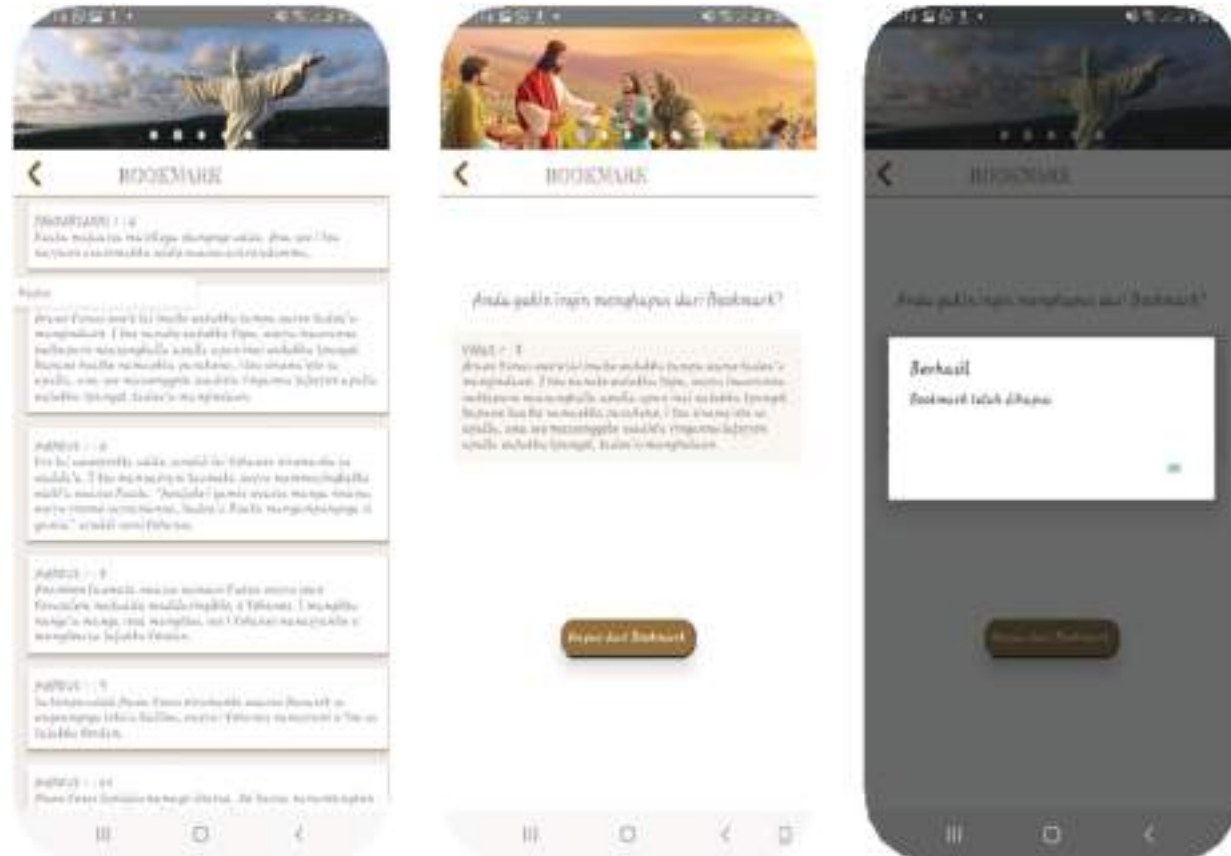
Figure 10*Verse Sharing Interface***Figure 11***Bookmark and Annotation Menu Interface***Figure 12***Annotation Deletion Interface*

Figure 13

Bookmark Deletion Interface



Conclusion and Recommendation

Following the research, several conclusions have been reached. During the testing phase, the application performed successfully on Android smartphones but encountered minor issues. However, in the second testing phase, these issues were resolved. The application serves its purpose for reading the Bible in the Talaud language and provides note-taking capabilities for selected verses. Users can easily share selected Bible verses and create bookmarks for reference.

In terms of recommendations, it is suggested that future researchers consider the following enhancements: the implementation of translations into Bahasa Indonesia-Talaud, the addition of a New Testament world map feature to the application, the inclusion of a Bible dictionary, the introduction of

a highlight feature, and the incorporation of a text zoom functionality to improve user experience.

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Awareness and Technology Management as Determinants of Online Utilization of Library Services and Resources Among College Students: Basis for a Library's Online Utilization Guide

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The study aimed to assess the awareness and technology management of college students regarding the online utilization of library services and resources. Through purposive sampling, 164 respondents were gathered from eight colleges at the Adventist University of the Philippines. A validated and reliability-tested self-constructed questionnaire was used to gather data. Results indicated moderate technology awareness, good technology management, and moderate library service and resource utilization. Significant connections were found between technology awareness and management and library service and resource utilization. Sex did not significantly impact library use, but age affected service utilization and residency influenced resource utilization. The study emphasizes educating students about virtual library resource access and suggests that university libraries enhance and diversify their services to better cater to user needs.

Keywords: *technology awareness, technology management, utilization of online library services, utilization of online library resources*

The global spread of the coronavirus disease from China to every corner of the world had profound effects on both those who contracted the virus and those who did not. Numerous regions implemented isolation measures, prompting individuals to self-quarantine in their homes as the primary means of combating this disruptive and chaotic situation.

Amidst the COVID-19 pandemic, there is a crucial need to educate society about the important role of libraries and librarians in organizing and sharing their knowledge and expertise. Librarians, by way of sharing their knowledge, experience, thoughts, and beliefs, mutually establish their common understanding (Akparobore, 2015). The pandemic highlighted the significance of educating library clients on accessing resources remotely and online.

To enhance user support, libraries extend their services beyond their physical premises. In California, the Louisiana State University Library temporarily closed its physical facilities; however, librarians persisted in supporting students through remote means, including email and Zoom (Connell et al., 2021). Similarly, in the Philippines, the John Lawrence Detwiler Memorial Library continued to provide online resources and services, with librarians extending their efforts to meet user demands.

However, the researchers have observed that some of the students face difficulty accessing the information needed since most of them are unfamiliar and have little knowledge of technology management and the services that the library provides. Many students are not well oriented to use library services and library resources (traditional and digital); that is why they use other ways to get information, such as social media, which can give them both advantages and disadvantages.

Hence, the researchers are encouraged to conduct a study on awareness and technology management as determinants of online utilization of library services and resources among college students. Specifically, this study aimed to answer the following research questions.

1. What is the respondent's level of technology awareness?
2. What is the respondent's extent of technology management?
3. What is the respondent's level of utilization of library services?
4. What is the respondent's level of utilization of library resources?
5. Is there a significant relationship among the following variables?
 - a. level of technology awareness and utilization of library services and resources.
 - b. extent of technology management and utilization of library services and resources.
6. Is there a significant difference in the respondent's level of utilization of library services and resources during pandemic, considering the following profile?
 - a. Age
 - b. Sex
 - c. Residency (off-campus and on-campus)

Methodology

Research Design

The descriptive-correlational research design was utilized to determine the relationship between the variables in this study. Specifically, the level of technology awareness among college students and their extent of technology management in the utilization of online services and resources offered in the John Lawrence Detwiler Memorial Library were taken into consideration.

Population and Sampling Techniques

The study was conducted among students from eight colleges in the university, namely: College of Arts and Humanities (CAH), the College of Business (COB), the College of Dentistry (COD), the College of Education (COE), the College of Health (COH), the College of Nursing (CON), the College of Science and Technology (CST), and

the College of Theology (COT) of the Adventist University of the Philippines. One hundred sixty-four (164) respondents participated in this study.

The researchers used the purposive sampling technique to determine the respondents. Purposive sampling technique is a selection of the participants based on their characteristics or qualities according to the judgment of the researchers (Etikan, 2016).

Instrumentation

The self-constructed questionnaire that had been validated was used to collect data from respondents. Then, to ensure the reliability and validity of the questionnaires, Cronbach's alpha coefficient was utilized to measure internal consistency.

The first part of the questionnaire is about the students' demographic profiles, including age, sex, residency, and college. The second part of the questionnaire dealt with their awareness of technology, which is answered by Extremely Aware, Moderately Aware, Somewhat Aware, Slightly Aware, and Not Aware. The third part dealt with the extent of technology management, which is answerable by Always, Often, Sometimes, Rarely, and Never. The fourth part dealt with their usage of online library services, which is answerable by Always, Often, Sometimes, Rarely, and Never. Lastly, their usage of online library resources, which is answerable by Always, Often, Sometimes, Rarely, and Never.

Data Analysis

The Statistical Package for Social Sciences (SPSS) examined all the data gathered. Descriptive statistics, frequency, mean, standard deviation, and Pearson product-moment correlation were used.

The mean and standard deviation were used to determine the respondents' level of technology awareness, the extent of technology management, and their online utilization of library services and resources.

One-way analysis of variance and a T-test were used to determine the differences in the online utilization of the respondents, considering their demographic profile. To determine the correlation between the level of technology awareness and the extent of technology management in the online utilization of library services and resources, the Pearson product-moment correlation was used.

Ethical Considerations

Following the submission of the research proposal, the research team engaged in consultations with experts to validate the self-developed questionnaire. Subsequently, the researchers proceeded to seek approval from the Ethical Research Board (ERB) for their research endeavor. This involved the submission of a comprehensive online ERB application form, along with a partially completed research paper, and a formal letter of application to the ERB approval office, where approval was obtained. The research team proceeded to establish the study's timeline and logistics, and respondents were furnished with the research questionnaire via Google Forms, with distribution facilitated through their institutional email and messenger platforms. The data gathered was handled with confidentiality.

Results and Discussion

Level of Technology of Awareness

Table 1 shows the level of awareness of the respondents in terms of technology. The result shows that "Facebook" obtained the highest mean score of 4.68 with a standard deviation of .709, followed by "Social Media," which obtained the mean of 4.61 with a standard deviation of .772; YouTube garnered the mean of 4.67 with a standard deviation of .684; and Gmail got the mean score of 4.59 with a standard deviation of .813, wherein all are verbally interpreted as extremely aware. This means that students are aware of these technologies.

Table 1*Respondents' Level of Technology of Awareness*

Technology Awareness	Mean	SD	Verbal Interpretation
Computer programs	3.99	1.054	Moderately Aware
Computers	4.29	.900	Moderately Aware
Electronic resources	4.15	.963	Moderately Aware
Integrated library system	3.57	1.119	Moderately Aware
Mobile technology	4.43	.815	Moderately Aware
Online databases	3.91	1.030	Moderately Aware
Online public access catalog (OPAC)	3.57	1.188	Moderately Aware
Library Online services	3.65	1.138	Moderately Aware
Adventist Heritage databases	3.35	1.186	Somewhat Aware
Open access databases	3.51	1.175	Moderately Aware
Social Media	4.61	.772	Extremely Aware
Facebook	4.68	.709	Extremely Aware
YouTube	4.67	.684	Extremely Aware
Gmail	4.59	.813	Extremely Aware
TikTok	4.30	1.125	Moderately Aware
Twitter	3.96	1.349	Moderately Aware
Instagram	4.33	1.108	Moderately Aware
Overall Mean	4.0922	.72453	Moderately Aware

Legend: 1.00-1.49= Not Aware; 1.50-2.49= Slightly Aware; 2.50-3.49=Somewhat Aware; 3.50-4.49=Moderately Aware; 4.50-5.00=Extremely Aware

Moreover, other technologies such as Computer programs obtained the mean of 3.99 with the standard deviation of 1.054; Computers garnered the mean score of 4.29 with the standard deviation of .900; Electronic resources got the mean of 4.15 with the standard deviation of .963; Integrated library system obtained the mean score of 3.571 with the standard deviation of .119; Mobile technology garnered the mean of 4.43 with the standard deviation of .815; Online databases obtained the mean score of 3.911 with the standard deviation of .030; Online public access catalog (OPAC) gained a mean of 3.57 with the standard deviation of 1.188; Library Online services obtained the mean of 3.65 with a standard deviation of 1.138; Open access databases got the mean of 3.51 with the standard deviation on 1.175; TikTok got the mean of 4.30 with the standard deviation of 1.125; Twitter obtained the

mean of 3.96 with a standard deviation of 1.349 and lastly, Instagram garnered the mean of 4.33 with the standard deviation of 1.108 which all are verbally interpreted as moderately aware. It means that respondents possess a reasonable level of awareness of the mentioned technology available in the library.

The data indicates that university students, on average, have a moderate level of awareness when it comes to technology. This suggests that students possess a basic understanding of technology, which can serve as a foundation for further exploration and utilization of digital resources.

Among the technologies available in the library, only Adventist Heritage databases got the lowest mean of 3.35 with a standard deviation of 1.186, which is verbally interpreted as somewhat aware, which means that the respondents are not so aware of this technology.

The result obtained an overall mean of 4.0922 with a standard deviation of .72453 and was verbally interpreted as moderately aware. It indicates that the respondents are moderately aware of the technology in the library. According to Hendawi and Nosair (2020), the length of years served in school and the quality of an individual's learning experience both contribute to an individual's technological awareness. This technology altered the learning process in terms of both what and how to learn.

Extent of Technology Management

Table 2 reveals the respondents' extent of technology management. The result obtained an overall mean score of 3.9213 with a standard deviation of .67563, which indicates that the respondents' extent of technology management was good.

Table 2

Respondents' Extent of Technology Management

Extent of Technology Management	Mean	SD	Verbal Interpretation
I set clear expectations and guidelines on how to use technology.	3.97	.903	Good
I develop clear policies and guidelines for my technology use	3.84	.942	Good
I attend training to help me effectively use technology tools and platforms	3.15	1.179	Fair
I respect the technology culture of my peers.	4.19	.876	Good
I use technology in my school requirements.	4.59	.725	Very Good
I use technology to improve my personality.	3.82	1.033	Good
I use technology to be productive in school.	4.34	.816	Good
I searched online for ways to improve my technology-related skills.	4.14	.959	Good
I attend online training to be aware of the negative effects of technology.	3.17	1.285	Fair
I set limits on the use of technology tools or platforms, such as social media.	3.82	1.009	Good
I abide by the school's technology policies and guidelines.	4.11	.879	Good
Overall Mean	3.9213	.67563	Good

Legend: 1.00-1.49=Very Poor; 1.50-2.49=Poor; 2.50-3.49=Fair; 3.50-4.49=Good; 4.50-5.00=Very Good n=164

The table shows that among the extents of technology management, "Use technology in my school requirements" obtained the highest mean score of 4.59 with a standard deviation of .725, which was verbally interpreted as good. However, "attend training to help me effectively use technology tools and platforms" obtained the lowest mean score of 3.15 with a standard deviation of 1.179, which is verbally interpreted as fair. Tas and Yeloglu (2018) stated that technology management education is becoming more critical for overcoming challenges within organizations; thus, institutions of higher education must lead the way in developing programs.

According to the study results, students exhibit a good level of technology management. This implies that they are proficient in handling and utilizing technology effectively. This skill is crucial in the modern digital age, as it enables individuals to harness technology's full potential for academic and professional purposes.

Level of Utilization of Library Services

Table 3 presents the respondent's level of utilization of library services. The table shows that the respondent's level of utilization of library services obtained an overall mean score of 3.0061 with a standard deviation of 1.18507.

Table 3

Respondent's Level of Utilization of Library Services

Online Library Services Usage	Mean	SD	Verbal Interpretation
Ask a Librarian (provides students with a quick response to their questions related to the library).	3.06	1.364	Moderate
Document Delivery Service (facilitates your requested copy of the portion of library materials).	2.90	1.321	Moderate
Interlibrary Loan (processing your request for library materials from another library consortium).	2.71	1.378	Moderate
Library Orientation Online (an online registration form for library orientation that provides the patron with a wide range of information about the library and its services).	2.95	1.298	Moderate
Plagiarism Checker (helps patrons do their best, original work and identify 'complete plagiarism' in their research paper).	3.41	1.351	Moderate
Overall Mean	3.0061	1.18507	Moderate

Legend: 1.00-1.49= Very Low; 1.50-2.49= Low; 2.50-3.49=Moderate; 3.50-4.49=High; 4.50-5.00= Very High.

The findings revealed that "Plagiarism Checker" obtained the highest mean score of 3.41 and a standard deviation of 1.351, which is verbally interpreted as *moderate*. "Ask a Librarian Online Library Services" obtained the second most usable score with a mean score of 3.06 and a standard deviation of 1.364. Moreover, "Document Delivery Service" obtained a mean score of 2.90 with a standard deviation of 1.321, and "Library Orientation Online" gained a mean score of 2.95 with a standard deviation of 1.298; both have a verbal interpretation of *moderate*. However, the "Interlibrary Loan" got the lowest mean score of 2.71 with a standard deviation of 1.378, but was still interpreted as *moderate*. This implies that the college students utilized the library services moderately. Okwu and Oporum (2021) stated that adequate library services must be offered at all educational levels to have an impact on the knowledge and skills required for development.

The data shows that the respondents' utilization of library services falls within the moderate range. While they are making use of library services, there is room for improvement. Libraries can consider enhancing their outreach efforts to ensure that students are aware of and can access these valuable resources.

Level of Utilization of Library Resources

Tables 4, 5, 6, and 7 show the respondent's level of utilization of library resources. These include the online use of library databases, open access databases, institutional repositories, and Adventist heritage databases.

Table 4

Respondent's Level of Utilization of Library Resources in Library Databases

Online Library Resources Usage/Library Databases	Mean	SD	Verbal Interpretation
EBSCO: General Conference	2.55	1.366	Moderate
EBSCO - AUP JLDLM Library	2.98	1.397	Moderate
Britannica Digital Learning	2.60	1.364	Moderate
GALE ONEFILE: Health & Medicine	2.38	1.308	Low
Elsevier	2.32	1.308	Low
ScienceDirect	2.62	1.376	Moderate
Scopus	2.15	1.224	Low
Theses/Dissertation (Local DB)	2.48	1.321	Low
Web OPAC (Online Library Catalog)	2.80	1.347	Moderate
Overall Mean	2.5443	1.14298	Moderate

Legend: 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49=Moderate; 3.50-4.4 =3.50-4.49 = High; 4.50-4.49 = High; 4.50-5.00 =4.50-5.00 = Very High.

Table 4 presents the respondent's level of utilization of online library resources, specifically the library databases. The table shows that the EBSCO-AUP JLDLM Library had a mean of 2.98 with a standard deviation of 1.366; the oEBSCO-General Conference obtained a mean of 2.55 with a standard deviation of 1.366; Britannica Digital Learning obtained a mean of 2.60 with a standard deviation of 1.364; ScienceDirect garnered a mean of 2.62 with a standard deviation of 1.376; and the Web OPAC-Online Library Catalog obtained a mean of 2.80 with a standard deviation of 1.347, and all are verbally interpreted as moderate. Whereas GALE ONEFILE: Health & Medicine obtained the mean of 2.38 with the standard deviation of 1.308; Elsevier garnered the mean of 2.32 with the standard deviation of 1.308; Scopus obtained the mean of 2.15 with the standard deviation of 1.224; and Theses/Dissertation (Local DB) garnered the mean of 2.48 with the standard deviation of 1.321, which are verbally interpreted as low. Moreover, the result obtained an overall mean score of 2.5443 with a standard deviation of 1.14298. It indicates that the respondents utilize online library resources and library databases moderately.

Table 5

Respondent's Level of Utilization of Library Resources in Open Access Databases

Online Library Resources of Library Resources in Open Access Databases	Mean	SD	Verbal Interpretation
HERDIN (Free)	2.14	1.272	Low
ProQuest Dissertations and Theses (Free)	2.26	1.271	Low
The Philippine Agricultural Scientist	2.19	1.231	Low
Southeast Asian Regional Centre for Tropical Biology	2.09	1.242	Low
Philippine Journal of Science, ScienceDirect	2.36	1.291	Low
Index to Philippine Periodicals	2.21	1.260	Low
SDA Periodical and Obituary Index	2.26	1.341	Low
Open Educational Resources	2.59	1.396	Moderate
Overall Mean	2.2614	1.18713	Low

Legend: 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49=Moderate; 3.50-4.49=High; 4.50-5.00 = Very High.

Table 5 presents the respondent's level of utilization of online library resources, specifically the open-access databases. The table shows that among the open access databases, "Open Educational Resources" got the highest mean of 2.59 with a standard deviation of 1.396, which is verbally interpreted as *moderate*. However, the open access databases HERDIN (Free) got a mean score of 2.14 with a standard deviation of 1.272; ProQuest Dissertations & Theses (Free) obtained the mean of 2.26 with the standard deviation of 1.271; The Philippine Agricultural Scientist garnered the mean of 2.19 with standard deviation of 1.231; Southeast Asian Regional Centre for Tropical Biology got the mean of 2.09 with the standard deviation of 1.242; Philippine Journal of Science ScienceDirect garnered the mean of 2.36 with the standard deviation of 1.291; Index to Philippine Periodicals got the mean of 2.21 with the standard deviation of 1.260; and the SDA Periodical and Obituary Index obtained the mean of 2.26 with the standard deviation of 1.341, which are all verbally interpreted as *low*.

Moreover, the result obtained an overall mean score of 2.2614 with a standard deviation of 1.18713, which implies that the respondent has low access to these databases and that they barely utilize the open access databases of the John Lawrence Detwiler Memorial Library. According to Suleiman, Vashistha, and Jimah (2018), library administration should instruct users on correctly accessing and administering library resources. In addition, they stated that a dynamic library full of frequently updated resources to satisfy the information needed by library users is essential to the efficacy and efficiency of university teaching, learning, and research. This could allow library users to make significant decisions, thereby increasing the library's usage and attracting many users.

Table 6 presents the respondent's level of utilization of the institutional repository. The Syllabus Repository had a mean of 2.98 with a standard deviation of 1.405, which is verbally interpreted as *moderate*.

Table 6

Respondent's Level of Utilization of Library Resources in Institutional Repository

Online Library Resources Usage/Institutional repository	Mean	SD	Verbal Interpretation
Syllabus Repository	2.98	1.405	Moderate
Overall Mean	2.98	1.405	Moderate

Legend: 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49=Moderate; 3.50-4.49=High; 4.50-5.00 = Very High.

This implies that the college students are moderately utilizing the institutional repository of the John Lawrence Detwiler Memorial Library. Nwachi and Idoko (2021) suggested that librarians should promote the institutional repository's contents to the public. In addition, institutional repositories must be made user-friendly by employing common keywords and metadata when establishing their material.

Table 7

Respondent's Level of Utilization of Library Resources in Adventist Heritage Databases

Online Library Resources Usage/Adventist Heritage Databases	Mean	Std. Deviation	Verbal Interpretation
Ellen G. White	3.26	1.461	Moderate
The Biblical Timeline	2.90	1.451	Moderate
Sabbath School Lesson Quarterly	3.26	1.438	Moderate
More Databases from Adventist Heritage	2.83	1.425	Moderate
Journal of Adventist Libraries and Archives	2.77	1.458	Moderate
Overall Mean	3.0037	1.33006	Moderate

Legend: 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49=Moderate; 3.50-4.49=High; 4.50-5.00 = Very High.

Table 7 presents the respondent's level of utilization of Adventist heritage databases. The table shows that databases "Ellen G. White" and "Sabbath School Lesson Quarterly" both garnered a mean score of 3.36 and a standard deviation of 1.461 and 1.438, respectively. Moreover, the "Biblical Timeline" obtained a mean score of 2.90 with a standard deviation of 1.451; "More Databases from Adventist Heritage" garnered a mean score of 2.83 with a standard deviation of 1.425; and the "Journal of Adventist Libraries and Archives" obtained a mean score of 2.77 with a standard deviation of 1.458. All these mean scores fall within the moderate range.

The respondent's level of utilization on Adventist Heritage Databases garnered an overall mean of 3.0037 with a standard deviation of 1.33006, which is verbally interpreted as moderate. The term "moderate" indicates that the college students are utilizing these resources to a reasonable extent, which means that the college students are moderately utilizing the Adventist Heritage databases of the John Lawrence Detwiler Memorial Library, as indicated by the mean scores and standard deviations of the resources mentioned in Table 15. In the research of Onza (2022) on patrons' use of and satisfaction with the library at a state university, it was found that its services were only somewhat effective.

The utilization of various library resources varies among students. While some resources like Adventist Heritage Databases see moderate usage, others, like open access databases, have lower levels of utilization. Libraries should focus on promoting these underutilized resources and providing guidance to students on their benefits.

Correlation between Technology Awareness and Utilization of Library Services and Resources and Technology Management and Utilization of Library Services and Resources

Table 8 presents the significant relationship between the level of technology awareness, the extent of technological management, and the utilization of library services and resources. The result shows that technology awareness and online library service usage are correlated ($p = .006$), and technology awareness and resources are also correlated ($p = .006$). Hence, there is a significant relationship between technology awareness and online library service usage and between technology awareness and the resources of university college students.

Table 8

Correlation between Technology Awareness and Online Utilization of Library Services and Resources; Technology Management and Online Utilization of Library Services and Resources

Independent Variable	Online Utilization of Library Services			Online Utilization of Library Resources		
	r	Sig	VI	r	Sig	VI
Technology Awareness	.214	.006	S	.351	.000	S
Technology Management	.312	.000	S	.314	.000	S

***.* The correlation is significant at the 0.01 level (2-tailed).

Legend: VI=Verbal Interpretation, S=Significant, NS=Significant

The table shows that resources and technology management are correlated ($p = .000$), related ($p = .000$), and technology management and resources are also correlated ($p = .000$). Hence, there is a significant relationship between technology management and online library service usage and between technology management and the resources of university college students. Olajide and Omotayo (2016) also found that there is a significant association between knowledge and different library services. This implies that

individuals who are familiar with one library service are likely to be familiar with other services provided by the library.

The study reveals significant relationships between technology awareness, technology management, and the utilization of library services and resources. This highlights the importance of technology-related skills in accessing and effectively using library resources. Librarians and educators can incorporate technology training into their programs to bridge this gap further.

Difference on the Respondent's Level of Utilization of Library Services and Resources Considering Demographic Profile

Tables 9 and 10 show the result of the analysis comparing the difference in online utilization of library services and resources considering their demographic profile in terms of age, sex, and residency, whether off-campus or on-campus. There is a significant difference in online utilization of library services considering their age, sex, and residency.

Table 9

Differences in Utilization of Library Services Considering Age, Sex, and Residence

Age	Mean	Std. Deviation	f	t-value	sig	VI
21 and below	2.6645	1.13298	4.494		.013	S
22-23	3.1429	1.11952				
24 and above	3.2792	1.22747				
Sex						
Female	3.0222	1.10495		.154	.878	NS
Male	2.9935	1.25004				
Residency						
On-campus	85.21				.182	NS
Off-campus	73.50					

Legend: VI- Verbal Interpretation, S= Significant, NS=Not Significant

Table 10

Differences in Online Utilization of Library Resources Considering Age, Sex, and Residence

Age	Mean	Std. Deviation	f	t-value	sig	VI
21 and below	2.7259	1.08692	.074		.929	NS
22-23	2.7095	1.06546				
24 and above	2.6493	1.15500				
Sex						
Female	2.7360	1.04610		.410	.682	NS
Male	2.6651	1.13971				
Residency						
On-campus	86.63				.043	S
Off-campus	68.82					

Legend: VI- Verbal Interpretation, S= Significant, NS=Not Significant

According to the findings, among the demographic factors examined, age has a noteworthy impact on the online use of library services, as indicated by a significance level of 0.013. This aligns with a previous study by Korobili et al. (2006), which also found that age does not significantly affect the utilization of library resources.

The data also indicates that certain demographic factors, such as age and residency, have an impact on the utilization of library services and resources. For instance, age appears to influence library service usage, while residency affects the utilization of library resources. These findings emphasize the importance of tailoring library services and outreach efforts to specific demographic groups to maximize their effectiveness.

Conclusions and Recommendations

The study uncovered some important things about how college students use technology and library services. Students have a decent grasp of technology and are good at managing it. They also use library services and resources moderately, like databases and services, but they don't use open-access resources much. The study showed that if students are more aware of technology, they tend to use library services and resources more. Age matters when it comes to using library services, but gender and where students live don't make much of a difference.

Based on the study's findings, several practical recommendations can be made. Firstly, there is a need to promote awareness of open-access resources among college students. The library should organize seminars and training sessions to enhance students' knowledge of how to effectively utilize these resources. Secondly, to improve the overall utilization of library services and resources, the library should develop strategies that make these resources more user-friendly and accessible. Additionally, it's important for the library to consider the impact of age and residency when designing interventions to increase usage. Tailoring services

to meet the specific needs of different age groups and taking into account the location of library users can lead to more effective outcomes. Lastly, the library should proceed with the implementation of the proposed online utilization guide, ensuring that it serves as an effective tool for assisting college students in navigating and utilizing library services and resources. Regular evaluation and updates should be part of this process to maintain its relevance and usefulness.

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The Effect of Bokashi and Ab Mix for The Growth of Red Lettuce (*Lactuca Sativa* Var. Red Rapids) Using DFT (Deep Flow Technique) Hydroponic System

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Hydroponics is an agricultural system because it can be cultivated in various places, such as villages, cities, open land, and apartments. A hydroponic system can be used throughout the year, regardless of the season. In this study, 4 types of nutrition were used, namely cabbage leaf bokashi, chicken manure bokashi, combination of chicken manure bokashi with cabbage leaf bokashi, and AB Mix nutrient solution. Bokashi is a Japanese word that means fermented organic matter, a process that converts food waste and similar organic matter into a soil amendment that adds nutrients for the plants. The AB Mix solution was prepared by mixing 83 grams of AB Mix A and 83 grams of AB Mix B and letting them dissolve in 2 liters of water. Vegetables are in great demand by the public because they have high nutritional content and are beneficial to health. One type of vegetable that is needed by almost everyone is red lettuce (*Lactuca sativa* var. red rapids). Almost all types of plants can be grown in a hydroponic farming system. The purpose of this study was to determine the growth of red lettuce using AB Mix solution in comparison with the three types of bokashi solution, by measuring the width of the leaf and the length of the plant roots. The experiment was tested by Anova and Duncan analysis with a level of alpha of 0.05. The result of the experiment is that the use of AB Mix solution has the best plant growth in comparison with the three bokashi solutions.

Keywords: *AB Mix, red lettuce (*Lactuca sativa* Var. Red rapids), hydroponics deep flow technique, Bokashi*

Currently hydroponic cultivation is gaining popularity because of efficient resources management and quality food production. Soil based agriculture is now facing various challenges such as urbanization, natural disaster, climate change, use of chemicals and pesticides which is depleting the land fertility. For successful implementation of commercial hydroponic technology, it is important to develop low-cost techniques which are easy to operate and maintain; require less labour and lower overall setup and operational cost.

The DFT hydroponic system is a method of cultivating hydroponic plants by placing plant roots in a deep layer of water, the layer depth ranges from 4 – 6 cm. The principle of the DFT hydroponic system is to circulate the plant nutrient solution continuously for 24 hours. This hydroponic technique is called hydroponic system (Wirawan et al., 2004).

Cabbage leaves are one of the most widespread plants in Indonesia and even outside Indonesia. Cabbage leaves contain active compounds such as alkaloids, flavonoids, tannins, saponins, polyphenols, glycosides and steroids which provide pharmacological effects including antioxidant, analgesic, anti-inflammatory, anticarcinogenic, diuretic, antidiabetic, antibacterial and antifungi. (Hardjana, 2016).

AB Mix fertilizer consists of concentrated solutions A and B. The macronutrient group chemicals used include potassium nitrate, calcium nitrate, potassium phosphate and magnesium sulfate. Meanwhile, the micronutrients used are iron (Fe), manganese (Mn), copper (Cu), zinc (Zn), boron (B), chlorine (Cl), and nickel (Ni). For iron (Fe) to dissolve, the formulation is added with a chelating agent. Apart from that, additional humic acid can also increase nutrient uptake. Fertilizer A can contain a mixture of calcium nitrate, potassium nitrate and Fe chelators. Fertilizer B can contain a mixture of potassium di-hydro phosphate, ammonium sulfate, potassium sulfate, potassium nitrate, magnesium sulfate, copper sulfate, zinc

sulfate, as well as various other microelements esterase, antihyperuricemia, antimicrobial agents, and cytotoxic agents that are believed to grow in nature (Sitorus, 2019).

Red lettuce (*Lactuca sativa* var. *Rd rapids*) is a type of Leaf lettuce, this type of lettuce has red, wide, thin leaves which are clustered and look curly. The transfer of agricultural land to non-agricultural land such as residential and industrial areas cause a reduction in land availability for farmers. One technology that can be applied to solve this problem is hydroponic technology. In hydroponic plant cultivation, the factors that become obstacles are environmental factors. A suitable environment will increase the growth and yield of lettuce plants. Lettuce is a short-lived agricultural commodity and has high economic value. In 2012, Indonesia imported 145 tons of lettuce. Each type of lettuce has various varieties (Mutakin et al., 2019).

Red lettuce has a morphology that is not much different from green lettuce. The genetic source of red lettuce plants is thought to come from West Asia and America, the cultivation of red lettuce then spread to the Mediterranean region. The central areas for planting red lettuce in Indonesia are Cipanas (Cianjur) and Lembang (Bandung). Red lettuce plants are a type of annual leaf vegetable plant, short-lived, and in the form of shrubs.

The advantage of growing hydroponically is that it produces plants of good quality, free of chemicals and healthy. Hydroponics is also useful for meeting the family's food needs and helping to preserve the environment, this is because hydroponics can increase the oxygen content in the surrounding air to make it fresher (Hayati et al., 2021).

The development of demand for hydroponic vegetables in Indonesia tends to increase every year, however data on the demand for hydroponic vegetables which shows the high consumer demand in Indonesia is not yet statistically available, because it has not been well documented. Based on the results of a survey summary through several articles regarding the demand for hydroponic

vegetables conducted by the author, the increase in demand for hydroponic vegetables increases by 10% -20% every year (Savira & Prihtanti, 2019).

The purpose of this research is to determine the effect of Bokashi and AB Mix on the growth of red lettuce. AB Mix fertilizer is quite pricy in the market, and to reduce expenses, we try to use bokashi because it is much cheaper, and it will help the farmers to gain more income in their agriculture activity. This technique in which the root will be put in the water about 4-6 cm is called closed hydroponic technique.

Methodology

In this study, the effect of chicken manure liquid bokashi on the development of red lettuce plants when compared to other organic fertilizers, namely a combination of chicken manure and leaf bokashi, and AB mix. The growth of red lettuce will be carried out in a DFT (Deep Flow Technique) Hydroponic system in the Green House Experimental Garden, FMIPA, Indonesian Adventist University, Bandung.

Method of Study

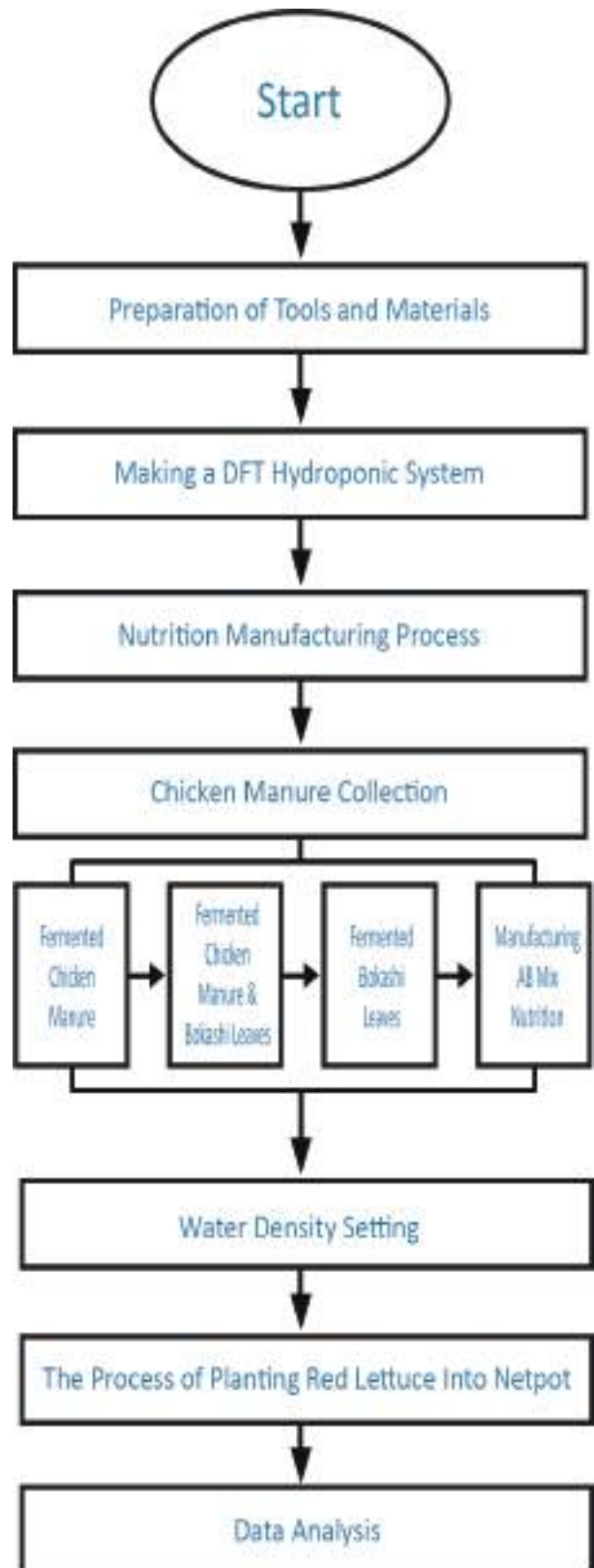
This study used a randomized factorial pattern consisting of 4 factors. The first factor was nutritional treatment (N), namely: N1 = AB Mix nutrition, N2 = Chicken manure nutrition, N3 = Leaf Bokashi, and N4 = Chicken manure and leaf Bokashi blend. The second factor was the treatment of the planting medium (M), namely: M1 = AB mix, M2 = Chicken manure fertilizer, M3 = Mixture of chicken manure and leaf bokashi, M4 leaf bokashi. We used a total of 128 red lettuce plants, 32 for AB mix, 32 for chicken manure, 32 for a mixture of chicken manure and leaf bokashi, 32 for leaf bokashi.

Research Design

The media used in planting plants is the DFT (Deep Flow Technique) system. Water is channeled to the roots of the plants in a shallow way, as a planting medium. We use water other than soil.

Figure 1

Deep Flow Technique System



Making a DFT (Deep Flow Technique) Hydroponic System

In making the DFT hydroponic system, the first step is to prepare a 2.5-inch diameter pipe with a 4m long pipe, 1-inch inlet pipe and 1-inch outlet pipe. A 20-liter nutrient tub and a submersible pump, which is used to convey the nutrient solution to the red lettuce plants. In this DFT system, the distance between the planting holes is 20 cm, the hole diameter is 4.5 cm and the distance between the pipes is 21 cm. The principle of the DFT Hydroponic system is to flow the nutrient solution continuously for 24 hours in a closed flow circuit. The nutrient solution in the holding tank is flowed using a water pump through the planting gutter through the inlet pipe, then the nutrient solution in the planting pipe is flowed back to the holding tank through the outlet pipe and returns to circulation. In the DFT Hydroponic system, it distributes nutrients to plants through flowing water with a height of about 1-3 cm. The DFT Hydroponic system requires an electric current to circulate water into the gutters using a pump.

Chicken Manure Collection

Chicken droppings were obtained from red chicken farms in Sido Mulyo Village. The technique of making chicken manure is by using a sack and taken by hand wearing gloves and putting it in the sack.

Fermented Chicken Manure

Utilization of chicken manure as liquid organic fertilizer must first go through the fermentation stage, by following the steps below:

1. Put 3 kg of fermented chicken manure into a bucket containing 10 liters of water.
2. Add ¼ kg of brown sugar and 50 ml of EM4 slowly and simultaneously pour into a bucket and stir until the sugar dissolves in the chicken manure.

3. The bucket is tightly closed and left for 14 days and after enough time has passed, the bucket is opened.
4. Fermentation is successful if it no longer smells of chicken manure. Chicken manure liquid organic fertilizer is ready to be filtered and put in a holding bucket and ready to be used.

Fermented Bokashi Leaves

In making Bokashi using leaf vegetables which will be fermented from solid form, is converted into liquid form by mixing manure with 6 kg of leaf vegetables, then mixed with 50 ml EM4 with 10 liters of water then filtered, then wait for two weeks to be applied to the DFT Hydroponic system.

Making Hydroponic Nutrient Solutions

In this study, 4 types of nutrients were used, namely chicken manure, leaf vegetable bokashi liquid fertilizer, a mixture of leaf bokashi and chicken manure, and AB mix nutrient. AB mix nutrient solution was carried out by dissolving AB mix A (83 grams) and AB mix B (83 g) into 2 liters of water, then stirred until evenly mixed, then these nutrients are stored separately in a closed plastic bucket.

Water Density Setting

In measuring the concentration of Hydroponic solutions, it is needed to maintain healthy plants. The thickness of the solution must be adjusted to the type and age of the plant. The definition of TDS (Total Dissolved Solid) is the amount of compaction dissolved in water, so a TDS or PPM (Part Per Million) meter can be interpreted as a tool for measuring the amount of particles or solids. The method of measurement is to dip the tip of the tool into the nutrients which have been mixed with water and which have been stirred, it will be read on the screen display, in PPM units, the PPM required for the type and age of the plant. Red lettuce plants 400-1000 PPM.

Planting Red Lettuce in Hydroponic Media

Before the vegetable plants are transferred into the pots that are already available, there are several things to do so that the plants that are transferred will grow well. The preparations are as follows:

1. Make sure the DFT (Deep Flow Technique) system functions properly and does not leak.
2. Make sure the drain is not clogged. If it is clogged use a hard object to open the way.
3. Make sure the pipe is not mossy and ready to use.
4. Make sure the reservoir is not mossy and clean.
5. Make sure the water in the DFT is filled.
6. The flow of water in DFT Hydroponics with the speed of water flowing from the first pipe to the last is one liter in one minute.
7. Make sure the plants transplanted into the crop plot are healthy and not damaged.
8. Plants that already have more than one root in the rockwool or have shown a size of more than 1-2 cm, will be transferred to the DFT medium.

Maintenance

After the plants are planted in the pavers, there are several things that must be done so that the planted plants can grow well.

1. Every day the flow of water must be observed so that it is not clogged.
2. Make sure the nutrient water in the tub is always full.
3. If the water has decreased to the minimum limit, immediately refill the water until it is full, then give the nutrients.
4. Do not let the bucket dry because it can cause damage to the pump.
5. If there are plants that die, take it immediately because it can transmit the disease.

6. If the plant dies, replace it with a new one immediately.

Statistical analysis

Observational variables

1. Plant height was calculated from the base of the stem to the tip of the longest leaf when the plant was 4 weeks.
2. Leaf width and measurements were made when the plants were 4 weeks.
3. Root Length, measured from the base of the longest root at the end of the observation (harvest).

The procedure for calculating variation statistics with a completely randomized design pattern on one-way factorial ANOVA.

Results and Discussion

This chapter explains the results of the data that has been carried out and displayed in the form of analysis tables along with their discussion. After observing, the data obtained is the measurement data of plant height, leaf width and root length of red lettuce plants. Data analysis with One Way ANOVA statistics, descriptive and Duncan's test.

Height Measurements of Red Lettuce Plants (Lactuca sativa Var. Red rapids)

This study used 4 variations, namely leaf bokashi, ABmix (control), a combination of leaf bokashi and chicken manure, and chicken manure. Table 4.1 is descriptive of the effect of leaf bokashi, AB mix (control), a combination of leaf bokashi and chicken manure, chicken manure on red lettuce plant height.

Table 1*Height of Red Lettuce Plant (Lactuca sativa Var. Red rapids)*

Nutrition	N	Average	SD	SE	Minimum	Maximum
Chicken manure	10	11,770	3.0004	.9488	7.5	15.9
Chicken Manure + Bokashi Leaves	10	15,420	1.3096	.4141	13.1	17.5
Leaves Bokashi	10	9,850	2.3090	.7302	7.0	13.0
AB Mix	10	20,410	2.9849	.9439	16.9	25.5
Total	40	14,363	4.7295	.7478	7.0	25.5

From the results of Table 1 the nutrients that gave the highest average amount were AB mix with an average of 20,410, while the second average was a combination of bokashi leaves and chicken manure with an average 15,420, the third average of chicken manure with an average of 11,770, and the fourth average of leaf bokashi with an average of 9,850.

Table 2*One-way ANOVA Statistical Test Results on Red Lettuce Plant Height*

	Sum of Squares	Df	Mean Square	F	Significant
Between groups	647,743	3	215,914	34,603	.000
In groups	224,631	36	6,240		
Total	872,374	39			

In Table 2 the height between the variables with the sum of the squares between groups is 647,743, df 3, and the mean square is 215,914 with F34,603 with Sig .000. For the fertilizer variable described in the first hypothesis, namely, the application of leaf bokashi fertilizer, AB mix (control), a mixture of chicken manure and leaf bokashi, and chicken manure Ho is accepted, which means that the application of the four types of fertilizer has no effect on the height growth of lettuce (*Lactuca sativa* Var. Red rapids) shows acceptance with a value of $p = .000$ (greater than $\alpha = 0.05$) so it can be concluded that there is an effect of giving leaf bokashi nutrition, AB mix (control), leaf bokashi + chicken manure and chicken manure on growth red lettuce (*Lactuca sativa* Var. Red rapids).

Duncan's Test on the Number of Height Measurements of Red Lettuce (Lactuca sativa Var. Red rapids)

The results of Duncan's multiple range test on the height of red lettuce (*Lactuca sativa* Var. Red rapids) are shown in Table 3.

Table 3*Duncan's Results*

Nutrition	N	Subset for Alpha = 0.05		
		1	2	3
Leaves Bokashi	10	9,850		
Chicken manure	10	11,770		
Chicken Manure + Bokashi Leaves	10		15,420	
AB Mix	10			20,410
Significant		094	1,000	1,000

The results from the table above show that the control 3 AB mix of the total results of measurements of the height of red lettuce plants as many as 20,410, is the main contributing variable to the significance of the results of the test and statistical analysis.

Number of Leaf Width Measurements of Red Lettuce (*Lactuca sativa* Var. Red rapids)

From the descriptive results in the calculations that have been obtained from this study, it can be seen in Table 4 with the highest results of the average leaf width is AB mix, namely 10,400, the second average of bokashi leaf width is 4,500, the third average of chicken manure + bokashi leaves is 9,420 and the average is 4,950 chicken manure.

Table 4

*Leaf Width of Red Lettuce (*Lactuca sativa* Var. Red rapids)*

Nutrition	N	Average	SD	SE	Minimum	Maximum
Chicken manure	10	4,950	2.0855	.6595	2.4	9.5
Chicken Manure + Bokashi Leaves	10	9,420	1.7255	.5456	7.4	12.5
Leaves Bokashi	10	4,500	1.6546	.5232	2.3	6.9
AB Mix	10	10,400	1.2987	.4107	8.0	12.0
Total	40	7,318	3.1232	.4938	2.3	12.5

One Way ANOVA Test of Red Lettuce (*Lactuca sativa* Var. Red rapids) Leaf Width

Descriptive data has been obtained, so go straight to the one-way ANOVA test to better know the variable gain of each given nutrient, in Table 5.

Table 5

*Results of One-Way ANOVA Test on Leaf Width of Red Lettuce (*Lactuca sativa* Var. Red rapids)*

	Sum of Squares	Df	Mean Square	F	Significant
Between groups	274,657	3	91,552	31,163	.000
In groups	105,761	36	2,938		
Total	380,418	39			

From the nutritional variables described in the second hypothesis, leaf bokashi, AB mix, chicken manure + leaf bokashi and chicken manure could not have an effect on the growth of red lettuce (*Lactuca sativa* Var. Red rapids) leaf width, accepted with $p = .000$ (greater than $\alpha = 0.05$), so it can be concluded that there is an effect of giving leaf bokashi nutrition, AB mix (control), chicken manure + leaf bokashi and chicken manure on the growth of red lettuce (*Lactuca sativa* Var. Red rapids). After one-way ANOVA statistics were carried out and significant results were found, then it was continued to Duncan's multiple range test to see which nutrients had the most influence on the acceptance of the hypothesis.

Duncan's Test on Measurement of Leaf Width of Red Lettuce (*Lactuca sativa* Var. Red rapids)

The results from Table 6 show that the control 2 AB mix with the acquisition of the number of calculations from the width of the leaves of the red lettuce plant is 10,400, which is a variable contributing to the significance of the test results and statistical analysis.

Table 6*Duncan Table for Fertilizer Differences in Leaf Width of Red Lettuce (Lactuca sativa Var. Red rapids)*

Nutrition	N	Subset for Alpha = 0.05	
		1	2
Leaves Bokashi	10	4,500	
Chicken manure	10	4,950	
Chicken Manure + Bokashi Leaves	10		9,420
AB Mix	10		10,400
Significant		561	.209

Root Length Measurements of Red Lettuce (Lactuca sativa Var. Red rapids)

In this study, 4 variations were used, namely leaf bokashi, AB mix (control), a mixture of chicken manure + leaf bokashi, and chicken manure. Table 7 is a descriptive analysis of the effect of leaf bokashi, AB mix (control), a mixture of chicken manure + leaf bokashi, and chicken manure on root length of red lettuce plants.

Table 7*Length of Root of Red Lettuce (Lactuca sativa Var. Red rapids)*

Nutrition	N	Average	SD	SE	Minimum	Maximum
Chicken manure	10	6,090	2.7811	.8795	1.5	10.0
Chicken Manure + Bokashi Leaves	10	11,660	2.8968	.9161	6.9	15.5
Leaves Bokashi	10	8,720	4.0773	1.2893	3.3	16.5
AB Mix	10	24,240	7.1960	2.2756	15.5	40.5
Total	40	12,678	8.3184	1.3115	1.5	40.5

From the descriptive results in the calculations that have been obtained from this study can be seen in table 4.7 with the highest results of the average root length is AB mix, namely 24,240, the second average root length of chicken manure is 6,090, the third average root length of a mixture of chicken manure + bokashi leaves is 11,660, and the average root length of 8,720 is leaf bokashi.

One Way ANOVA Test of Red Lettuce (Lactuca sativa Var. Red rapids) Root Length

In Table 8 it can be seen that the root length between variables with the sum of the squares between groups is 1937,837, Df 3, and the mean square is 645,946 with F 30,566 with Sig .000. For the fertilizer variable described in the fourth hypothesis, namely, the application of leaf bokashi fertilizer, AB mix (control), a combination of chicken manure + leaf bokashi, and chicken manure H_0 is accepted, which means that the application of the four types of fertilizer does not affect the growth of the root length of red lettuce plants (Lactuca sativa Var. Red rapids) showed acceptance with a value of $p = 0.000$ (greater than $\alpha = 0.05$), so it can be concluded that there was leaf bokashi nutrition, AB mix (control), a mixture of chicken manure + leaf bokashi, and manure chickens on the growth of red lettuce (Lactuca sativa Var. Red rapids).

Table 8

One Way Anova Test on Root Length of Red Lettuce (Lactuca sativa Var. Red rapids)

Root Length	Sum of Squares	Df	Mean Square	F	Significant
Between groups	1937,837	3	645,946	30,566	.000
In groups	760,793	36	21.133		
Total	2698630	39			

Duncan's Test on Measurement of Root Length of Red Lettuce (*Lactuca sativa* Var. Red rapids)

The results of Duncan's multiple distance test on root length of red lettuce (*Lactuca sativa* Var. Red rapids) can be seen in table 9. It was shown that the control 3 AB Mix with the sum of the measurement results of the root length of red lettuce plants as many as 24,240, was the main contributing variable to the significance of the test and statistical analysis.

Table 9

Duncan Measurement of Root Length of Red Lettuce (Lactuca sativa Var. Red rapids)

Nutrition	N	Subset for Alpha = 0.05		
		1	2	3
Leaves Bokashi	10	6,090		
Chicken manure	10	8,720	8,720	
Chicken Manure + Bokashi Leaves	10		11,660	
AB Mix	10			24,240
Significant		209	.161	1,000

Conclusion

AB Mix is the best solution in this research when it comes to the measurement of plant height, leaf width, and root length, of red lettuce plant (*Lactuca sativa* var. Red rapids), followed by combination of chicken manure and bokashi leaves, chicken manure, and bokashi leaves.

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Anti-inflammation Effect of *Kopasanda* Leaf (*Chromolaena odorata* L.) Extract on White Rats (*Rattus Norvegicus*) Feet Intraplantar Injection with Carrageenan

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This study aimed to investigate the anti-inflammatory effects of Kopasanda leaf (*Chromolaena odorata* L.) extracts against carrageenan-induced inflammation on white rats' (*Rattus norvegicus*) feet through intraplantar injections. The inflammation volumes were measured using a plethysmometer over an eight-hour period. Active compounds known to have anti-inflammatory functions, such as flavonoids, saponins,riterpenoids, alkaloids, and tannins, were found. This experimental study used white rats, which were divided into negative (no treatment), positive (treated with diclofenac sodium), and treatment (treated with extract) groups with three replications each. Three concentration variations of the extract were given. The data were analysed using ANOVA on the variables, concentration variations, and exposure times. The result shows that the average inflammation volume in rats with no treatment increased from 0.23 to 0.70, while inflammation volumes in rats treated with diclofenac sodium and extracts returned to their normal levels at the end of the treatment period. There was a significant difference in the time period of treatment exposure ($p = 0.000$), no significant difference in the extract concentration variations ($p = 0.298$), and no significant difference in the interaction between time of exposure and dosages ($p = 0.922$). The Duncan Multiple Range Test (DMRT) shows that the three concentration variations have the same effect. This study concluded that Kopasanda leaf (*Chromolaena odorata* L.) extract has an anti-inflammatory effect comparable with commercial agents such as diclofenac sodium.

Keywords: inflammation, anti-inflammation, Kopasanda (*Chromolaena odorata* L.), white rats (*Rattus norvegicus*), carrageenan

Inflammation is the body's immune response to harmful stimuli such as pathogens, cell damage, toxic compounds, and radiation. The inflammatory response in the body is essential to maintaining the condition of the tissues and homeostasis. Common symptoms of inflammation are swelling, redness, and vasodilation pain due to increased blood flow, increased cell metabolism, and the production of inflammatory mediators such as serotonin, bradykinin, prostaglandins, and inflammatory cytokinin of the body's prostaglandins (Prasetyana, 2022). Based on Riskesdas' (2013) data, nonsteroidal anti-inflammatory drugs (NSAID) have risen by 11.9% to 24.7% and are widely used due to the prevalence of joint diseases (Soleha et al., 2018).

As interest in the use of herbal remedies is increasing, the use of plants both for medicine and for other purposes is a present phenomenon. While medicinal plants contain components of active compounds and have various pharmacological effects, they still need to be scientifically proven (Sukmawati et al., 2015). In this context, Indonesians use plants as herbal medicines, as more than 60% of local medicines are derived from plants.

Kopasanda (*Chromolaena odorata* L.) is commonly known as Siam Weed, Christmas Bush or Floss Flower. The leaves have been used as medicine by people in Indonesia. This plant is also present in North America, Asia, West Africa, and Australia. The people in Indonesia's Makassar region use kopasanda leaf as a wound medicine and antioxidant (Nurhajanah et al., 2020; Rasyid et al., 2020; Sirinthipaporn & Jiraungkoorskul, 2017; Vijayaraghavan et al., 2017). Research conducted by Sumardi et al. (2018) identifies the active compounds found in kopasanda leaf as flavonoids, saponins, triterpenoids, alkaloids, and tannin compounds (Sumardi et al., 2018). These compounds have also been claimed to prevent the growth of cancer cells (Yu et al., 2015).

Kopasanda (*Chromolaena odorata* L.) leaves have anti-inflammatory activity, antibacterial, antioxidant and wound-healing effects, play an

important role in wound healing, and have vitamin C. It also contains proteins, vitamin B1, vitamin B2, vitamin C, and carotene (Amina et al., 2023; Sukmawati et al., 2021; Sumardi et al., 2018). The content of vitamin C can accelerate healing and treat damaged skin.

This study determined the anti-inflammatory effect of the extract of *Cromolaena odorata* L. on white rats.

Methods and Materials

Research Sample

Kopasanda leaves were collected, dried, and powdered using a blender, and then sifted using a mesh sieve of 50. The powdered sample underwent maceration and soaking in 96% ethanol for 3 days. The maceration process was repeated three times, and the extracts were combined. The solvent was then evaporated and concentrated on a rotary evaporator to obtain a thick ethanolic extract.

Secondary Metabolite Compound

Screening Results

Screening of secondary metabolite compounds was carried out to find an overview of the active compounds contained in the plant. The following procedures were employed to determine the presence of the different compounds:

To determine alkaloid compounds, the extract is diluted with Dragendorff reagent, turning it brick-red. The addition of Mayer reagent produces white precipitate, indicating that it contains alkaloid compounds.

To determine flavonoid compounds, concentrated hydrochloric acid is added to the extract, and as the reagent turns orange, it confirms the presence of flavonoid compounds.

To determine the content of tannins, if the extract is diluted with FeCl₃ solution and it turns darkbrown, and with the addition of gelatin reagents produces a white precipitate, this indicates the presence of tannin compounds.

To determine the presence of steroid compounds, if concentrated sulfuric acid is added to the extract and turns purple, this will indicate that it contains steroid compounds.

To determine the content of saponin compounds, if the sample extract diluted with concentrated hydrochloric acid reagent produces foam, this will indicate it contains saponin compounds.

Carrageenan

In the process of swelling up the rats' feet, carrageenan solution was used. 1 g of carrageenan was dissolved in 100 mL of warm water, then 10 mL of 0.9% NaCl was added and mixed until evenly distributed. As much as 0.2 mL of the solution was used for intraplantar injection.

Treatment in Animals Test

The lab animals used are 18 male white rats (*Rattus norvegicus*) aged 2-3 months in a healthy and active state. The rats were acclimatized for two weeks, given food in the form of pellets, and given water.

The rats were divided into five groups. Three experimental groups were injected with 1 mg/200 grams of body weight, 2 mg/200 grams of body weight, and 3 mg/200 grams of body weight, respectively. One group was treated with 1 mg of diclofenac sodium per 200 grams of body weight, while another group was not treated with anything. This last group is the negative control group. All groups had three rats each.

Rats underwent an 18-hour fast prior to the testing but were still given water. Then the part of the leg (up to the ankle) was marked in each rat in order to uniformize the part that would be immersed in the plethysmometer. The initial volume of rat legs was measured before treatment and expressed as normal volume (T_0). A first injection of 0.2 mL of carrageenan solution was injected, followed by 2.0 mL of Kopasanda leaf extracts. Data gathering by measuring the rats legs was done at T_1 or after 1 hour to see the effect of the treatment. Another measurement was done at the second hour (T_2) until the 8th hour (T_8).

Results and Discussion

Sample Extraction

Extraction was carried out by maceration using 96% ethanol as a solvent. The macerated mixture was then concentrated using a rotary evaporator. For 200 grams of powdered sample, 15.31 grams of concentrated extract were obtained.

Screening Results of Secondary Metabolite Compounds

Secondary metabolite compound screening was carried out to obtain an overview of the active compounds contained in the plants. The following are the results of the procedures:

1. When the sample extract was diluted with Dragendorff's reagent, the color turned brick red, and when mixed with Mayer's reagent, it formed a white precipitate. This indicated that Kopasanda leaf contained alkaloid compounds.
2. When the sample extract was diluted with concentrated hydrochloric acid, the color turned orange. This indicates that Kopasanda leaf contained flavonoid compounds.
3. When the sample extract was diluted with the FeCl_3 reagent, it did not turn dark brown, and when mixed with the gelatin reagent, it did not produce white precipitate. This indicated that Kopasanda leaves do not contain tannin compounds.
4. When the sample extract was diluted with concentrated sulfuric acid, it turned purple. This indicates that Kopasanda leaf contained steroid compounds.
5. When the sample extract was diluted with concentrated hydrochloric acid, it did not produce foam. This indicates that Kopasanda leaves do not contain saponin compounds.

Anti-inflammatory Test Results

The injection of the Kopasanda leaf extracts into the rats whose leg inflammation was artificially induced had positive results. Data from all three experimental groups showed that inflammation

subsided completely 8 hours after the injection of carrageenan, with the inflamed rats' legs returning to the original measurements obtained at the beginning of the procedures. This was in contrast with the negative control groups, which were injected with an inflammatory substance but were not given anything. The inflammation volume of this "no treatment group was as high as 0.80 mL, subsiding only to 70 mL at the end of the 8-hour period.

The inflammation among the rats in the positive control, or the group that was injected with diclofenac sodium, rose to 0.7 after the first hour but gradually declined, returning to the original pre-inflammation volume at T_8 . Table 1 summarizes these results.

Table 1*Data on Inflammation for the Treatment Groups*

Treatment Groups	No	Inflammation								
		T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
1mg/200gr BW	1	0,3	0,4	0,5	0,6	0,5	0,5	0,4	0,3	0,3
	2	0,3	0,4	0,4	0,6	0,5	0,4	0,3	0,3	0,3
	3	0,1	0,4	0,5	0,7	0,5	0,4	0,4	0,3	0,1
	4	0,1	0,4	0,5	0,6	0,5	0,4	0,4	0,2	0,1
	Mean	0,2	0,4	0,48	0,625	0,5	0,425	0,375	0,275	0,2
2mg/200gr BW	1	0,3	0,3	0,5	0,7	0,6	0,5	0,4	0,3	0,3
	2	0,2	0,2	0,5	0,7	0,5	0,5	0,4	0,4	0,2
	3	0,1	0,4	0,6	0,9	0,5	0,4	0,3	0,3	0,1
	4	0,3	0,3	0,5	0,6	0,525	0,4	0,4	0,3	0,3
	Mean	0,23	0,3	0,53	0,725	0,525	0,45	0,375	0,325	0,225
4mg/200gr BW	1	0,3	0,3	0,5	0,8	0,6	0,5	0,5	0,4	0,3
	2	0,2	0,4	0,5	0,6	0,5	0,5	0,4	0,3	0,2
	3	0,1	0,2	0,4	0,5	0,5	0,4	0,3	0,2	0,1
	4	0,3	0,5	0,6	0,6	0,5	0,4	0,3	0,3	0,3
	Mean	0,23	0,35	0,5	0,625	0,525	0,45	0,375	0,3	0,225
No Treatment	1	0,20	0,70	0,80	0,80	0,87	0,90	0,80	0,70	0,7
	2	0,30	0,70	0,80	0,80	0,8	0,80	0,70	0,70	0,70
	3	0,20	0,70	0,80	0,80	0,85	0,90	0,80	0,70	0,70
	Mean	0,23	0,70	0,80	0,80	0,84	0,87	0,77	0,70	0,7
Diclofenac Sodium	1	0,10	0,70	0,50	0,40	0,35	0,30	0,30	0,10	0,10
	2	0,30	0,70	0,60	0,40	0,37	0,40	0,30	0,30	0,30
	3	0,30	0,60	0,50	0,40	0,40	0,40	0,30	0,30	0,30
	Mean	0,23	0,67	0,53	0,40	0,37	0,37	0,30	0,23	0,23

The peak of swelling and inflammation for the experimental group was at 3 hours (T_3) after the first injection of carrageenan and the extract/treatment, with a volume range of 0.63–0.73 mL. At the end of data collection (T_8), the data shows that the inflammation volume of the feet is between 0.20 and 0.23 mL and is back to its normal size.

These results show that the three experimental groups had comparable anti-inflammatory action as the positive group, whereby all measurements returned to normal within the 8-hour period.

Statistical Analysis

The data was analyzed using a univariate ANOVA. the concentration variations of the extract and period time of treatment exposure (data collection) as the variables, with a level of significant value of $\alpha = 0.05$.

Table 2

Statistical Analysis Results on Extract Concentrations and Time of Exposure

Source		Sum of Squares	DF	Mean Square	F	Sig.
Intercept	Hypothesis	1704.083	1	1704.083	65.911	.000
	Error	206.833	8	25.854 ^a		
Conc. Variations	Hypothesis	.889	2	.444	1.306	.298
	Error	5.444	16	.340 ^b		
Time period	Hypothesis	206.833	8	25.854	75.980	.000
	Error	5.444	16	.340 ^b		
Conc, Variation Time period	Hypothesis	5.444	16	.340	.533	.922
	Error	51.750	81	.639 ^c		

The analysis results show that the three concentration variations of the extract used in this study have or show the same antiinflammatory effect, with $p = 0.298 > \alpha = 0.05$. Thus, there is no difference in the anti-inflammatory effect of the different concentration variations of the extract of kopasanda leaf (*Chromolaena odorata* L.) extract.

The effect of time exposure on the extract shows a significant effect on reducing inflammation, with $p = 0.000 < \alpha = 0.05$. Thus, there is no difference in the effect of the time length of extraction exposure of kopasanda leaf (*Chromolaena odorata* L.) extract as antiinflammation".

In the interaction of the two variables, namely the concentration variation of the extract and the time length of treatment exposure, the result is not significant with $p = 0.922 > \alpha = 0.05$. Thus, the interaction of the concentration variation of the extract and the time length of extract exposure of Kopasanda leaf (*Chromolaena odorata* L.) extract as anti-inflammatory.

Table 3

Duncan Multiple Distance Test Results Based on Variations of Extract Concentration

Dosage	N	Subset 1
Conc. Variation of 1 mg	36	3.8611
Conc. Variation of 4 mg	36	3.9722
Conc. Variation of 2 mg	36	4.0833
Sig.		.271

The Duncan Multiple Range Test (DMRT) table shows that the three concentration variations of the extract have the same effect as anti-inflammation (in the same subset), although the concentration variation of 1 mg/200 g BW is higher than the 4 mg/200 g BW and 2 mg/200 g BW, respectively.

This study concludes that Kopasanda leaf (*Chromolaena odorata* L.) extract has an anti-inflammation effect on white rats (*Rattus novergicus*) feet intraplantar injected with carrageenan and that the three concentration variations of the extract have the same anti-inflammation effect as the positive control, which

is diclofenac sodium. The time period of kopasanda leaf (*Chromolaena odorata* L.) extract exposure significantly reduced the inflammation of the rat feet. At the 8th hour of exposure, the volume of the inflammation has returned to its normal size. The interaction between the concentration variation of the extract and the length of the treatment exposure does not significantly reduce the inflammation.

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Attractant Bioactivity of Different Plant Extracts on Mango Fruit Fly (*Bactrocera philippinensis*)

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The Philippine mango fruit fly (*Bactrocera philippinensis*) is a species of tephritid and is a serious pest on various fruit crops, including mango, papaya, guava, kumquat, carambola, and other tropical fruits. The increasing damage caused by *B. philippinensis* has led to a decrease in tropical fruit crop production and exportation. The use of insecticides to control fruit fly pests can be a problem as they pose undesirable health concerns, environmental contamination, and the development of insect resistance to insecticides. This study was conducted to assess the attraction of mango fruit flies to different plant extracts, namely, banana (*Musa acuminata* AAA Group), basil (*Ocimum tenuiflorum* L.), black tea tree (*Melaleuca bracteata*), and papaya (*Carica papaya* L.) and to evaluate the potential of these extracts as fruit fly attractants, which promotes a natural way of attracting mango fruit flies for bulk trapping without the risk of environmental contamination and health hazards. The maceration method using 70% ethyl alcohol as the solvent was used for the extraction of the plant samples, followed by solvent evaporation via a rotary evaporator. Eight trials were conducted with each plant extract, along with methyl eugenol as the control. The results revealed that the mean attraction of mango fruit flies showed that papaya peel extract has the greatest attraction (8.43), followed by black tea tree leaf extract (6.86), methyl eugenol extract (4.86), basil leaf extract (3.86), and banana peel extract (2.86). However, there was no significant difference in the attraction time of fruit flies towards the various plant extracts and the control. The findings of this study are essential for developing organic-based fruit fly attractants to increase mango production and minimize losses caused by mango fruit fly infestations.

Keywords: *extracts, attractant, fly trap, mango fruit fly*

Fruit flies (*Bactrocera philippinensis*) are commonly seen in the Philippines, especially during summer, as it is the peak season for mangoes, papaya, and other fruits. According to Clarke et al. (2005), the fruit fly, *Bactrocera philippinensis*, present in the Philippines, is recorded as an endemic and a notable pest species in the country. It has been observed that methyl eugenol (ME), which is naturally found in about 450 plant species from 80 families spanning 38 orders, strongly attracts the male of *B. philippinensis* (Tan and Nishida, 2012).

Insects have excellent chemosensory faculties, which makes some sense from several miles away. Yet, although the genes for olfactory receptors in vertebrates and the nematode worm *Caenorhabditis elegans* have been known for years, their insect counterparts have remained elusive. Now, reports in neurons and cells describe the identification of genes for olfactory receptors in the fruit fly, *Drosophila melanogaster*. These genes encode membrane receptor proteins that probably mediate odorant recognition in the fly (Pilpel and Lancet, 1999). The fruit fly brain learns about the olfactory world by reading the activity of about 50 distinct channels of incoming information. The receptor neurons that compose each channel have their own distinctive odor response profile, governed by a specific receptor molecule. These receptor neurons form highly specific connections in the first olfactory relay of the fly brain, each synapsing with specific second-order partner neurons (Jefferis and Hummel, 2006).

Fruit flies are known to be a problem for the whole year, but because they are drawn to ripened or fermenting fruits and vegetables, they are more prevalent during late summer and fall, wherein there are several fruits and vegetables present in the house, market, and even in the backyard of each family. Perishables like tomatoes, melons, squash, and grapes carried in from the garden are frequently the source of interior infestations. Fruit flies are also drawn to rotting bananas, potatoes,

onions, and other non-refrigerated produce from the supermarket.

According to Scolari et al. (2014), the highly invasive agricultural insect pest *Ceratitis capitata* (Diptera: Tephritidae) is the most thoroughly studied tephritid fruit fly at the genetic and molecular levels. It has become a model for the analysis of fruit fly invasions and for the development of area-wide integrated pest management (AW-IPM) programs based on the environmentally friendly Sterile Insect Technique (SIT). The oriental fruit fly, *Bactrocera dorsalis* (Hendel), is an important pest of fruits and vegetables, and many countries operate surveillance programs to detect infestations and, if needed, implement costly control efforts (Shelly, 2020).

The number of insect eradication programs is rising in response to globalization. A database of arthropod and plant pathogen eradications covers 1050 incursion responses, with 928 eradication programs on 299 pest and disease taxa in 104 countries (Suckling et al., 2016).

The most common practice of Filipinos to eradicate insects or pests is the use of pesticides and insecticides such as Baygon, Racumin, Angel, Wawang, etc. These aerosols are widely used by developing countries, such as the Philippines, for agricultural purposes. On the other hand, pesticide poisoning is still one of the most common global health problems, resulting in the estimated deaths of five million people every year through intentional, accidental, and occupational exposures (Lu et al., 2010).

Some plant compounds serve as attractants of other living organisms beneficial to the plants or as a defense against other biotic as well as abiotic agents. The most common application of attractants is to attract pests to trap for bulk trapping. Attractants can also be used to encourage beneficial insects to visit and stay in crops for purposes like improved pollination or natural pest control. One of the benefits of attractants to plants is that they help attract insects that are involved in the pollination process.

The Fertilizer and Pesticide Authority (FPA) is the government agency that regulates the use of pesticides. However, despite its policies on the use of pesticides and insecticides, these policies are not well followed by the public (Lu et al., 2010). Furthermore, farmers lack enough knowledge regarding the safe handling of pesticides, which may also lead to exposure to harmful chemicals. Therefore, a safer and more environmentally friendly approach should be formulated for the control and eradication of pests in farmers' crops, and the attractive bioactivity of various plants to insects, specifically mango fruit flies, is a good alternative in the eradication of insect pests.

This study aimed to taxonomically identify the mango fruit fly and the different plant species utilized in this study. It also determined the number of attractions of mango fruit fly to cavendish banana peel, holy basil leaves, black tea tree leaves, papaya peel extracts, distilled water (negative control), and methyl eugenol (positive control) and the time of attraction of mango fruit fly to cavendish banana peel, holy basil leaves, black tea tree leaves, papaya peel extracts, distilled water (negative control), and methyl eugenol (positive control).

Methodology

Research Design

The experimental design was utilized in this study to evaluate the attractant bioactivity of four (4) different plant extracts—cavendish banana peel extract, holy basil leaf extract, black tea tree leaf extract, and papaya peel extract—against adult mango fruit fly (*Bactrocera philippinensis*) and compare them to the commercially available fruit fly attractant, methyl eugenol at ambient room temperature

Collection of Plant Samples and Taxonomic Classification

Different plant sources—banana, basil, black tea tree, and papaya—were collected and taxonomically classified. The collection of data went as follows.

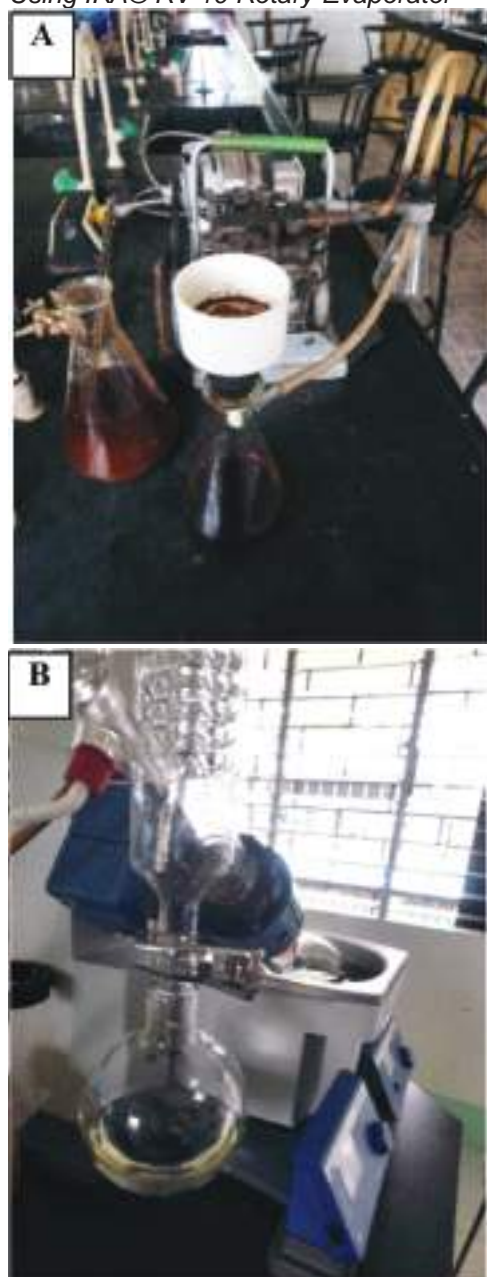
Preparation of Treatments

This study used methyl eugenol, a commercially produced fruit fly attractant, as the positive control and distilled water as the negative control. The collected plant parts (cavendish banana peels, papaya peels, basil leaves, and black tea tree leaves) were washed with running tap water twice and rinsed with distilled water, then air dried for about 12 hours before placing them in the laboratory oven at 50 °C until the moisture content did not exceed 12 percent. Then, the dried fruit peels and leaves were ground using a mortar and pestle (Kanta et al., 2017).

The coarsely powdered fruit peels and leaves were then weighed (100g each) using a digital balance beam and soaked with 1000 mL of 70% ethyl alcohol solvent poured in each Erlenmeyer flask with a ratio of 1:10 (drug/solvent ratio) (Kallimanis et al., 2022), then covered tightly with aluminum foil and kept for at least three (3) days (Abubakar and Haque, 2020). To ensure the complete extraction of each plant sample, periodic stirring was done. After soaking, each plant extract was filtered using the vacuum filtration machine and underwent solvent evaporation through the IKA® RV 10 Rotary Evaporator at 70 °C with a speed of 30 rpm (Figure 1).

Figure 1

(A) Vacuum Filtration. (B) Solvent Evaporation Using IKA® RV 10 Rotary Evaporator



Fruit Fly Trap Preparation

To perform the trials, the study used transparent jars and polyethylene terephthalate (PET) bottles to create the fruit fly trap or enclosure. To connect the jars with the PET bottles that were used to hold the extracted attractants (treatments) and the

controlled treatments, transparent acrylic pipes (L = 50 cm) were ordered from an online shop. The 50-cm acrylic pipes were cut in half (25 cm). Then, using a soldering iron, holes were made in the jars and PET bottles. The holes have a diameter of approximately 20 mm. With the use of a glue stick and a glue gun, the jars were connected by the acrylic pipe to the PET bottles (6 per jar). The idea behind this enclosure or trap was to hold the collected mango fruit fly (*Bactrocera philippinensis*) in the jars and attract them with the treatments (10 mL each treatment), which were placed in the PET bottles surrounding the jar. The fruit fly trap helps in monitoring the behavior and the time of attraction of the mango fruit flies to the treatments (attractants).

Collection of Mango Fruit Flies

The mango fruit flies (*Bactrocera philippinensis*) that were placed in the fruit fly trap or enclosure were captured by using a few drops of methyl eugenol in a container and placing it outside the Genetics Laboratory, Department of Biology, AUP, and then, with the use of an insect net, mango fruit flies were collected. The study observed 30 adult mango fruit flies in every trial (8). After every trial was done, the size of the mango fruit flies was measured. To measure the average size (length) of the mango fruit flies, a one-foot ruler was used. The average size of the mango fruit flies that were used in this study is 7.36 mm, with 6.10 mm as the smallest and 8.10 mm as the biggest mango fruit fly in terms of its length (Fig. 2).

Figure 2

Average Measurement (Length) of *Bactrocera philippinensis*



Data Analysis

The Kruskal-Wallis test was used to compare the mean ranks of the number of attractions and the time of attraction of the mango fruit fly to the treatments since the measurement variable did not meet the normality assumption of one-way ANOVA (Tables 1 and 2) (Walpole et al., 2017). To determine the difference between the treatments and the time of attraction, Dwass-Steel-Critchlow-Fligner pairwise comparisons were used with a significance level of $\alpha = 0.05$ (Douglas & Michael, 1991).

Table 1

Normality Test of Fruit Fly Attraction

Normality Test (Shapiro-Wilk)		
	W	p
Attraction (n)	0.890	< .001

Note. A low p-value suggests a violation of the assumption of normality

Table 2

Normality Test of the Time of Attraction

Normality Test (Shapiro-Wilk)		
	W	p
Time (min)	0.947	< .001

Note. A low p-value suggests a violation of the assumption of normality

Ethical Consideration

The study did not include human participants in the sampling population. Further, the procedures did not cause any harm to the environment.

Results and Discussion

Fruit Fly

According to the study by Scolari et al. (2021), fruit flies belonging to the family Tephritidae consists of about 500 genera and over 5,000 species distributed around the world, specifically in areas with temperate, subtropical, and tropical climates. Most species of this family have wings with yellow, brown, or black stripes or spots. And the body

length of an individual fruit fly varies from 1 mm to over 20 mm. Eggs of most female fruit flies were laid or inserted in living, healthy plant tissues, and the larvae feed on the stalks, leaves, fruit, flower heads, and seeds (Christenson & Foote, 1960).

The pest fruit flies that are distributed around Pakistan, West India, Asia, Australia, and the South Pacific come predominantly from the genera *Bactrocera* Macquart and *Zeugodacus* Hendel. In which *Bactrocera* consisting of 461 species, are the dominant insect pests of fruits and some fleshy vegetables (Clarke, 2019). Two sympatric species from the fifty-two *Bactrocera dorsalis* complex with significant quarantine importance in Asia are *Bactrocera philippinensis* and *B. occipitalis* (Drew and Hancock, 1994; Norrbom et al., 1998). To distinguish the two species, there are several morphological characteristics that are used, such as the pattern of black bands of their abdomen and the costal band of the wings. Furthermore, Hardy (1974) stated in his paper that these two sympatric species of fruit flies are mainly distributed in the Philippines and probably in Southeast Asia. In recent studies, these two species were recorded in Palau, and it was found that they are likely to have a wide host range, which is similar to the oriental fruit fly *B. dorsalis*. Thus, they are considered to be serious pest species.

Bactrocera philippinensis

The mango fruit fly, *Bactrocera philippinensis*, is a native species of fruit fly to the Philippines (Fig. 3). It is one of the most important quarantine pests in the country, as it has been reported to damage fruit crops such as mango (*Mangifera indica* L.), papaya (*Carica papaya* L.), and jackfruit (*Artocarpus heterophyllus* Lam). Additionally, Jiao et al. (2011) determined in their study that adult fruit fly longevity was prolonged with supplementary nutrition, and the preferred temperature for their development and fertility was around 25 °C–30 °C as female fruit flies laid 627.35 and 652.57 eggs on average.

Guimaras Island in the Western Visayas region is considered the major producer of mangoes in the country, wherein 88,727 metric tons of the crop were produced in 1992. However, the expansion in the production and market of mangoes and other fruits were restricted by the presence of *Bactrocera philippinensis*. Thus, a feasibility study about an integrated fruit fly management program was conducted in 1997 (Covacha et al., 2000).

Figure 3

Adult Bactrocera philippinensis



Plant Taxonomy

Table 3 shows the taxonomy of the different plant species utilized in this study. It includes the kingdom, division, class, order, family, genus, and species.

Table 3

Taxonomy of plant samples

Taxonomic Hierarchy	Common Name			
	Cavendish Banana	Holy Basil	Black Tea Tree	Papaya
Kingdom	Plantae	Plantae	Plantae	Plantae
Division	Tracheophyta	Streptophyta	Streptophyta	Streptophyta
Class	Magnoliopsida	Magnoliopsida	Magnoliopsida	Magnoliopsida
Order	Zingiberales	Lamiales	Myrtales	Brassicales
Family	Musaceae	Lamiaceae	Myrtaceae	Caricaceae
Genus	<i>Musa</i>	<i>Ocimum</i>	<i>Melaleuca</i>	<i>Carica</i>
Species	<i>Musa acuminata</i> AAA Group	<i>Ocimum tenuiflorum</i>	<i>Melaleuca bracteata</i>	<i>Carica papaya</i> L.

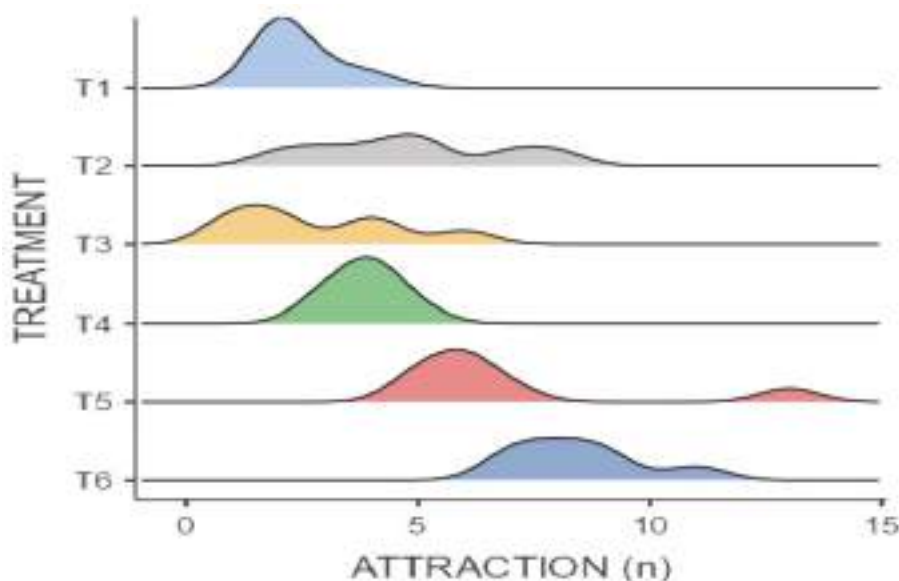
The results indicate that the cavendish banana is a species of *Musa acuminata* AAA Group, which comes from the family Musaceae. Holy basil (*Ocimum tenuiflorum* L.) is from the family Lamiaceae. The black tea tree (*Melaleuca bracteata*) comes from the family Myrtaceae. And papaya (*Carica papaya* L.) is from the family Caricaceae (Schoch et al., 2020). Table 3 also shows that all four plant samples are under the class of Magnoliopsida, which are flowering plants consisting of dicotyledons (Cronquist & Barkley, 2020).

Attraction

Figure 4 shows the density of the attracted fruit flies in every treatment for seven trials. It also shows that there is less attraction that occurred in T1 (distilled water), which can be observed in the graph, wherein the density of attraction was only between one and five. The attraction that occurred in T2 (methyl eugenol) varied for the trials, wherein the density of attraction was between one and nine. The same is true for T3 (cavendish banana peel extract), showing a density of attraction between zero and seven. The density of attraction for T4 (holy basil leaf extract) is between two and six. T5 (black tea tree leaf extract) has a density of attraction between 4 and 14. And T6 (papaya peel extract) shows that there is more fruit fly attraction that occurred, wherein the density of attraction is between six and 12.

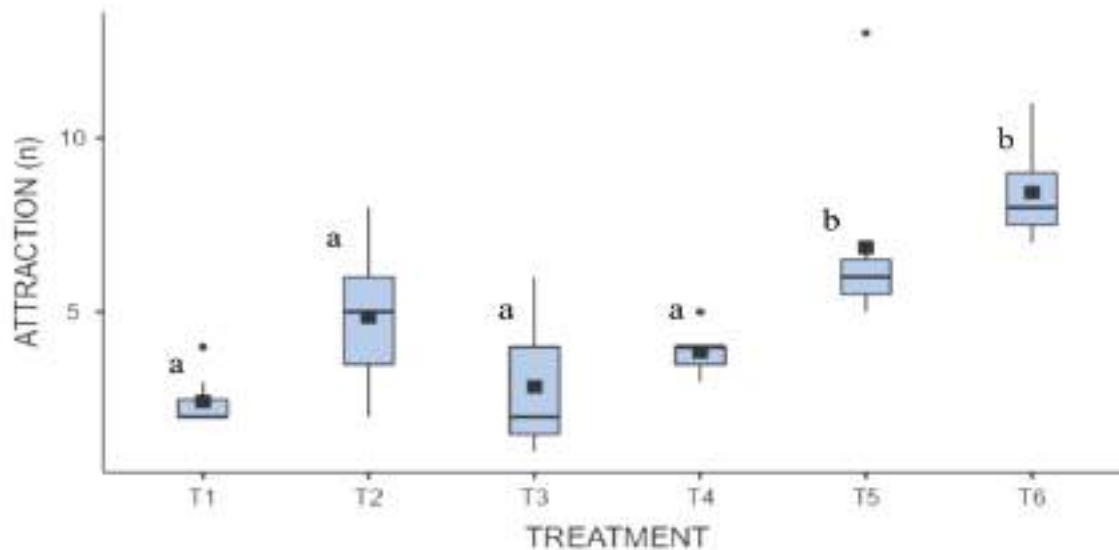
Figure 4

Data Densities of the Attracted Fruit Flies in Each Treatment



Legend: Distilled water (T1), methyl eugenol (T2), cavendish banana peel extract (T3), holy basil leaf extract (T4), black tea tree leaves (T5), and papaya peel extract (T6). Attraction (n) is the number of mango fruit flies attracted to treatments.

Figure 5 is a box plot showing the mean number of mango fruit flies attracted to the treatments that were used in the trials. T1 has a mean number of 2.43, whereas T2 has 4.86, T3 has 2.86, T4 has 3.86, T5 has 6.86, and T6 has a mean number of 8.43.

Figure 5*Mean Number of Mango Fruit Fly (*B. philippinensis*) Attracted to Each Treatment*

Legend: Distilled water (T1), methyl eugenol (T2), cavendish banana peel extract (T3), holy basil leaf extract (T4), black tea tree leaves (T5), and papaya peel extract (T6). Means with the same letter are not significantly different ($p < .001$).

The non-parametric test, Kruskal-Wallis, resulted in a p-value of $<.001$ (Table 4), which shows that there is a significant difference in the group. Table 5 is the post hoc analysis showing that there is a significant difference between T1 and T5, T1 and T6, T3 and T6, T4 and T5, and T4 and T6. It also shows that there is no significant difference between T1 vs. T2, T3, and T4; T2 vs. T3, T4, T5, and T6; T3 vs. T4, and T5; and T5 vs. T6.

Table 4*Non-Parametric (Kruskal-Wallis) Test Result on the Attraction of Mango Fruit*

Kruskal-Wallis			
	χ^2	df	p
Attraction (n)	28.2	5	$<.001$

Table 5*Post-hoc analysis (Dwass-Steel-Critchlow-Fligner pairwise comparisons)**Between treatments for Attraction (n)*

		W	P
T1	T2	3.3976	0.155
T1	T3	0.0971	1.000
T1	T4	3.7075	0.092
T1	T5	4.5541	0.016
T1	T6	4.5435	0.017
T2	T3	-2.4667	0.502

[table continues on the next page]

T2	T4	-1.3990	0.922
T2	T5	2.0213	0.709
T2	T6	3.7458	0.086
T3	T4	1.7932	0.803
T3	T5	3.8545	0.070
T3	T6	4.4567	0.020
T4	T5	4.3380	0.026
T4	T6	4.4969	0.018
T5	T6	3.0183	0.270

Legend: Distilled water (T1), methyl eugenol (T2), cavendish banana peel extract (T3), holy basil leaf extract (T4), black tea tree leaves (T5), and papaya peel extract (T6)

Time of Attraction

Table 6 is a summation of the measures of central tendencies of the time (in minutes) the mango fruit flies (*B. philippinensis*) are attracted to different treatments (attractants). It also contains the standard deviation and the minimum and maximum time for each treatment. T1 and T4 have a 1-minute time recorded as their minimum duration of attraction, faster than the attraction time that was recorded for T2, T3, T5, and T6 with a minimum attraction time of 8 minutes, 20 minutes (longest time), 6 minutes, and 4 minutes, respectively.

Table 6

Data Description of the Time of Attraction

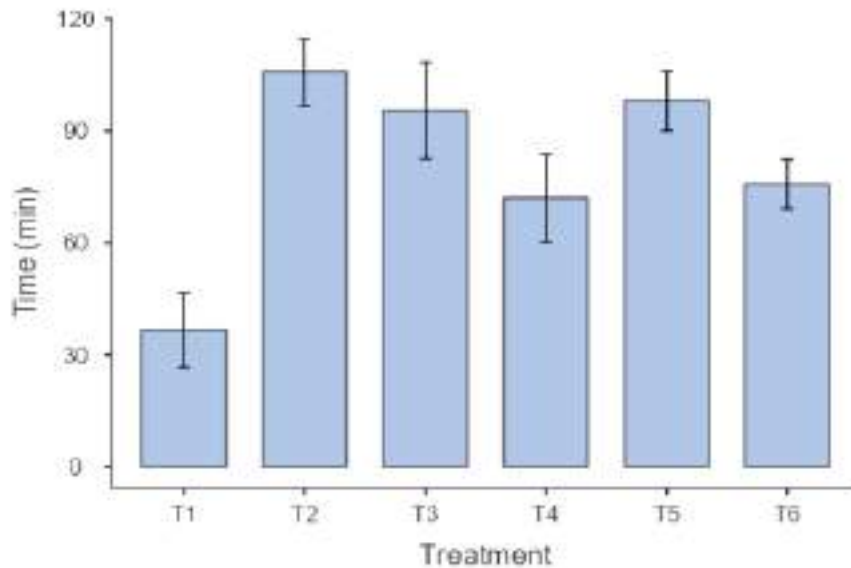
Descriptives									
	Treatment	N	Missing	Mean	SE	Median	SD	Minimum	Maximum
Time (min)	T1	16	0	36.6	9.91	28.5	39.6	1	157
	T2	42	0	105.7	8.97	101.5	58.1	8	215
	T3	25	0	95.5	12.95	63	64.8	20	236
	T4	28	0	72.0	11.74	55.5	62.1	1	244
	T5	60	0	98.0	7.91	80.5	61.3	6	235
	T [^]	62	0	75.7	6.65	67.0	52.4	4	205

Legend: Distilled water (T1), methyl eugenol (T2), cavendish banana peel extract (T3), holy basil leaf extract (T4), black tea tree leaves (T5), and papaya peel extract (T6).

In Figure 6, the bar plot indicates the mean number of attraction times (min) of the mango fruit fly (*B. philippinensis*) to the treatments. T1 has a mean attraction time of 36.6 minutes, whereas T2 showed a mean of 105.7 minutes, T3 has a mean of 95.5 minutes, T4 has 72.0 minutes, T5 has 98.0 minutes, and T6 has a mean attraction time of 75.7 minutes (Table 6). This indicates that T1 has the shortest time of attraction in contrast to T2, which has the longest time of attraction.

Figure 6

The mean number of attraction times (min) of mango fruit flies to the treatments

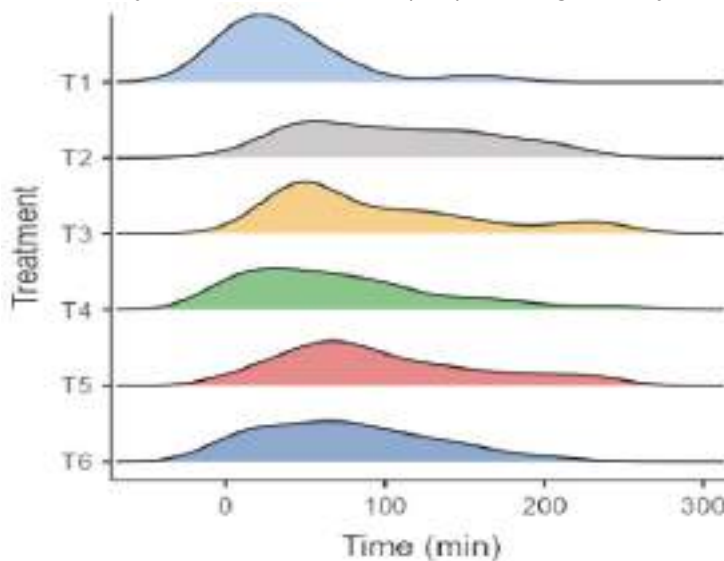


Legend: distilled water (T1), methyl eugenol (T2), cavendish banana peel extract (T3), holy basil leaf extract (T4), black tea tree leaves (T5), and papaya peel extract (T6). Means with the same letter are not significantly different ($p < .001$).

Figure 7 shows the graphs of the density of the attraction time of mango fruit flies in each treatment. Most of the data on attraction time recorded for T1 and T4 are concentrated around the first 50 minutes of the trials, while the time data for T3 is mostly concentrated around the first 80 minutes of the trials, and the time data for T2, T5, and T6 had a wide range of density (0–250 min).

Figure 7

Data density of the attraction time (min) of mango fruit fly to each treatment



Treatment Legend: Distilled water (T1), methyl eugenol (T2), cavendish banana peel extract (T3), holy basil leaf extract (T4), black tea tree leaves (T5), and papaya peel extract (T6).

The non-parametric test (Kruskal-Wallis) for the attraction time of mango fruit flies to the treatments resulted in a p-value of <.001 (Table 7), which shows that there is a significant difference in the group. Table 8 is the post hoc analysis (Dwass-Steel-Critchlow-Fligner pairwise comparisons) showing that there is a significant difference between T1 vs. T2, T1 vs. T3, T1 vs. T5, and T1 vs. T6. While the pairwise comparisons between T1 vs. T4; T2 vs. T3, T4, T5, and T6; T3 vs. T4, T5, and T6; T4 vs. T5 and T6; and T5 vs. T6 showed no significant difference.

Table 7

Non-Parametric (Kruskal-Wallis) Test Result on the Attraction Time of Mango Fruit Fly

	χ^2	df	p
Time (min)	25.1	5	<.001

Table 8

Post-Hoc Analysis (Dwass-Steel-Critchlow-Fligner Pairwise Comparisons) Between Treatments for Attraction Time (Min)

Pairwise comparisons: - Time (min)			
		W	P
T1	T2	5.955	<.001
T1	T3	5.028	0.005
T1	T4	2.899	0.314
T1	T5	5.740	<.001
T1	T6	4.131	0.041
T2	T3	-1.155	0.965
T2	T4	-3.459	0.141
T2	T5	-0.875	0.990
T2	T6	-3.397	0.156
T3	T4	-2.029	0.706
T3	T5	0.791	0.994
T3	T6	-1.347	0.933
T4	T5	2.914	0.308
T4	T6	1.011	0.980
T5	T6	-2.640	0.423

Treatment Legend: Distilled water (T1), methyl eugenol (T2), cavendish banana peel extract (T3), holy basil leaf extract (T4), black tea tree leaves (T5), and papaya peel extract (T6).

Dweck et al. (2015) demonstrate in their study that flies can detect the presence of hydroxycitric acids (ethylphenols) through a dedicated olfactory sensory neuron (OSN) located on the maxillary palps. The present study showed a significant result with regard to the attraction and time of attraction of mango fruit fly (*Bactrocera philippinensis*) against the plant extracts that were prepared. Previous studies identified that banana peel (Pereira and Maraschin, 2015) and papaya peel (Salla et al., 2016) have antioxidant properties, specifically from the ferulic acid and p-coumaric acid present in both fruit peels as one of their bioactive compounds. This compound is converted by yeasts into the volatile odor molecules 4-ethylphenol and 4-ethyl guaiacol, which are highly attractive to larval and adult fruit flies (Wright, 2015). Holy basil leaves also contain a volatile ingredient (phenylpropanoids), such as methyl eugenol (Tangpao et al., 2022). And in the study of Yasin et al. (2021), they identified the presence of phenylpropanoids, specifically methyl eugenol and methyl isoeugenol, in *Melaleuca* species.

The presence of phenolic compounds identified through previous studies in all four (4) experimental treatments (cavendish banana peel, holy basil leaves, black tea tree leaves, and papaya peel) explains the attraction of mango fruit flies during the eight (8) trials. However, the present study could not yet explain the frequency of attraction that occurred in every trial since the study did not conduct a proximate and phytochemical analysis of the plant samples.

A descriptive analysis of the attraction time of the mango fruit flies to the treatments revealed that distilled water (the negative control) has the shortest time of attraction, while methyl eugenol (the positive control) has the longest.

The natural attractant bioactivity of plant extracts is such a significant alternative to synthetic mango fruit fly attractants that can be bought in the market. Synthetic attractants such as methyl eugenol pose a harmful effect on human health and

may also greatly impact the behavior of crops for their survival. This study provided valuable results on the attractant bioactivity of four different plant extracts: cavendish banana peel, holy basil leaves, black tea tree leaves, and papaya peel. Papaya peel extract and black tea tree leaf extract showed more attractive bioactivity as they were comparably similar to the effectiveness of the positive control (methyl eugenol).

As the results of this study showed favorable results for every extract, especially the papaya extract, the researchers recommend that the community, farmers, and mango growers use these plant extracts to control the infestation of the mango fruit fly, *Bactrocera philippinensis*. The application of plant extracts as attractants and traps to manage mango fruit flies is also recommended due to their low cost and convenience for bulk trapping.

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Knowledge and Prevention Practices on Hepatitis B and C among Dentistry Students: A Basis for a Proposed Guideline

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Hepatitis B and C viruses are two of the most common blood-borne viruses in the dental setting. In the dental office, the most common mode of transmission is percutaneous exposure combined with incidental contact with the blood or saliva of infected patients. Among health professionals, dentists are at a high risk of contracting this disease. This research study was conducted to evaluate the level of knowledge and the status of prevention of Hepatitis B and C among dentistry students at the Adventist University of the Philippines by investigating how knowledge and prevention correlate with each other. The study had 47 dental students as respondents and employed a descriptive, correlational, and comparative design. A self-constructed survey questionnaire was utilized to determine the respondents' level of knowledge and of prevention practices. Spearman's rho and ANOVA were used to determine the level of knowledge and pairwise comparison for the level of prevention practices. The results showed that the respondents showed an average level of knowledge and a very high level of preventive practices towards hepatitis B and C viruses, although there was no significant difference between the level of knowledge and prevention. There was, however, a significant difference in prevention practices between the respondents' clinical levels. Finally, the study found no correlation between the dental clinicians' level of knowledge and their level of prevention practices against Hepatitis B and C. Future studies may include a larger number of respondents as well as a wider population.

Keywords: *hepatitis, knowledge and prevention, dental clinician*

Viral hepatitis infection is a global health threat, particularly in underdeveloped nations. It is one of the most frequent chronic viral illnesses that may infect the public (Al-Shamiri et al., 2018). It is believed that over two billion individuals are infected worldwide, with more than 170 million being chronic carriers of the virus (Cunningham, 2016). In the Philippines, one out of every ten people has chronic hepatitis B, and six out of every 1,000 have chronic hepatitis C. Hepatitis is a major public health concern in the Philippines, but due to a lack of awareness, many people who have this viral disease may not realize it until it's too late (Weiler, 2019).

Hepatitis B and hepatitis C viruses are two of the most common blood-borne viruses in the dental setting. In the dental office, the most common mode of transmission is percutaneous exposure combined with contact with the blood or saliva of the infected patients. Unless contaminated with blood, the risk of transmission from saliva is low. These viruses have the potential to cause serious, life-threatening diseases, especially if they are detected late or go untreated (Lala et al., 2018). Dentists, like other health care workers, make concerted efforts to protect themselves and their employees from infectious agents in their patients' body fluids. Many dentists are unaware that hepatitis B poses a greater risk to their dental staff and to their health than acquired immunodeficiency syndrome. Recent reports of viral hepatitis, specifically hepatitis B virus transmission in health care settings, have revealed that transmission occurs from patient to patient, patient to health care worker, and health care worker to patient (Lim, 2018).

According to studies, the risk of exposure for general dentists is three to four times that of the general population and six times greater for nonimmunized surgical specialists. There are special circumstances in the dental clinic that can lead to the transmission of the hepatitis virus to healthcare professionals and clinical students who undergo training (Mahesh, 2014). The risk of acquisition of these viruses by means of dental

instruments contaminated with blood ranges from 6 to 30% (Cottone, 1991). The risk of infection through sharp instruments in occupational dentistry is significant. and there is, then, a significant possibility of infection in dental environments, with active or passive immunization against HBV being the most effective and free way to prevent this disease.

Studies exist that evaluate the level of knowledge of dental students on hepatitis B and hepatitis C viruses, which correlate with the prevention practices in dental clinics conducted in different places and countries. However, there is insufficient data on hepatitis virus awareness among dental college students in the Philippines. Hence, this study seeks to assess the level of knowledge and preventive measures of dental clinicians with a specific focus on hepatitis B virus, hepatitis C virus, and the correlation of the two variables.

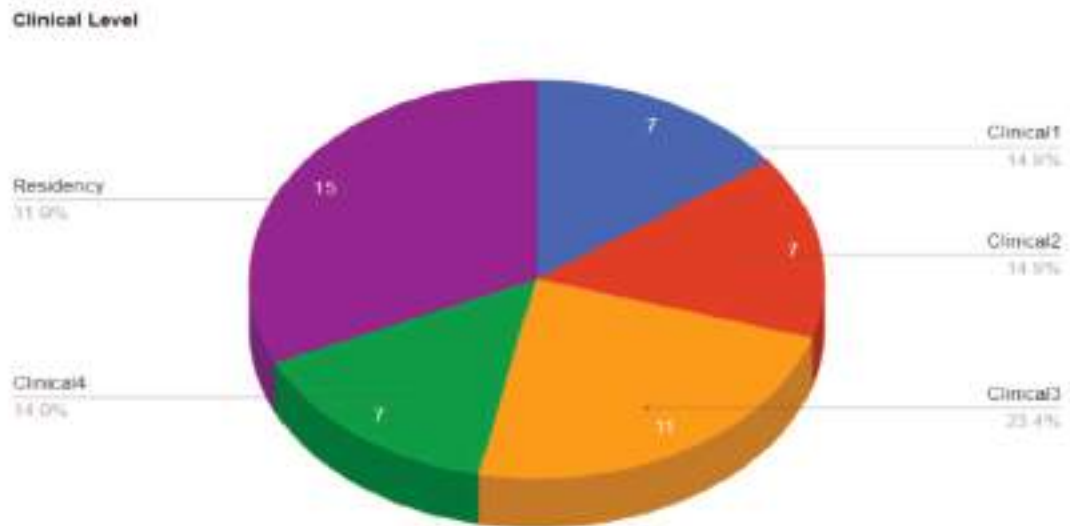
Methodology

Research Design

To gather the necessary data, the researchers utilized descriptive and correlational quantitative approaches. In this study, the provided information is gathered from the participants who completed the provided questionnaires. The results collected are then represented in numerical form. The descriptive design was used to describe specific behaviors and variables like knowledge and prevention practices.

Population and Sampling Technique

The study's population consisted of undergraduate dental clinicians at a private university in Cavite Province, Philippines. From these, the sample consisted of 47 dental clinicians from the different levels of Clinic 1, Clinic 2, Clinic 3, Clinic 4, and Clinical Residents. Figure 1 shows the distribution of the respondents by clinical level. Of the 47 respondents, 7 were from Clinic 1, 7 were from Clinic 2, 11 were from Clinic 3, 7 were from Clinic 4, and 15 were clinical residents. Figure 1 shows the distribution of these respondents.

Figure 1*Distribution of Clinical Students who Participated in the Study***Instrumentation**

A self-constructed questionnaire was used as the primary instrument to collect data regarding the basic knowledge and preventive practices of the dentistry students. A letter explaining the purpose of the study and why the respondents' participation was needed was sent to the participants. The questionnaire was distributed to dental clinicians via Google Forms. The first section of the questionnaire collected the demographic information of the respondents, which included their name, sex, age, clinic level, and hepatitis vaccination status. The next section collected data on the respondent's level of knowledge on Hepatitis B and C. There were 9 items for knowledge on hepatitis B and C. A discrete dichotomous scale was used to evaluate the knowledge of the respondents, with items for which there are only two possible responses, true or false. The last part of the questionnaire assessed the respondent's level of preventive practices on Hepatitis B and C. There were 15 items using a 5-point Likert-type scale from *very low* to *very high* to evaluate the practices of the respondents. The scale allowed the respondents to express the best response that suited their choice. The questionnaire was validated by the faculty of the university where the student respondents are enrolled.

Data Analysis

The dentistry students were asked to respond to the given online questionnaire. The researchers collected the necessary information and data, which was then sent to the statistician for interpretation. The results were evaluated, and the sample questionnaires were revised based on the statistician's suggestions and recommendations. Cronbach's alpha was used to test the reliability of the self-constructed questionnaire. The raw data from the surveys was encoded and organized using Microsoft Excel. Jamovi software was used to analyze the data statistically using descriptive statistics, Spearman's rho, and ANOVA.

Ethical Consideration

The research protocol and the document containing the informed consent were reviewed by the ethics review board of the university before the conduct of the study. The consent form detailed the study's purpose, risks, and benefits. Respondents were informed that their participation was entirely voluntary and that they could withdraw at any time. They were assured that the collected data would only be used for research purposes. The ethics clearance and the informed consent form were then sent to the respondents together with the questionnaire.

Results and Discussion

Table 1 presents the responses of the respondents, which show proportions of correct and incorrect responses to knowledge items. For the level of knowledge on hepatitis B and C, there was a mean score of 5.94 (SD 1.48) that was interpreted as *average*. This implies that the respondent's level of knowledge on hepatitis B and C was *average* at the time the data was collected.

The second item "Hepatitis B and C infection a preventable disease" ranked the highest item answered correctly (100% of respondents) about the knowledge on Hepatitis B and C, followed by item number eight "Long-term effect of Hepatitis B and C infection can result in serious, even life-threatening health problems like cirrhosis and liver cancer" with 97.87% of respondents answered incorrectly, item number 1, "Hepatitis B and C an infectious/transmissible disease," 93.62% of respondents of which answered correctly, item number 3, "Hepatitis B and C can be transmitted through razors, nail clippers, and toothbrushes" 80.85% correctly answered, items number 4 and 7, "The transmission of hepatitis B and C depends on the onset of the virus on the patient" and "There is an effective vaccine is available to prevent Hepatitis C infection" with 63.83% of respondents answered correctly respectively.

Level of Knowledge

Table 1

Responses for the Knowledge Instrument

Item No.	Item	True		False		Correct Response
		(n)	(%)	(n)	(%)	
1	Hepatitis B and C, an infectious or transmissible disease	44	93.62%	3	6.38%	TRUE
2	Hepatitis B and C infection is a preventable disease	47	100.00%	0	0.00%	TRUE
3	Hepatitis B and C can be transmitted through razors, nail clippers, and toothbrushes	38	80.85%	8	17.02%	TRUE
4	The transmission of hepatitis B and C depends on the onset of the virus in the patient.	30	63.83%	17	36.17%	FALSE
5	Hepatitis B is usually spread through food or water, sharing eating utensils, breastfeeding, hugging, kissing, hand holding, coughing, or sneezing	27	57.45%	20	42.55%	FALSE
6	Hepatitis B and C are not transmitted through tattoos or acupuncture needles	15	31.91%	32	68.09%	TRUE
7	There is an effective vaccine available to prevent Hepatitis C infection	30	63.83%	17	36.17%	TRUE
8	The long-term effects of hepatitis B and C infection can result in serious, even life-threatening health problems like cirrhosis and liver cancer.	46	97.87%	1	2.13%	FALSE
9	Hepatitis B and C virus can survive outside the body and remain infectious for at least 10 days	29	61.70%	18	38.30%	TRUE

Mean Score = 5.94, SD = 1.48

Results from this study drew comparisons to a study that was conducted by Alavian et al. (2011), which observed that around 81.7% and 98.6% of the participants were aware of the potential transmission of Hepatitis B and C virus by saliva and sharp objects; however, in our study, the corresponding numbers were lower at 93.62% and 80.85%, respectively, and according to Jain et al. (2014), in a survey questionnaire given to interns in Mumbai, the majority of interns know of Hepatitis B and C virus transmission and vaccination.

These outcomes were consistent with this research finding. (Alavian et al., 2011; Jain et. al., 2014).

According to a study by Vlaho et al. (2011), the knowledge of the respondents increases by going further in their dental studies, and their knowledge was not consistent with their attitude towards treating and dealing with HBV-positive patients. This was the reverse of this study result, in which the students have a high level of knowledge towards the patients with Hepatitis B and C. (Vlaho, 2011).

Level of Preventive Practices

Table 2 shows the level of preventive practice of the respondents, with a mean score of 4.54 (SD 0.42). This indicates a *very high* level of preventive

practice. The results were interpreted as a *very high* level of preventive practices. This implies that the respondent's preventive practices towards Hepatitis B and C were *high* at the time the data was collected. The item number 2, "I use full barrier technique, including masks, gloves, glasses or eye shields, and disposable gowns when in contact with the patients," rendered the highest mean score of 4.89 (SD 0.43), followed by item number 7, "I place used disposable syringes, needles, scalpels, and other sharp items in appropriate puncture resistance containers to prevent contamination" (mean score of 4.87 (SD 0.40), and item number 6, "I use disposable covers. Covering light handles, drawer handles, and bracket trays" (mean score of 4.83 (SD 0.52)

Table 2

Descriptive Statistics for Preventive Practices

Legend No.	Item	N	Mean	SD	Interpretation
1	I do proper hand washing before and after the routine oral procedure	47	4.79	0.55	Very High
2	I use full barrier technique, including masks, gloves, glasses or eye shields, and disposable gowns, when in contact with the patients	47	4.89	0.43	Very High
3	I follow proper aseptic technique to minimize spread of aerosol	47	4.81	0.45	Very High
4	I avoid passing the syringe with an unsheathed needle intraoperatively to prevent sharp incident	47	4.79	0.55	Very High
5	I wipe all surfaces with 2% activated glutaraldehyde (Cidex) before and after dental procedure	47	4.28	0.83	Very High
6	I use disposable covers. Covering light handles, drawer handles, and bracket trays	47	4.83	0.52	Very High
7	I place used disposable syringes, needles, scalpels, and other sharp items in appropriate puncture resistance containers to prevent contamination	47	4.87	0.40	Very High
8	I put all disposable items (gauze, dental floss, saliva ejector, mask, gloves, etc.) after all procedure on a labeled waste basket	47	4.79	0.55	Very High
9	I scrub and sterilize after the procedure is complete.	47	4.72	0.62	Very High
10	I use a one-handed scoop technique, a mechanical device designed for holding the needle cap to facilitate one-handed recapping, or an engineered sharp injury protection device for recapping needles between uses and before disposal.	47	4.68	0.73	Very High

[table continues on the next page]

11	I bend or break needles before disposal	47	3.28	1.57	High
12	I use instruments rather than fingers to grasp needles, retract tissue, and load and unload needles and scalpels	47	4.38	0.85	Very High
13	I Give verbal announcements when passing sharps	47	4.19	1.06	High
14	I wash reusable laboratory non-autoclavable items with glutaraldehyde (Cidex)	47	4.19	1.14	High
15	I follow the clinical direction (waling flow) to avoid cross-contamination on clinical surfaces	47	4.57	0.65	Very High
Grand Mean		47	4.54	0.42	Very High

Level of Preventive Practices: Leader: 4.21–5.00=very high, 3.41–4.20=high, 2.61–3.40=neutral, 1.81–2.60=low, 1.00–1.80=very low

The results of this study drew comparisons to a study conducted within the same scope by Saquib et al. (2019). The researchers found that almost half of the respondents showed a high level of practice (Saquib et al., 2019). Since cross-infection can be prevented by infection control measurements, which is an important part of the health profession, the use of personal protection equipment during clinical work by the participants is a high preventive measure for the hepatitis B and C viruses.

Comparison of Level of Knowledge and Practice Across Clinical Level

The results in Table 3 show that there was *no significant* difference in the level of knowledge according to clinical level. This implies that the level of knowledge of the respondents about the hepatitis B and C viruses is not associated with their clinical level.

Table 3

Comparison of Level of Knowledge and Practice Across Clinical Level

Variable	Clinic Level	N	Mean	Median	SD	X2	Df	p	Interpretation
Knowledge	Clinic I	7	5.86	6	1.35	2.83	4	0.587	Not Significant
	Clinic II	7	5.71	5	1.38				
	Clinic III	11	5.64	5	1.75				
	Clinic IV	7	5.57	6	1.51				
	Resident	15	6.47	6	1.41				
Practice	Clinic I	7	4.84	5	0.24	11.45	4	0.022	Significant
	Clinic II	7	4.22	4.47	0.73				
	Clinic III	11	4.38	4.47	0.26				
	Clinic IV	7	4.5	4.67	0.47				
	Resident	15	4.68	4.67	0.22				

The results showed that there was *no significant* difference in the level of knowledge according to clinical level. This implies that the level of knowledge of the hepatitis B and C viruses is not associated with clinical level. From the results obtained, there is no significant difference in the knowledge of the hepatitis B and C viruses according to clinical level, and the hypothesis, "There is no significant difference between the respondents' level of knowledge on hepatitis B and C according to clinical level, was *accepted*."

The level of prevention in terms of clinical level is $p = 0.02$. Since the null hypothesis has a less than 5% chance of being right, this result presents compelling evidence against it. The results showed that there is a *significant* difference in the prevention level according to the clinical level, which implies that the level of prevention practices is affected by the clinical level of the students. From the results obtained, there is a significant difference in prevention practices, and the hypothesis, "There is no significant difference between the respondents' level of prevention practices on hepatitis B and C according to clinical level," can be *rejected*.

Pairwise Comparison for Practice

Table 4 shows the pair-wise comparisons for the level of prevention practices of the respondents according to clinical level, showing that there is a significant difference between Clinic I vs. Clinic III ($p = 0.047$) and Clinic III vs. Resident ($p = 0.048$).

Table 4

Pairwise Comparison for Practice

	VS	W	P	Interpretation
Clinic I	Clinic II	-2.775	0.285	Not Significant
Clinic I	Clinic III	-3.893	0.047	Significant
Clinic I	Clinic IV	-2.321	0.471	Not Significant
Clinic I	Resident	-1.938	0.647	Not Significant
Clinic II	Clinic III	-0.195	1	Not Significant
Clinic II	Clinic IV	0.997	0.956	Not Significant
Clinic II	Resident	2.11	0.568	Not Significant
Clinic III	Clinic IV	1.355	0.874	Not Significant
Clinic III	Resident	3.883	0.048	Significant
Clinic IV	Resident	0.652	0.991	Not Significant

The pairwise comparisons for the level of prevention practices of the respondents according to clinical level showed that there is a significant difference between clinic I and clinic III ($p = 0.047$) and between clinic III and residents ($p = 0.048$).

Results from this study drew comparisons with a study conducted by Vlaho et al. (2011), which found that respondents' knowledge and prevention practices increase as they advance in their dental studies. He added that their knowledge did not match their approach to caring for and managing HBV-positive patients (Vlaho, 2011).

Comparison of Level of Knowledge and Practice Across Vaccination Status

Table 5 shows the comparison of the level of knowledge and practice across vaccination statuses of the respondents. The results showed that there was no significant difference in the level of knowledge according to vaccination status. This implies that the level of knowledge of the hepatitis B and C viruses is not associated with the vaccination status of the respondents. From the results obtained, there is no significant difference in the knowledge of hepatitis B and C virus vaccination status, and the hypothesis "there is *no significant difference* between the respondents' level of knowledge on hepatitis B and C according to vaccination status" was *accepted*.

The results in Table 5 show that there is *no significant difference* in the level of knowledge of the respondents according to their vaccination status. In other words, the level of knowledge of the hepatitis B and C viruses is not associated with whether or not they were vaccinated against them.

On the level of practices, the results showed that there was a *significant difference* in the level of prevention according to vaccination status. This implies that the level of practice in the prevention of the hepatitis B and C viruses by the respondents is not associated with their immunization status.

Table 5

Comparison of Level of Knowledge and Practice Across Vaccination Status

Variable	Group	N	Mean	Median	SD	U	p	Interpretation
Knowledge	Non-Vaccinated	3	6.33	6	1.53	55	0.64	Not Significant
	Vaccinated	44	5.91	6	1.49			
Practice	Non-Vaccinated	3	4.96	5	0.08	15	0.03	Significant
	Vaccinated	44	4.51	4.53	0.42			

The results showed that there was a significant difference in the level of prevention according to vaccination status. This implies that the level of knowledge of the hepatitis B and C viruses is not associated with the immunization status of the respondents. From the results obtained, there is a *significant difference* in the prevention of hepatitis B and C virus vaccination status, and the hypothesis “there is no significant difference between the respondents’ level of prevention of hepatitis B and C according to vaccination status” was rejected.

According to Mahboobi et al. (2010), since the dentist is considered to be at high risk of being infected by HBV, vaccination against HBV is an important line in the prevention of cross-infection, cross-infection. This might be explained by the vaccination being a prerequisite for the clinic work (Mahboobi et al., 2010).

Relationship Between Practice and Knowledge

Table 6 shows *no significant correlation* between the respondents’ practice and knowledge with regards to hepatitis B and C viruses. This implies that the knowledge of the respondents is not correlated with their prevention practices.

Table 6

Relationship Between Practice and Knowledge

Spearman's rho	P	Interpretation
-0.016	0.914	Not Significant

The results showed no significant correlation between the two. This implies that the knowledge of the respondents is not correlated with prevention practices. Therefore, the hypothesis ‘there is no significant correlation between the level of knowledge and preventive practices on hepatitis B and C among the respondents’ was accepted.

However, the result from this study disagrees with the findings from the study done by Vejdani et al. (2013) and Rabiee et al. (2012), which state that there is a significant relationship between the level of knowledge and the level of prevention among dental students and that higher knowledge levels play a very important role in forming attitudes and practices regarding patients with the hepatitis B and C viruses.

Conclusion and Recommendations

This study investigated the knowledge and prevention of practices on hepatitis B and C among dental clinicians studying at one of the private universities offering Doctor of Dental Medicine in Cavite. This study aimed to find out if there was a significant correlation between knowledge and prevention practices for hepatitis B and C among dentistry students.

In conclusion, the outcome of the study concludes that dental clinicians have an average level of knowledge on Hepatitis B and C that is not influenced by the clinical level or vaccination status, which means that the majority of the individuals' dental clinicians have average level of knowledge on Hepatitis B and C. There are high prevention practices performed by the clinicians at different clinical levels. There is no significant difference in knowledge and prevention practices among dental students in terms of clinical levels and vaccination status. Lastly, the researchers conclude that there is no significant correlation between the prevention practices of the respondents.

The researchers' recommendations were based on the results of the study. The researchers recommend a Hepatitis B and C knowledge and prevention practice examination prior to handling live patients at the clinical level. This would encourage incentive awareness as well as knowledge and give tangible results. There is a need for a larger number of respondents and the inclusion of more variables.

Future researchers can utilize this research as the basis of their future study that are related to Knowledge and Prevention Practices on Hepatitis B and C. When made in later forms of linked studies, certain hypotheses will be supplemental to the study. Future researchers can further enhance the study to further assess and evaluate the knowledge and preventive practice of dental students, practicing dentist and dental staff on Hepatitis B and C. Future studies can improve and update the self-constructed questionnaire as

well as expand on a larger sample size in order to further explore the variation in perceptions among various populations. Future researchers could create a scale to quantify the level of knowledge among the respondents. Future researchers can perform this study at a different university with different numbers of respondents, as well as on practicing dentists. Other university programs can use the study to test the level of knowledge and prevention practices necessary for adequate awareness of hepatitis B and C virus prevention. Further study should be conducted in different medical settings/field and fields and in various parts of the country.

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Lived Experiences of the Elderly During the COVID-19 Pandemic

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The COVID-19 pandemic is a phenomenon that had a great impact on the lives of people. The most vulnerable population is the elderly. Statistics show that the mortality rate in the age group 63–65 years old is higher than that of those below 55 years old, and yet studies that explore the impact of the pandemic on the elderly are limited. The purpose of this study is to explore the lived experiences of the elderly during the COVID-19 pandemic. This qualitative phenomenological study was conducted among 15 elderlies aged 60 and older via online platforms, and the respondents were selected through purposive sampling. The data were gathered using a self-constructed questionnaire. The elderly perceived the COVID-19 pandemic as a test of faith, a violation of health protocol, a global problem, and a nuisance. On the other hand, some consider it a minor problem, such as the common flu. The COVID-19 pandemic experience is difficult among the elderly, much more so for those infected by the virus. Despite receiving government assistance and working from home, they feel more at risk and are still required to follow protocols. Taking vitamins or food supplements, receiving government assistance, getting vaccinated, and having a healthy lifestyle can help the elderly successfully cope with the COVID-19 pandemic. It is therefore recommended to explore further the experiences of the elderly during the pandemic with much more economically diverse informants.

Keywords: *coronavirus disease, elderly, lived experience, quarantine*

The 2020 pandemic has been challenging for the elderly community, as their health and degrading bodies have caused them to be labeled as a vulnerable population by the World Health Organization. The elderly population has been known to have a higher risk of infection compared to other demographics (World Health Organization, 2020). Studies show that compared to the ages of 54 and younger, the mortality rate for COVID-19 for the age group of 55 to 64 was 8.1 times higher, while the age group of 65 and above was 63 times higher. Out of the 179,568 COVID-19 deaths over a six-week period, 153,923 were from the age group of 65 and higher (Yanez et al., 2020). People whose age is above 60, regardless of whether they have underlying medical conditions such as high blood pressure, cardiovascular diseases, diabetes, or certain lung diseases, have a far higher chance of having complications from catching the virus (Centers for Disease Control and Prevention, 2020). The elderly population also has the problem of being vulnerable when they are at a point in their lives where they cannot care for themselves anymore. This means they must rely on an independent population, which usually includes children and much more active people (Liang-Kung, 2020).

A financially insecure family taking care of the elderly can suffer health issues due to the inaccessibility of healthcare. Many studies have delved into the vulnerability of the elderly when handling pandemics (Chee, 2020). This study aimed to learn the perspective of elderly people as they experience being a vulnerable group during a time of uncertainty. This is due to the recent pandemic, which resulted in very little literature about the subject.

Methodology

Research Design

This study used a phenomenological research design. Phenomenology is considered uniquely positioned to learn and understand the shared and lived experiences of the elderly during the outbreak

of COVID-19 and to understand and learn from the experiences of others (Neubauer, 2019).

Population and Sampling Techniques

This study's participants were selected purposively. The study was conducted among 15 elderly people aged 60 and older who were not terminally ill.

Instrumentation and Data Analysis

Participants were interviewed online using semi-structured questions. The informants were given consent letters indicating that both parties agreed with the research and informing respondents of the confidentiality of all information gathered. Protocols and guidelines were explained to them, informing them they had the right to withdraw. The collected data from the informants was validated using Colaizzi's phenomenological method. Triangulation was applied to ensure validity, and expert recommendations were considered for the study's credibility.

Ethical Considerations

Before administering the questionnaire, an application was submitted to the university's ethics review board, and approval was obtained. Consent was secured for voluntary participation before the respondents answered the research questions. Participants were informed that the data obtained were only for purposes specified in the study and were handled with confidentiality.

Results and Discussion

The views of the elderly towards the pandemic were highly subjective, formed from their personal experiences and social influences (Chacoma & Zanette, 2015). Their experiences were based on their financial situations, access to government support, contact with family, and luck. Any changes within these factors would have positively or negatively affected their overall experiences during the pandemic. Table 1 reveals that the participants generally felt troubled by the events that they experienced.

Table 1*Perceptions About COVID-19 Pandemic*

Subthemes	Responses
Follow Protocol	<p>Respondent 7: If the virus spreads strongly, we just need protection and advice from those who know more about it, so let's just follow what it is.</p> <p>Respondent 8: Although in our area here, particularly, I can say that we are affected, that was aided early because we are following health protocol so that we can't get involved with the others who were taken to the hospital... those who had big problems, and some lost their lives.</p> <p>Respondent 3: "First, you need to follow the protocol of the pandemic, whatever is given, to avoid the pandemic situation."</p>
Global problem	<p>Respondent 6: This pandemic is a worldwide problem, and the entire world is also affected by it. The Philippines is one of those countries being affected by this, over a year already, in these very hard times wherein everyone is being restricted.</p> <p>Respondent 5: Our perception of COVID-19 is negative because it causes diseases. The world is really suffering from it, health-wise and economics-wise.</p> <p>Respondent 3: "I don't know what to say. There are a lot of variants that spread all over the world. It's a problem all over the world. Everyone's having problems because of that."</p>
Nuisance, especially in the lives of the elderly	<p>Respondent 13: On my part, since last year, it has surprised not only us Filipinos but the entire world that this pandemic has had a severe impact. The situation is like both the elderly and children; the effect is not good because that's how it seems because there are age brackets.</p> <p>Respondent 11: Especially because the elderly seem to be deprived, they are deprived of their privileges such as going out to the mall; we cannot go out, even going out for a walk because we also need those elderly because that is also a form of exercise, but then ah, there are really a lot of going to church, like they are also affected because of covid-19 what's that ah it seems that it is not we do not expect for this to happen so ah it's like for me there's a lot of things you can hear everywhere like where does this covid-19 come from like like I don't I'm confused in the situation although the national government I know is trying hard to cope up with the disease no?</p> <p>Respondent 9: The movements of a senior can be controlled because it is stated there that the senior is not allowed to go out, so the ah movements. Like what you want to do, for example, you go to this place. Your movements are being controlled. They will tell you can't go out first because now, for those of you who are seniors, it's a bit like right now that there was a vaccination where they have been vaccinating.</p> <p>Respondent 10: For me, it is very, very risky in the sense that this pandemic is very threatening to all people. Not only the elderly but also the ah. Children as well, that's why it's very threatening for us also because we are already elderly, we are already senior and ah It is too risky for us too, but we won't be affected too much because ah.</p> <p>Respondent 1: I think that it's becoming a nuisance in everyone's lives, especially for us seniors. Well, we can see that almost everyone is affected, so my perception is it shouldn't have happened.</p>

Nuisance, Especially to the Lives of the Elderly

As the pandemic surged, governments imposed restrictions and guidelines that the public was expected to follow. Regardless of their effectiveness, they were expected to have unintended consequences for the masses. In most countries, children were not allowed outside to use their neighborhood playgrounds. Sports clubs were closed, and social club activities were (Fegert et al., 2020). Working parents changed their work environment into a home-work environment to continue their employment. Work that demanded more physical labor was suspended to avoid exposure to the virus, and safety procedures were taken to circumvent that. Regardless, the risk of catching the virus was still relevant, even with health and safety protocols. Managing mental health and general health resilience has also become a challenge due to some being in less-than-ideal households.

Most informants agreed that even though the pandemic affected everyone, the demographic that suffered the most was the elderly population (Demming, 2020). As the elderly's mobility slowly declines as they age, the difficulty in accomplishing tasks can cause them to slowly lose interest in activities they enjoy. The Centers for Disease Control and Prevention (2020) stated that people over the age of 65, with or without underlying illnesses, had a high chance of having serious complications from catching the virus. This age group is also populated by individuals who can no longer care for themselves and need external help, such as family and designated caretakers, to thrive. Many of the informants, in general, commented on how the pandemic lockdowns caused a major inconvenience to their normal lives.

Global Problem

Some informants stated that the COVID-19 pandemic was a global problem as everyone was having difficulty dealing with it, and people have suffered in their health and economy. Even in

the early years of the pandemic, COVID-19 had already infected over 8 million people and killed 1.2 million people (World Health Organization, 2021). A possible cause of these deaths may be attributed to the disruption of healthcare system delivery and healthcare workers becoming increasingly overwhelmed by the surge of cases, to the point that some died from exhaustion or the virus themselves. This was further exacerbated by fewer people seeking care due to financial reasons and shortages of funding for non-COVID-19 facilities.

Follow Protocols

The World Health Organization (2021) stated that to minimize the spread of the virus, the public needed to follow protocols such as regularly washing their hands with soap and water, wearing face masks, staying at least 6 feet away from each other even when others did not seem to be sick, and avoiding large gatherings and crowds in general. If people were to meet others, having the meeting place outdoors rather than indoors was suggested. The organization also advised the public to get vaccinated as soon as possible and follow local vaccine guidelines. Masks were also necessary, as they should be worn properly and fitted on the face. If people were in homes with a high population density, opening the windows to increase air circulation was imperative.

Experiences during the COVID-19 Pandemic

The experiences of the elderly during the COVID-19 pandemic varied between informants, as their experiences were heavily influenced by factors such as their financial status, connections, luck, and other events that occurred during the pandemic. Stressful is the broadest definition that can immediately describe the COVID-19 pandemic as a result of people who had strong feelings of fear, sadness, anxiety, numbness, or frustration (Centers for Disease Control and Prevention, 2021). Prolonged stress does affect people in

unusual ways, such as losing concentration and causing changes in appetite, interests, and sleeping habits. However, it was normal to feel these emotions during times of hardship, and there were ways to manage stress during those trying times.

Difficult

According to the findings, it was evident that most informants were experiencing difficult times during the pandemic. The miscellaneous factors that contributed to the experiences varied from subtheme to subtheme. The most common reason the informants were unable to go outside to exercise was their fear of catching the virus. They believed they needed to exercise because it helped them improve their strength and balance, gave them more energy, and helped delay heart disease and osteoporosis (Family Doctor, 2021). A significant factor in their difficult experience was that many company employees were laid off (Salaverria, 2020). The loss of income made it difficult to live through the pandemic. However, local government units devised efforts to mitigate this through monthly stipends and food support.

Another factor was the proper observance of health protocols, such as the continuous use of masks in vulnerable spaces and salivary swab tests deemed expensive. The average price for an RT-PCR test in a private hospital was around 4,500 to 5,000 pesos, and 3,800 pesos for public hospitals. The government capped the price at around 2,940 to 3,360 pesos for the private sector and 2,450 to 2,800 for the public sector (Magsambol, 2021). With the swab tests getting expensive, it was concerning how medical masks were becoming expensive as well. A possible reason was that since employees have been laid off or cannot return to work, the supply has become scarce while the demand has remained high (Concordia, n.d.). There was also news about stores supplying masks that saw price-gouging opportunities. After being proven, these stores were fined 5,000 to 2 million pesos (Aguilar, 2020).

Table 2

Experiences during the COVID-19 Pandemic

Subthemes	Responses
Difficult	<p>Respondent 1: We can't go outside. Well, that's what the law says; we can't go outside, so we follow the rule that we shouldn't go outside. Secondly, it is bothersome, even for us elderly, that there are some things that our body or our life needs. To go out and enjoy at this time, we can't. We can't do that, and number four is vaccines.</p> <p>Respondent 3: It's very hard. It's not just like ordinary days you just have to stay home you cannot go around whatever to have the exercises whatever walking something you just stay home so it's very hard to have this current situation you cannot get your (Inaudible) because I'm old citizen (Inaudible).</p> <p>Respondent 7: Eh, it's hard because we have daily activities that are hindered as well as something you want to do. You can't just go out now because those elderly people are said to be vulnerable if it's true, but it depends, maybe if those who are already too old and very sick but those who aren't too sick yet. You can get out for a bit, but it's just like you have a second thought that you'll come out; what if you become infected? So that's it? Stay put at home, but if you still have a job outside, it's really hard to adjust, so that's it.</p> <p>Respondent 9: I also said that if I can't go out, who will buy food for us, eh, it's just the two of us, who will buy who will? A while ago, they said if there is a problem, just call like what is that we will call them even if we are not affected...</p>

[table continues on the next page]

Respondent 12: We are already deprived and cannot go out. It is very costly because of the swab test; how much?

Respondent 8: In my workplace, we were locked down and quarantined for twenty days. I'm the only one, along with my work co-workers at the school, who are quarantined here because I don't want to be with them. we weren't affected but we're not infected but we were affected that we were quarantine we didn't have what we called that we didn't feel anything to ourselves or even say we are asymptomatic either we are not asymptomatic we don't have anything that we experienced so we experience the hardship of staying indoors for twenty-eight days without anything.

Respondent 10: The assistance given by the government to those in need is five thousand second first trans five thousand and then second trans five thousand, that's what assistance we received as seniors in need. Except for those who have permanent jobs, we are senior missionaries, but maybe that's why we also received ten thousand.

Respondent 13: At the very start, it seems we're already deprived of our rights and privileges, especially when going out. It's here because of some restrictions, so what we do, especially for the elderly, is to find ways and means to move for a little exercise and then maintain a healthy lifestyle.

Received
Government
Assistance

Respondent 11: The kind that we received during the pandemic are from the mayor here, and at what city level? We received there was also from the national, so we didn't have too much trouble about it financially. Even though we couldn't go out without a job then, as a house -to - house evangelists, our job was not to stack our house-to-house work because the pandemic was following, but still because of the support of the local government, and also national, and they're also our neighbors who are generous so as we are also.

Respondent 2: "Nothing like we were all given one sack of rice?"

Respondent 5: "And all those essentials plus the rice that is given by the local government, so since it's one sack rice, it was more than enough for me for my consumption, so it's ok for me."

At risk
and follow
protocols.

Respondent 6: As for me, as a frontliner, it's also a risk on my part because I am still working... at my age I'm still working so I need to be very careful in taking good care of myself by following the health protocols and.

Respondent 8: "Because we are following health protocol so that we can't get involved with those other."

Respondent 10: "It is too risky for us, but we won't be affected too much."

Government Assistance

The Republic of the Philippines has many policies, programs, and services that concern the COVID-19 pandemic. The Central Bank of the Philippines granted temporary relief measures, including financial assistance, a grace period on loan payments, and the non-imposition of penalties (Philippine Commission on Women, 2021). The Department of Social Welfare Development and the Department of Science and Technology transferred cash, cash vouchers, or general goods through local government units directly to the homes of families who lost incomes or savings. These included those working in informal economies and those who did not receive other government assistance.

At Risk and Following Protocol

It was important to follow the health protocols from the government. This included washing hands regularly, sanitizing personal belongings, and physically interacting with people outside the buildings rather than indoors (World Health Organization, 2021). The elderly population was at risk of having much more serious cases of COVID-19, and more than 81% of COVID-19 deaths occurred in the ages of 65 and above (World Health Organization, 2021). Additionally, the person's risk of severe illness from COVID-19 increased with the number of underlying medical conditions that they had.

Coping Mechanism during the COVID-19 Pandemic

Coping mechanisms are methods that individuals use in order to survive or manage themselves through difficult moments. Coping is usually used during emotional stress (Good Therapy, 2018). During the pandemic, the informants stated that they generally encountered difficult experiences due to the changes in their lifestyle and the fear of catching the virus. The informants' coping mechanisms were the methods they expected to use to meet the challenges encountered during the pandemic.

Table 3

Coping Mechanism During the COVID-19 Pandemic

Subthemes	Responses
Healthy Behavior	<p>Respondent 1: When we had COVID, we needed vitamins and supplements. So the DOH gave us vitamin C, Conzace for mild cases.</p> <p>Respondent 3: You need vitamins, so that is needed for the older ones like me so we have to take something which we can use to defend our health.</p> <p>Respondent 11: Ah, in addition to what my wife said about vaccination, take vitamins and food supplements, too.</p> <p>Respondent 12: That's what we need is to eat well which means you should have ways to find your needs, eat well and... also rest, then exercise because if you deprive the elderly in this kind it's like you give them already a term or end in their lives oh it is contrary when they should already retired that they should enjoy what you like because you have already done your work and your already in the stage where you also need to relax together with your family. Together with your family.</p> <p>Respondent 13: Ah, our role, our responsibility is we were ahead of these people even we were ahead of this pandemic, and when the time when we were promoting healthy lifestyle was when the pandemic came here, maybe it's not just this is a very common disease that's what others say like a common fever us since then, we are promoting a healthy lifestyle eat healthy food in order to combat diseases.</p> <p>Respondent 2: Well, as we all know, we need exercise. Ah, partly, we need sunlight. I'll give you something outside the garden. Get out of this place once in a while like that.</p>
Get Vaccinated	<p>Respondent 6: Being asked by the government to help each one of us because by doing it, we also help each other and help my co-elderly to be able to protect themselves if I also protect myself and one is too as for me is to be get vaccinated, and I am glad that I already completed my ah two doses of vaccination and maybe by participating in ah to be vaccinated is also I can protect myself from being infected as well I can also protect others</p>

[table continues on the next page]

Respondent 7: The only option is to get vaccinated so that even if you wander outside, you have protection. That is it I feel for our government; it is so hard, and I do not want to rely what I've received as one sack of rice. Understandably, it can't be given to everyone because some need it the most, so there's no option but just to get vaccinated.

Respondent 8: The first and foremost is for you to get vaccinated because that is what is needed, especially for senior citizens; we should avail of vaccination... there is nothing we will lose when we get vaccinated. However, there are negative comments and negative ideas about the vaccine, like this and that, or that after two years, the one who was vaccinated will become a zombie or will die, but if you figure it out, it is for the good.

Respondent 9: The DOH encouraged us to get vaccinated; my wife and I are already done; we are fully vaccinated.

Respondent 10: One of the government's proposals is for the senior citizens to be vaccinated, and so we, as a couple, also received the first and second doses of vaccines, which, by the grace of God, there are no problems.

Vaccination

Most participants believed that getting vaccinated was in their interest and that they had nothing to lose by being vaccinated. This idea was based on government promotions about vaccinations and advisories for the public, as well as from trusted sources and organizations (World Health Organization, 2021).

Healthy Behavior

The next subtheme was the practice of exercising and eating well. The informants believed they were responsible for staying healthy and living a healthy lifestyle to combat diseases like COVID-19. The informants were aware of the risks of sending someone to the supermarket to get groceries, as they may be exposed to the virus and bring it back home with them. Vitamin supplements were taken because they could help them maintain their health. Although it was unclear whether the supplements worked, there was a logical reason to believe they should work (Shmerling, 2021). A good example is that vitamin C is a known antioxidant that contributes to the body's immune function, while zinc has an antiviral function.

In conclusion, during the COVID-19 pandemic, the elderly understood the need to follow protocol in a global problem while considering these a nuisance to the elderly like themselves. The COVID-19 pandemic experience was difficult because they felt at risk from the virus, although they were provided with government assistance. Informants stated that taking vitamins or food supplements, vaccinations, and practicing healthy behavior helped them cope with the COVID-19 pandemic. The researcher recommends that the study be replicated to verify and test the findings and further explore the lived experiences of this vulnerable group. Further studies may also be done about the lived experiences of other age-based demographics during the COVID-19 pandemic.

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Evaluation of Road Accident Prevention Program of a Selected Barangay in Silang, Cavite

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Traffic accidents are a major cause of death in the Philippines. The province of Cavite holds the record for the most road accidents in Region IV-A. A road safety training conference prepared LGUs to plan and implement strategies to reduce traffic accidents. Since then, no LGU road traffic accident programs have been examined. This qualitative case study evaluated a barangay's road traffic accident prevention program in Silang, Cavite, by exploring the current interventions used, describing the program's implementation, and gathering suggestions for improving the current status. Five one-on-one semi-structured interviews of members of the barangay Traffic Management Team (TMT) were conducted using purposive sampling. The Vision Zero road safety program framework guided thematic content analysis to identify response patterns and differences. The themes that emerged from the interviews were: 1) pedestrian safety and challenges in implementing pedestrian safety; 2) support from the barangay and municipality; and 3) road improvement, information technology, and behavior modification. A successful traffic accident prevention program requires local manpower with municipal and national collaboration. Although road traffic accidents remain a significant problem nationwide, they can be prevented by improving road infrastructure, using technology, and changing pedestrian behavior. Evaluating the traffic accident prevention programs of other barangays in Silang, Cavite, is a step towards reducing traffic accidents in the region.

Keywords: *road accidents, case study, pedestrian safety, road safety*

In 1869, the first road accident fatality was recorded in a minor town in the Irish Midlands (Fallon & O'Neill, 2005). Mary Ward, a renowned microscopist, artist, astronomer, and naturalist, perished from injuries sustained when she fell from a steam carriage and was crushed by its heavy iron wheels. However, over a century later, road traffic accidents (RTAs) have become a formidable public health challenge and an international public health priority (Gopalakrishnan, 2012). It is the eighth leading cause of mortality across all age groups, surpassing HIV/AIDS, tuberculosis, and diarrheal diseases (Fisa et al., 2022). In this vein, Sustainable Development Goal 3.6.2 of the World Health Organization aims to reduce the number of fatalities and injuries caused by RTAs by half by 2030.

Road accidents are one of the primary causes of morbidity and mortality in the Philippines (Rodriguez et al., 2021). From 2010 to 2019, a retrospective examination using the Online National Electronic Injury Surveillance System (ONEISS) database of the Philippine Department of Health revealed that 296,760/894,989 (31%) patients were hospitalized due to transport and vehicular crash (TVC) injuries (Lu et al., 2022). During this period, the average yearly increase in TVCs was 25.58 percent. In March 2020, the Vital Statistics Report of the Philippine Statistics Authority SDG Watch reported that the mortality rate due to road traffic injuries increased from 10.7/100,000 in 2016 to 11.8/100,000 in 2018. This equates to approximately 10,012 and 12,000 Filipino road fatalities per year in 2016 and 2018, respectively.

In terms of life expectancy, road traffic accidents were the fourteenth leading cause of mortality in the Philippines but the second leading cause of non-disease-related deaths after assault (Rodriguez et al., 2021). Meanwhile, among the provinces in the CALABARZON Region (the provinces of Cavite, Laguna, Batangas, Rizal, and Quezon), Cavite has the highest rate of road traffic incidents, with 1,706 cases from 2016 to 2018. This prompted

the Regional Director of the Department of Health (DOH) to direct the regional Violence and Injury Prevention Programme (VIPPP) team to mobilize the local government unit (LGU) safety managers, implementers, and policymakers in CALABARZON for a three-day training course on road safety management in order to develop and implement localized action programs to prevent road accidents in LGU's (Pino, 2019). Since that event, there has been no formal evaluation of current programs implemented by LGUs to reduce RTA's.

Improving road safety and accident prevention strategies by analyzing the efficacy of existing programs is crucial if there is to be a decline in the number of accidents involving motor vehicles and pedestrians (Sun et al., 2001). This study adopted Sweden's road safety program framework called Vision Zero (Tingvall & Haworth, 1999), which looked at the road safety issue and sought to take a more holistic and systemic approach to reducing traffic accidents. This model recognizes that effective road safety measures require attention to individual drivers and the integration of socio-technical systems driven by careful planning, execution, and evaluation. Hence, the researcher conducted a case study to understand better the program's effectiveness in preventing road accidents in Barangay Puting Kahoy, Silang, Cavite.

The researcher aimed to answer the following research questions:

1. What current interventions are used to prevent RTAs in Barangay Puting Kahoy, Silang, Cavite?
2. How do the key informants describe the implementation of the RTA prevention program?
3. What do the informants recommend to improve/ further improve the RTA prevention program?

Methodology

Research Design

The study employed a qualitative approach, specifically a case study. A case study methodology allows researchers to investigate complex

phenomena within their respective contexts. When applied correctly, the approach becomes valuable for developing theory, evaluating programs, and developing interventions in health science research (Baxter & Jack, 2008). Barangay Puting Kahoy, one of Silang's sixty-four barangays, served as the study's location because of its proximity to the Santa Rosa-Tagaytay Road, a stretch of road where most reported road traffic accidents occur. This 23.245-kilometer national highway passes through the barangay as it connects the cities of Santa Rosa and Tagaytay in the provinces of Laguna and Cavite, respectively, and provides access to and from Manila via South Luzon Expressway and Cavite–Laguna Expressway.

Population and Sampling Techniques

Purposive sampling was used to choose the respondents who satisfied the following criteria: a) they live in Barangay Puting Kahoy, b) they are active members of the barangay's Traffic Management Team (TMT), and c) they are willing to participate in an interview for the research. The researcher requested a Sangguniang Barangay official to formally introduce himself to the TMT participants. After the researcher presented the study's rationale and verbally got their informed consent, five (5) Barangay Tanods agreed to be interviewed. All five participants reside in barangay Puting Kahoy and are employed as Barangay Tanods. They receive Php 5,150 per month as remuneration. Their ages ranged from 40 to 60 years. Only one completed a college degree; the rest only finished high school. One-on-one semi-structured interviews lasted for 8 to 12 minutes between April 20-25, 2023, in the barangay hall and the designated TMT member's assigned post that day. The researcher recorded the conversations using his mobile phone after securing verbal consent. The participants were also informed that data confidentiality would be observed and that if the interview session felt uncomfortable, they could refuse to answer the questions.

Data Processing

Auris AI and Otter AI were used to create transcripts of the Filipino audio recordings. Statements that were not transcribed correctly were manually transcribed. Google Translate was then used to convert all transcriptions to English. The researcher and the participants validated and coded the final data according to the study's research questions, with data integrity and anonymity maintained throughout the procedure.

Data Analysis

The author used content analysis with a thematic approach to identify patterns and differences in the responses collected during the interview. Data triangulation through observation of respondents during interviews and while performing traffic management duties, inspection of the stretch of the Santa Rosa-Tagaytay Road that passes through the barangay, review of literature, and member checking contributed to reliable and accurate data.

Ethical Considerations

The study was carried out by the Declaration of Helsinki, accepted clinical standards, and Philippine legislation. Only the researcher had access to the interview transcripts to protect the participants' anonymity. After listening to the recording for analysis, the audio files were deleted.

Results and Discussion

The sections that follow summarize the findings from the in-depth interviews. Significant statements are highlighted, presented as themes found within the interviews of each participant, and discussed.

Road Traffic Accident Preventive Interventions

To answer the research question, what current interventions are used to prevent road traffic accidents in Barangay Puting Kahoy, Silang, Cavite? The themes of pedestrian safety and challenges in implementing pedestrian safety emerged.

Pedestrian Safety

From the collected data, the researcher determined that all participants regarded pedestrian safety as the foremost road traffic accident prevention intervention in the barangay. Participant 3 said, "The first thing we do is to stop traffic and assist those crossing the street to avoid accidents. If there's an accident or someone gets hurt, I'll notify the barangay police, and they'll send someone to the scene, while others help direct traffic and keep lawbreakers in check, especially those who counterflow."

Toroyan et al. (2013) found that local, national, and international authorities need to prioritize pedestrian safety in planning and policy. This finding is relevant to the study by Lu et al. (2022), which found that 13% of the victims of RTAs in the Philippines are pedestrians, followed by rear occupants of vehicles (25.8%) and drivers (45.8%). Thus, the evidence supporting interventions to secure pedestrians is compelling. Pedestrians (cyclists and motorcyclists) are less protected than other road users due to their lack of a protective metal carapace or airbags. As a result, they require more room within the safety system. Both drivers and pedestrians will inevitably make errors that result in fatalities and injuries.

The barangay prioritized this intervention for two reasons: First, the lack of road safety infrastructure (speed bumps, traffic lights, etc.) and the budget to install them may have prompted the barangay to use the most abundant resource it has at its disposal as traffic enforcers, the barangay tanod. It is not uncommon for barangay tanods to serve as traffic enforcers, as Cruz et al. (2021) reported in their study. Second, the road safety management training course they attended emphasized the role of barangay "tanod" as force multipliers in managing traffic in the barangay, so they effectively applied what they had learned in the training course.

Challenges in the Implementation of Pedestrian Safety

It is evident from the data gathered that the barangay tanods face and overcome challenges in carrying out their duties as part of the TMT. Participant 2 stated that:

"Drivers of cars and motorbikes continue to drive past us even though we already signaled them to stop. This is dangerous, especially when a pedestrian is crossing the road. I stop them, scold them, and tell them, "Brother, did you get a license? Did you get the license before you had driving class? Why are you not stopping? When we do this, the drivers get angry, shout at us, and say bad words. That's why our barangay captain said when this happens, record it and get the plate number, and then we'll call the police. They do not respect us because we are not the police; we are just barangay tanods."

This finding is comparable to De Asis et al. (2020), who identified one of their challenges as uncooperative community members. Cooperating with those in authority, in this case, the barangay tanods who serve as traffic enforcers, is critical in averting RTAs. Following traffic laws and directives is a demonstration of support that may result in improved community road safety, as drivers are expected to follow the regulations imposed by the barangay. The presence of PNP personnel together with the barangay TMT manning critical areas of the road, especially during peak traffic hours, may increase the likelihood that people driving motor vehicles will cooperate with the authorities and adhere to traffic rules.

Furthermore, participant 4 disclosed,

"We give protection to the students when crossing the road, and even if they are not students, we let them cross because we are saying that if an accident happens, it will be very hard on us, and the blame will be heaped on us. The problem is that many people cross the road while looking at their cell phones with their headsets on. That's

why they can't see and hear us signaling them not to cross yet. That's why accidents can happen there."

This finding is significant given that in the Reported Road Casualties Great Britain: Pedestrian factsheet (2021), "the pedestrian failed to look properly" accounted for 49% of pedestrian fatalities and injuries in traffic collisions. In addition, 39% of pedestrian road accidents without injuries were caused by pedestrians failing to glance appropriately. Distractions may have caused the pedestrian to not look adequately. According to research, using mobile devices, such as mobile phones, smartphones, and music players, is a developing source of distraction for pedestrians (Caird et al., 2008).

Additionally, when using a mobile phone, pedestrians move more slowly (Neider et al. 2011), pay less attention to traffic, have less time to cross before an oncoming car, and have more road traffic hits and near misses (Stavrinos et al., 2009; Stavrinos et al., 2011; Stavrinos et al., 2018). This hazardous pedestrian behavior, also known as "smombie" or "smart phone zombie," is a phenomenon that must be addressed and may be a key factor in preventing pedestrian mishaps.

Implementation of The RTA Prevention Program

About the question, how do the key informants describe the implementation of the RTA prevention program? One theme became apparent, and that is the support from the barangay and municipality.

Support from the Barangay and Municipality

Most participants reported that they were satisfied with how the RTA prevention program was implemented. Participant 1 shared, "I have been working here for five years and observed that our traffic is better and we are far from accidents like that. Although sometimes we have major accidents with victims dying, but most cases are minor only".

Participant 5 verbalized, "As far as I know, the traffic is fine, only on Saturdays and Sundays. Do we have heavy traffic here so I can rate the program a 10?"

When pressed further to explain his answer, participant 5 said, "The program is OK. The municipality provides us with hard hats, reflective vests, and gloves. Governor Remulla did training, but our pay is not enough. Our barangay captain is aware it is not enough, but we can't complain and do anything because the barangay's budget is only up to that point; it's really low. We still do our best to provide the appropriate services for the barrio."

Compared to their counterparts mentioned in the studies of De Asis et al. (2020) and Cruz et al. (2021), the traffic enforcers in Barangay Puting Kahoy are receiving more monthly remuneration. However, due to rising inflation and the cost of living, their salary is insufficient to provide for all the basic needs of their families. Singh et al. (2015) reported that the lack of compensation has frequently been cited as a cause of low worker retention, motivation, and concentration. Despite their circumstances, the barangay enforcers should be commended for showing dedication and a continued desire to serve their community.

Recommendations to Improve the RTA Prevention Program

For the question, what do the informants recommend to improve/further improve the RTA prevention program? The participant's answers can be grouped into three themes: road improvement, information technology, and changing pedestrian behavior.

Road improvement

Participant 3 shared, "The road widening is not over yet; maybe when the widening is over, there won't be those accidents because the road bottleneck caused by two lanes becoming one lane is where accidents happen. That's where I always

see it happening due to congestion and stubborn drivers who don't want to give way". Another thing is signage. We can request a budget for that, but it is limited; it should be the responsibility of the DPWH to put up the signs and paint the roads.'

Participant 1 said, "I think traffic lights should be put in areas where pedestrians cross. There is only one right now, near the AUP gate, but it was damaged and still not repaired.'

Participant 4 verbalized, "There should be speed bumps near the Shell gasoline station because the vehicles coming down from Tagaytay are so fast. There should be a warning for them to slow down."

Finally, Participant 2 suggested, "Maybe street lights can be installed along the road from Muzon to near the gate of AUP. That area is very dark during the night. The barangay has no budget for that, but maybe the Mayor can do something about it."

The majority of participant suggestions for road enhancement have been recommended by road safety and engineering experts. Selveindran and colleagues (2021) stated that the focus of road engineering should be on reducing speeds, for instance, by installing more speed bumps at the intersections of minor and major roads. Jackett & Frith (2013) found considerable safety benefits to road lighting. According to the NZTA Economic Evaluation Manual (EEM), upgrading or enhancing lighting in areas with inadequate lighting results in a 35% reduction in car crashes.

However, Pernia et al. (2002) found that newly installed traffic signals reduce the angle and left turn collisions but increase rear-end and overall collision rates. With a newly installed signal, however, the number of fatal accidents decreases while minor injuries increase. The participants' statements suggest that preventing RTAs should be a shared responsibility between the government and the community. The barangay's role is to coordinate with the municipality and the local DPWH so that these enhancements can be completed.

Information Technology

Video recordings have been used for decades to collect data on traffic flow, road user behavior, and conflict studies, among other things. Concerning this, Participant 2 stated, "Another thing that might help is CCTV. Remember there was a body that was thrown outside the wall of AUP, the police said that they dumped the body there because there was no CCTV in the area so they will not be identified. CCTV can also help monitor car accidents especially hit and run."

In their study, Conche and Tight (2006) found that installing CCTV has the potential to provide supporting evidence for many of the most frequently occurring factors and shed additional light on accident causes. Although the participant's idea is backed by empirical evidence, the financial burden on the barangay may dissuade its use. Furthermore, this may be another area the municipal government can look into.

Changing Pedestrian Behavior

The participants believed that if individuals' attitudes and behaviors were to change, the prevention of RTAs could be enhanced.

Participant 4 shared, "My first request is that you tell the students not to use their cell phones when crossing the road; sometimes we talk to Sir Fabito, but please remind him also because later there will be an accident; it's not our fault because they didn't want to stop using their cell phone while walking."

The most effective strategy for increasing pedestrian safety, according to Gårder (2004), is the combination of engineering, education, and institutional enforcement in road behavior. Individuals engage in risky pedestrian behavior, such as crossing the road while looking at a cellphone, because they do not understand the level of potential injury that may result from taking the risk.

Conclusion and Recommendation

The major conclusions drawn from the study are that the success of a road traffic accident prevention program is dependent not only on local manpower

but should be a collaborative effort between the municipal and even national levels. Adequate road infrastructure, the use of information technology, and a change in pedestrian behavior each have a role to play in road traffic accident prevention. Moreover, efforts to adequately compensate barangay traffic enforcers should be made so they can function and do their jobs well.

Based on the results of the study, it is recommended that this research be a baseline for future evaluation studies in other barangays in the Municipality of Silang and other municipalities and cities in Cavite. A quantitative research approach should also complement this qualitative study.

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Knowledge, Attitude, and Practices on the Maintenance of Orthodontic Appliance Among Selected Students: A Basis for a Guideline

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People in the world have been using some tooth-correcting method to improve their smiles. Many people undergo orthodontic treatments like braces, but most of them are not aware of their proper care and maintenance. There is a need to assess patients' knowledge, attitude, and practices towards orthodontic treatment to determine their level of compliance. Through purposive sampling, 104 orthodontic wearers (aged 11–21) from a private high school in Silang, Cavite, were given questionnaires assessing their knowledge, attitude, and practice towards their orthodontic treatment. Forty-seven of those respondents were female, while 58 were male. The questionnaire used was self-constructed. The findings indicate that the respondents had a fair knowledge on seven out of ten questionnaire items. Participants also portrayed a positive attitude about the process required to maintain braces and the self-confidence braces can provide. Moreover, participants showed a negative attitude toward the high expense of braces, their satisfaction with braces, and their experiences at the dental clinic. A high level of compliance was found with participants' brushing habits. Participants also demonstrated a fair level of compliance with practices related to maintaining the good physical condition of their braces. A significant positive relationship, although moderate, was found between knowledge and practice, attitude and practice, and between knowledge and attitude toward practice. No significant difference was found among different age groups and between males and females in their level of compliance with the practices needed to maintain braces. The researchers recommended several guidelines to achieve this good level of compliance in the practice of orthodontic wearers.

Keywords: *orthodontic appliance, knowledge, attitudes, practices*

Perfectly straight teeth are something that everybody would love to have. Some people are lucky enough to be born with naturally straight teeth, and some people require treatment for the betterment of their teeth. It is said that 33% of the world's population has undergone orthodontic treatment at some point in their life. This means one-third of the people in the world have used some tooth-correcting method to better the smiles of the world (Evans, 2014). Having straight teeth can be a massive boost to one's self-confidence. Besides self-confidence, there are many different health benefits of having straight teeth.

One of the most useful orthodontic treatments is braces. Orthodontic braces, known as braces, are things made of different materials in the orthodontic field to improve a person's teeth position and dental health. Crooked teeth, overbites, underbites, deep bites, cross bites, malocclusions, open bites, and numerous faults of the teeth that braces can correct. Braces are often used in combination with other orthodontic equipment to help broaden the jaws or palate and to assist in straightening the teeth. Braces are commonly used on young children and adolescents, but now, adults are also being implanted with braces.

Studies on patient cooperation have suggested that at least 25-50% of the general population fail to comply with all aspects of their medical treatment and noncompliance rates of up to 80% have been reported in some studies (Blum, 1984; Feldman et al., 1987; Kirscht and Rosenstock, 1979; Litt and Cuskey, 1980). The most common problem concerns the infrequent and improper brushing of teeth and gums, as well as the consumption of food containing excess sugar. This can lead to decay of the teeth, gum disease, and decalcification of the teeth. While these problems may occur without orthodontic treatment, there is a higher risk for people wearing braces.

Statement of the Problem

Orthodontic treatment is a way of straightening or moving teeth to improve their appearance and how they work. Many people engage in these

treatments, specifically braces. The problem is the difficulty in assessing whether patients have the proper knowledge, attitude, and practices towards orthodontic treatment. The purpose of this study was to answer the following questions:

1. What is the level of knowledge of patients towards orthodontic treatment?
2. How do the respondents perceive their attitude toward orthodontic treatment?
3. What is the extent of practice on maintenance of the respondents to fixed orthodontic appliances?
4. Is there a significant relationship between knowledge and practice on maintenance to orthodontic treatment?
5. Is there a significant relationship between knowledge and attitude toward the practice of orthodontic treatment?
6. How do the participants differ in the maintenance of their orthodontic appliance considering their:
 - a. Age
 - b. Gender

Methodology

Research Design

This research made use of quantitative research, specifically the descriptive-correlation form of quantitative research. The quantitative research method permitted the specification of dependent and independent variables and allowed for longitudinal measures of the subsequent performance of the research subject. These variables were established through interpretation. The quantitative method allowed the research problem to be conducted in a particular set term.

The design is ideal since the researchers will be required to collect data based on the participants' behavior or attitudes while performing the study.

Population and Sampling Techniques

The study population consisted of 104 children and adults aged 11 to 21 years old. A purposive sampling procedure was used in selecting the participants. Within each age bracket, the selection

of those wearing braces was done using the purposive sampling technique.

Instrumentation

The researchers made the instruments for gathering data for this study based on published literature. The instrument was structured according to the modified Likert scale. The questionnaire on knowledge administered to the participants consisted of ten statements showing the importance of orthodontic treatment, answerable by true or false. For Attitude, on a 4-point scale, it ranges from "strongly agree" (SA), "agree" (A), "disagree" (D), to "strongly disagree" (SD). For Practice, on a 5-point scale, it ranges from "Always" (A), "Very Often" (VO), "Sometimes" (S), "Rarely" to "Never" (N).

The respondents were instructed to respond to their degree of agreement with the statements contained in the instrument.

Table 1

Verbal Interpretation for Knowledge

Mean score	Verbal Interpretation
1-4	Not Knowledgeable
5-7	Fairly Knowledgeable
8-10	Very Knowledgeable

Table 2

Verbal Interpretation for Attitude

Mean score	Verbal Interpretation
1-1.50	Very Negative Attitude
1.51-2.50	Negative Attitude
2.51-3.50	Positive Attitude
3.51-4.0	Very Positive Attitude

Table 3

Verbal Interpretation for Practice

Mean score	Verbal Interpretation
1-1.50	Very Bad Compliance
1.51-2.50	Bad Compliance
2.51-3.50	Minimal compliance
3.51-4.50	Good Compliance
4.51-5.0	Very Good Compliance

Results and Discussion

Level of Knowledge of Patients Towards Orthodontic Treatment

Table 4 presents the mean, standard deviation, and percentage of the respondents' level of knowledge pertaining to their orthodontic treatment. Ten indicators or items were used to measure the participants' knowledge. The highest percentage (69%) was from participants who scored correctly on Item K2 (Biting on hard food promotes bracket dislodgement). Therefore, many participants know that brace wearers need to avoid certain types of food in order to take care of their fixed orthodontic appliance. Item K1 (Dislodged brackets hinder the therapeutic effect of braces), received the second highest number of correct answers (68%). The participants know that brackets should be attached adequately for the braces to be effective. The third item where participants scored correctly is Item K7 (Skipping appointments for adjustments prolongs treatment). This shows that the participants acknowledge the importance of regular visits to the dentist for the adjustment of braces.

Table 4

Test Results for the Knowledge Items

ITEMS	M	SD	Percentage of Participants Who Answered Correctly
K1: Dislodged brackets hinder the therapeutic effect of braces.	0.676	0.470	68%
K2: Biting on hard food promotes bracket dislodgement.	0.686	0.466	69%
K3: Sticky foods affect braces.	0.524	0.502	52%
K4: Flossing is still necessary for patients with braces.	0.343	0.477	34%

[table continues on the next page]

K5: Brace wearers are more prone to caries.	0.352	0.480	35%
K6: The right toothbrush is needed to maintain braces.	0.495	0.502	50%
K7: Skipping appointments for adjustments prolongs treatment.	0.667	0.474	67%
K8: Interdental brushes are necessary for maintaining braces.	0.495	0.502	50%
K9: Proper brushing technique is required in maintaining braces.	0.571	0.497	57%
K10: Orthodontic wearers are advised to brush more often than the non-orthodontic wearers.	0.276	0.449	28%

The correct responses from the three items (K2, K1, and K7) together demonstrated the participants' knowledge of keeping braces secure and functional. The findings indicated the participants' fair level of knowledge ($M = 5 - 7$) for seven out of ten items: dislodged brackets ($M = 0.676$), biting on hard food ($M = 0.686$), sticky foods ($M = 0.524$), use of the right toothbrush ($M = 0.495$), skipping appointments ($M = 0.667$), interdental brushes ($M = 0.495$), and proper brushing technique ($M = 0.571$). With most of the items or indicators showing a fair level of knowledge, participants, therefore, demonstrate some knowledge about taking care of braces. Additionally, the low standard deviations of all the items show that most answers are clustered around the mean. These results are also supported by the

study of Mathew et al. (2023), which shows that the majority of their participants were knowledgeable about orthodontic treatment. Another study by Shrestha et al. (2014) indicated that 85% of their participants were knowledgeable about orthodontic treatment.

However, there are also some items on which participants demonstrate low knowledge. Item K10 (Orthodontic wearers are advised to brush more often than non-orthodontic wearers) has the lowest percentage of correct scorers (28%). Most participants are, therefore, not aware that a person must brush their teeth more often when s/he is wearing braces. The following lowest percentage of correct scorers (34%) is Item K4 (Flossing is still necessary for patients with braces). Most participants, therefore, think that flossing is no longer required for orthodontic braces wearers. The third lowest percentage of correct scorers (35%) is Item K5 (Braces wearers are more prone to caries). Most participants are not aware the presence of braces in a person's mouth can lead to more caries, which is why orthodontic wearers are recommended to brush more often. All these three items - K10 ($M = 0.276$), K4 ($M = 0.343$), and K5 ($0.35-$) - pertain to the hygiene involved in taking care of braces. These, therefore, show that participants are not knowledgeable ($M = 1-4$) with regard to this specific topic.

Table 5 presents the mean, standard deviation, scale, and interpretation of the respondents' attitude toward their orthodontic treatment. Ten indicators were used to measure their perceptions. The findings indicated the highest level of positive attitude with participants making their own choice in having braces ($M = 2.933$). Since having braces was their own choice, participants also demonstrated a positive attitude towards knowing the dos and don'ts of having braces ($M = 2.867$) and inquiring from their orthodontist regarding the progress of their braces ($M = 2.771$). Additionally, braces helped participants feel better about themselves, helping them feel more confident ($M = 2.771$) and attractive

(M= 2.543). Similarly, Lew (1993) states that the majority of the study's participants experienced enhanced self-esteem and self-confidence due to their fixed orthodontic appliances. Additionally, in another study, 73.5% of the participants believed that their facial appearance could be improved through the proper alignment of teeth. This belief could be because the participants were worried about the appearance of their teeth (87% of participants) (Fleming et al., 2008).

Table 5

Perception of Patients on their Attitude Towards their Fixed Orthodontic Appliance

ITEMS	M	SD	Scale	Interpretation
A1: Appointment hassle	2.086	0.856	1.51 – 2.50	Negative Attitude
A2: Attractive	2.543	0.821	2.51 – 3.50	Positive Attitude
A3: More confident	2.771	0.763	2.51 – 3.50	Positive Attitude
A4: Brushing is inconvenient	2.124	0.874	1.51 – 2.50	Negative Attitude
A5: Own choice	2.933	0.800	2.51 – 3.50	Positive Attitude
A6: Do's and Donts	2.867	0.721	2.51 – 3.50	Positive Attitude
A7: Not worth the expense	2.905	0.838	2.51 – 3.50	Positive Attitude
A8: Waiting for a long time	2.029	0.965	1.51 – 2.50	Negative Attitude
A9: Progress inquiring	2.771	0.711	2.51 – 3.50	Positive Attitude
A10: Not happy with treatment	2.695	0.798	2.51 – 3.50	Positive Attitude

These statements reflect why participants disagreed with the statements “Braces are not worth the expense” (M= 2.905) and “I am not happy with the treatment” (M= 2.695). These disagreements show their positive attitude towards the value of braces. Similar results can be found in another study showing that 82% of participants are satisfied with their orthodontic treatment (Shrestha et al., 2014).

Moreover, participants showed a negative attitude towards their appointments being a hassle (M= 2.086). This demonstrates that participants willingly went to their appointments since having braces was their own choice. They also expressed that they did not experience a long waiting time at their dental clinic by showing a negative attitude towards it (M= 2.029). Additionally, participants portrayed a negative attitude towards the inconvenience of brushing (M= 2.124), meaning that they acknowledged the essence of brushing their teeth and did not find it bothersome or unnecessary. The means of the items above also show low standard deviation, demonstrating that most answers are close to the mean and that the interpretation is more accurate.

Table 7 presents the mean, standard deviation, scale, and interpretation of the selected AUPA students' extent of their maintenance practice with their orthodontic treatment. Ten indicators or items were used to measure their maintenance practice. The findings indicated that the highest level of good compliance was in regard to brushing their teeth gently (M= 3.514). This demonstrates the participants' good habits of not using too much force with their toothbrushes, which may, therefore, damage their teeth. The next highest level of good compliance was with brushing after meals (M= 3.410), which is closely related to the previous item. Another high level of good compliance is with the proper technique in brushing (M= 3.086).

Table 6*Extent of Maintenance Practice with Fixed Orthodontic Appliances*

Items	M	SD	Scale	Interpretation
P1: Brushing after	3.410	0.987	Sometimes	Minimal Compliance
P2: Avoid sticky	3.105	0.950	Sometimes	Minimal Compliance
P3: Attend appt	3.381	1.069	Sometimes	Minimal Compliance
P4: Brushing gently	3.514	0.911	Very Often	Good Compliance
P5: Wear a mouthguard	1.800	1.228	Rarely	Bad Compliance
P6: Right technique	3.086	1.249	Sometimes	Minimal Compliance
P7: Go to the dentist immediately	3.029	1.105	Sometimes	Minimal Compliance
P8: Use of special cleaning aids	2.600	1.472	Sometimes	Minimal Compliance
P9: Avoid chewing	3.295	1.018	Sometimes	Minimal Compliance
P10: Avoid contact sports	2.895	1.255	Sometimes	Minimal Compliance
Total	3.012			

These three items imply that participants have good brushing habits. This is again supported by Shrestha et al. (2014), who concluded that the majority of their participants brush their teeth more carefully after getting fixed orthodontic appliances. Additionally, in another survey conducted by Baheti and Toshniwal (2016), all participants used their toothbrushes to clean their teeth.

Other items showing good compliance are attending appointments ($M = 3.381$), avoiding chewing on foreign objects ($M = 3.295$) and sticky food ($M = 3.105$), and going to the dentist immediately if something is dislodged ($M = 3.029$). These items demonstrate evidence of the participants' frequent visits to their dentist and compliance with the dentist's instructions.

Relationship Between Knowledge and Maintenance Practice to Orthodontic Treatment

This section discusses the relationship between the participants' knowledge and maintenance practice of the participants. The Spearman's Rank Correlation Coefficient test was used to determine the Spearman's rho and p-value between participants' knowledge and maintenance practice.

Table 7*Relationship Between the Variables- Knowledge, Attitude, and Practice*

		Knowledge	Attitude	Practice	Frequency
Knowledge	Spearman's rho	—			
	p-value	—			
Attitude	Spearman's rho	0.442	—		
	p-value	<.001	—		
Practice	Spearman's rho	0.276	0.444	—	
	p-value	0.004	<.001	—	
Frequency	Spearman's rho	0.303	0.136	0.076	—
	p-value	0.002	0.169	0.442	—

The rho between knowledge and practice is 0.276. This positive value demonstrates a positive relationship between knowledge and maintenance practice. Therefore, it can be assumed that the more knowledgeable the participants are about orthodontic care, the more likely they demonstrate good compliance towards orthodontic care of their braces. Good compliance is an essential factor in predicting the success of orthodontic treatment because orthodontic treatments require multiple visits over a long period (Mathew et al., 2023).

Additionally, the p-value of 0.004 shows a significant positive relationship between knowledge and practice, implying that the null hypothesis can be rejected: There is no significant relationship between knowledge and practice in the maintenance of their orthodontic braces. This further means that the alternative hypothesis can be accepted and that there is a substantial relationship between the knowledge and practice of orthodontic wearers. There is also an implication that the amount of education patients receive about orthodontic treatment can be an indicator of their compliance with oral hygiene practices (Mathew et al., 2023). These two studies, therefore, support the findings that the level of knowledge a patient has can influence the level of compliance with their practice.

Relationship Between Knowledge and Attitude Towards Practice on Orthodontic Treatment

This section discusses the relationship between the participants' knowledge and attitude and the relationship of these two variables with the maintenance practice of the participants. The Spearman's Rank Correlation Coefficient test was again used to determine the Spearman's rho and p-value between participants' knowledge and attitude, then assess their relationship with maintenance practice. Results are shown in Table 7.

The rho between knowledge and attitude is 0.442, showing a positive relationship between these two variables. Therefore, it can be assumed

that the more knowledgeable a participant is in the orthodontic care of their braces, the more positive their attitude is towards taking care of their braces. Likewise, the more positive a participant's attitude is towards orthodontic care, the more knowledgeable they are. Additionally, the p-value of < 0.001 shows that this positive relationship between knowledge and attitude is very significant. Thus, the null hypothesis (There is no significant relationship between participants' knowledge and attitude towards orthodontic braces) can be rejected.

Attitude and practice also show a positive relationship ($\rho = 0.444$) with a high significant p-value of < 0.001 . The null hypothesis (There is no significant relationship between attitude and practice on maintenance towards orthodontic treatment) can also be rejected.

These results demonstrate that both knowledge and attitude have a significant positive relationship with practice. Therefore, the more knowledgeable a participant is and the more positive attitude they have towards the orthodontic care of their braces, the more likely they are to show good compliance with the practices of recommended orthodontic care.

Understanding the relationship between patients' knowledge, attitude, and practice would assist orthodontists in understanding their patients more and their own roles as orthodontists (Mathew et al., 2023). One such application of this is the constant reinforcement of oral hygiene and motivation throughout orthodontic treatment, which is said to positively influence both the attitude and practice of participants (Mathew et al., 2023).

Differences in the Maintenance Practice of Patients

This section discusses the difference in the maintenance practice of participants regarding their age and gender. The researchers would like to determine whether there is a significant difference among the maintenance practice of participants depending on their age and whether older or

younger participants have better compliance with orthodontic care maintenance practice. The researchers would also like to determine whether there is a significant difference between males and females in their orthodontic care maintenance practice. Results are discussed in Tables 9 and 10.

Table 9

Difference in the maintenance practice by age (Individual)

	X ²	df	p
Frequency	2.27	2	0.321

A one-way analysis of variance (ANOVA) was tested through the Kruskal-Wallis test to determine if there was a significant difference among participants' maintenance practices when the moderating variable of age was considered. As Table 10 shows, the p-value of 0.321 is greater than 0.05. Therefore, there is no significant difference among participants' maintenance practices when the moderating variable of age is considered. The participants' age, whether they are older or younger, does not determine the extent or level of compliance toward orthodontic care maintenance practice.

Table 10

Difference in the maintenance practice by age (Group)

	New Age	N	Mean	Median	SD
Frequency	1	22	5.00	5.00	1.069
	2	30	5.30	6.00	0.837
	3	52	5.33	5.50	0.944

Table 11

Difference in the Maintenance Practice by Gender (Individual)

	Mann-Whitney U		
Frequency	1295	0.753	

Table 12

Difference in the Maintenance Practice by Gender (Group)

	Group	N	Mean	Median	SD	SE
Frequency	Female	47	5.19	5.00	1.01	0.148
	Male	57	5.30	5.00	0.886	0.944

An independent samples t-test was used to determine if there was a significant difference among the participants' maintenance practices when the moderating variable of gender was considered. The p-value is 0.753, which is greater than 0.05. This shows that there is no significant difference between the maintenance practices of males and females. Therefore, neither males nor females are more compliant than the other with the maintenance practice of their braces.

The two statistical tests in Tables 11 and 12 present no significant difference with participants' maintenance practice when the moderating variables are considered. The null hypothesis (There is no significant difference between the patient's age and gender towards their practice on maintenance of their orthodontic braces), therefore, cannot be rejected. This also demonstrates that neither age nor gender is a determiner of the level of orthodontic wearers' compliance with their maintenance practice. This implication is supported by the study of Zeighami, Maybodi, and Toodehzaeim (2022), indicating that orthodontic wearers' knowledge and practice levels have no significant relationship with their gender and age.

Buthelezi and Madiba (2021) state that there were no significant differences between gender and age in terms of the frequency of participants' practice of brushing, flossing, rinsing with mouthwash, and taking drinks with sugar ($p > 0.05$). In another study, participants' gender did not affect their attitude toward orthodontic treatment (Abu Alhaija et al., 2018).

The researchers recommend certain guidelines for those who have orthodontic appliances installed. These are regular visits to the dentist, maintaining good oral hygiene which are brushing and flossing,

and proper care of the orthodontic appliance according to their dentists' instructions.

In conclusion, the positive r values between the respondents' knowledge and their attitude, between knowledge and practice, and between attitude and practice all indicate only moderate correlation between these variables. The study recommends a review of the instruments used, as well as a more thorough investigation of the behaviors of individuals fitted with orthodontic appliances.

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Comparative Study of Post-Operative Droplet Contamination of Dental Working Areas Using Aerosol Generating Procedures in Periodontology and Restorative Department

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The COVID-19 pandemic has dramatically affected the field of healthcare, mainly the practice of dentistry. Though infection control protocols and guidelines have long been implemented, modifications, such as aerosol-generating procedures, are necessary to further prevent the spread of infection. This study aims to establish data regarding the spread of contamination post-operatively aerosol-generating procedures. This would greatly benefit all dental practitioners and dental education institutions in solidifying their infection control measures. The study was conducted to determine the degree of contamination in a phantom head in the restorative and periodontology department at Adventist University of the Philippines, Puting Kahoy, Silang Cavite, Philippines. There are a total of 10 surfaces per department. A total of 15 tests were conducted in both clinical departments. Using the quantitative statistical analysis for each surface in the department, variables were analyzed individually, and the significant differences between the departments. The results show that the periodontology department has the most contamination. Aerosol spread in the restorative department has reached a more distant surface compared to the periodontology department. Meanwhile, the surfaces that are in close proximity to the operative site have the most degree of contaminants in both departments.

Keywords: *aerosol-generating procedures, post-operative contamination, infection control*

Inadequate environmental decontamination poses a significant risk for the transmission of infectious diseases within hospitals and dental settings, where aerosol-generating procedures are prevalent due to the use of numerous hand instruments. The generation of splatters and aerosols during dental procedures, as highlighted by Han et al. (2021), increases the risk of disease transmission, including COVID-19 and other communicable diseases. These bioaerosols, a byproduct of routine dental operations, are primary vectors for transmitting harmful organisms and threatening dental care providers and their patients. Additionally, as discussed by Khanagar et al. (2021), cross-contamination and poor adherence to infection control protocols contribute to the common forms of infectious transmission in dental care settings.

According to Upendran et al. (2021), infection control in dentistry has become increasingly challenging due to the heightened risk of infectious disease transmission among patients. The concern extends to cross-contamination through indirect and direct contact and the spread of aerosols and airborne particles. Beyond addressing patients' oral health needs, dental professionals and interns have a crucial responsibility in preventing infections and safeguarding the health of both patients and staff. While meeting patient demands is important, ensuring a secure environment and minimizing the risk of disease transmission take precedence in their multifaceted responsibilities.

As stated by Amato et al. (2020), in dental practice, rotary instruments like handpieces and ultrasonic scalers are used in air-water syringes with cooling systems that produce aerosols that might contain infectious microorganisms. Afzha et al. (2016) discussed that dentists widely use ultrasonic scalers in treating patients, and there are some deleterious effects or hazards involving their use. Among those hazardous effects are aerosols. Aerosols produced by ultrasonic instruments always come with blood particles that stay in the air for 30 minutes or more in the dental office.

The usage of high vacuum instruments may also be considered in the prevention of cross-contamination. High vacuum instruments eliminate the aerosols by sucking them into the dental area and collecting it into a sealed container in order to prevent the spread of infection through aerosols produced during the procedure. It is used in addition to infection protocol measures to prevent further infection spread. Aerosols produced by ultrasonic scalers may contain infectious blood and airborne pathogens. Thus, dental personnel and patients are susceptible to a higher risk of contamination.

This study investigates the Germ Theory of Disease, positing that microscopic organisms imperceptible to the naked eye are the root cause of illnesses. The precise mechanisms by which these organisms induce diseases are yet to be fully understood. The theory serves as a foundation for infection control in medical settings, aiming to manage, minimize, and potentially eradicate the spread of infections.

Additionally, the research incorporates the Transmission Mechanism Theory, identifying three primary transmission mechanisms: vector-borne, environmental, and direct transmission. Embracing a comprehensive approach, the study employs the replication-transmission relativity model, recognizing the necessity for pathogens to thrive at both micro and macro scales to propagate within communicable disease systems effectively.

Methodology

Research Design

The researchers utilized a quantitative method approach for data collection. Mann-Whitney U-test and the Student T-test were used to determine and measure the degree of post-operative contamination in the dental working areas using ultrasonic scalers and handpieces.

Transparent grid lines serve as a measuring tool, and ultrasonic scalers and handpieces are a source of the spread of aerosol, which enabled the researchers to measure the degree of contamination in the dental working areas.

The experimental research design helped the researchers dictate and collect the statistical analysis of the resulting data, giving importance to the area or surface with a higher risk of contamination.

Population and Sampling Technique

The study was conducted at the Adventist University of the Philippines-College of Dentistry Senior's Clinic, specifically in the restorative and periodontal department, wherein 15 chairs with a simulated phantom head were utilized to gather the data needed using one ultrasonic scaler and one handpiece. The study involved examining ten surfaces in each department for each of the 15 procedures, totaling 150 surfaces in each department. Clinicians from any year level working in the restorative and periodontology department conducted the research under the supervision of the on-duty clinical instructor.

Instrumentation

The study was performed in a phantom head on a dental chair placed in a reclining posture to mimic the dental procedure. The materials used were dental chairs, handpiece, methylene blue dye, grade no. 1 filter paper discs, phantom head, rubber cheek, ultrasonic scaler, and transparent grid (1 cm²). The study employed grade no. 1 qualitative filter paper discs made from cotton cellulose fibers with a diameter of 9.0 cm and a thickness of 0.2 mm. which contained large crystalline particles and gelatinous precipitates. The discs are smooth and of average hardness. Adhesive tapes were placed on the back of the filter paper discs and then in the centroid on each surface.

The filtered solution of 1 mL of distilled water with 1g of methylene blue dye was used as a reservoir to supply the high-speed handpiece and the ultrasonic scaler unit. One auto-tuned magnetostrictive ultrasonic scaler at 50 Hz set at high power was used for mock scaling, while a high-speed handpiece at 4,000 RPMs was used for mock restoration. Both procedures were done in a dental chair.

A transparent grid with 1cm squares was utilized for counting contaminants on the filter paper discs. Contaminants were assessed by tallying the squares that displayed at least one aerosol droplet containing methylene blue stain. The results were diligently collected by visually counting the contaminants in the stained filter paper discs.

Researchers used the following baseline as a basis for scoring and interpretation of the gathered data: Highest Level (57.76-77), High Level (38.6-57.75), Low Level (38.5-19.26), And Lowest Level (0-19.25).

Analysis of Data

Data collected were analyzed through statistical measures, specifically T-test and Mann-Whitney, to compare output. T-test or Student's t-test was used to evaluate the hypothesis based on mean and standard deviation from a sample population. Mann Whitney Wilcoxon Test, also called the Wilcoxon Rank Sum Test, is a non-parametric test employed to compare relationships between two independent groups.

Ethical Consideration

Before conducting the study, an application was submitted to the university's ethics review board, and approval was obtained. The review process ensured that the study adhered to ethical standards and guidelines. A letter of consent was also sent to the dean of the College of Dentistry explaining the nature of the study, the potential risks involved, the procedures they will undergo, and the approval for using the college facilities.

Results and Discussion

Degree of Contamination on the Surface in the Restorative Department

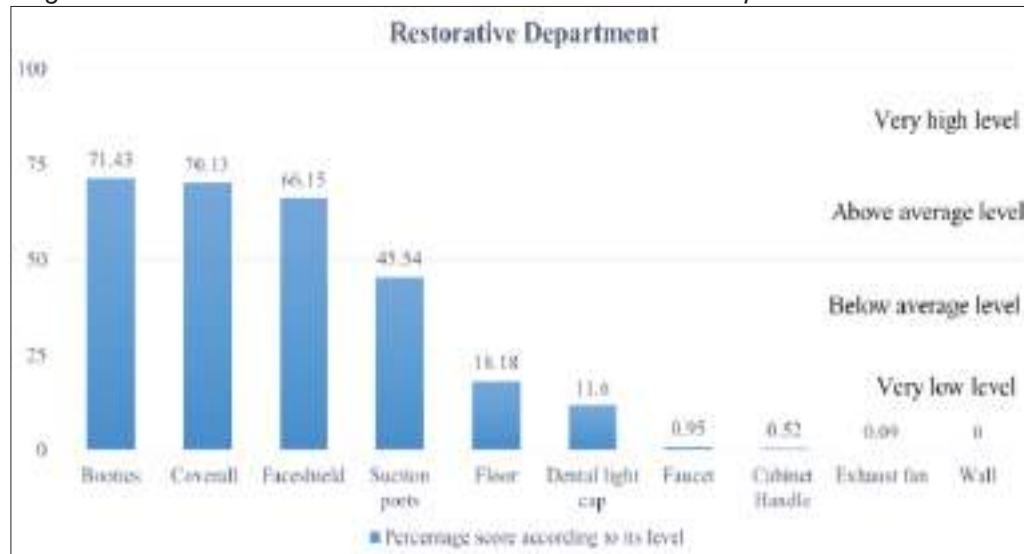
Table 1 displays the degree of surface contamination in the Restorative Department. The graph reveals no surfaces in the department reaching a very high aerosol level (75-100%).

Three surfaces exhibit above-average aerosol levels (50-75%): booties at 71.43%, coverall at

70.13%, and face shield at 66.15%. The suction port is below average at 45.54%. Surfaces with very low aerosol levels (0-25%) include floor at 18.18%, dental light cap at 11.60%, faucet at 0.95%, cabinet at 0.52%, exhaust fan at 0.09%, and wall at 0%. This indicates that surfaces near the aerosol source (phantom head) in the restorative department have higher aerosol levels.

Figure 1

Degree of Contamination on the Surface in the Restorative Department



A recent study (Gandolfi et al., 2020) points out that masks, goggles/face shields, surfaces of furniture/equipment, and floors are most likely to be contaminated with a high number of aerosol spatter. According to Matys and Grzech-Lesniak (2020), working with high-speed and low-speed handpieces contributes to the high-risk factor of the spread of aerosol, increasing the spread of potentially harmful pathogens (viruses, bacteria, and fungi) in a mixture with a water spray and bioaerosol. The study revealed that removing caries using a saliva ejector and high-speed handpiece produced the most spray spatter at each measurement point.

Degree of Contamination on the Surface in the Periodontology Department

Two surfaces in the Periodontology Department reached a very high aerosol level: booties (96.36%) and coveralls (91.34%). (Table not available). The aerosol levels in the Periodontology department are categorized based on percentage scores for different surfaces. Booties (96.36%) and coveralls (91.34%) indicate very high aerosol levels (75-100%). The face shield (62.68%) falls above average (50-75%). Suction ports (43.90%) and dental light caps (40.87%) are below average (25-50%). The floor (14.89%), exhaust fan (0.52%), cabinet handle, wall, and faucet (all 0%) exhibit very low aerosol levels (0-25%). These results suggest that surfaces near the aerosol source (phantom head) have higher aerosol levels in the department.

Harte, J. (2010) states that the most splatter and spray lands on personal protective equipment. Personal barrier protection, such as gloves, masks, and eye protection, will reduce the risk of spatter droplets emerging from the operative site. Ultrasonic scalers produce a huge amount of spatter and aerosols from patient fluids and cooling water, posing a risk to dental workers and patients (Han et al., 2021).

Difference of Contamination Between the Two Departments

Table 3 presents the significant differences between the two departments regarding the degree of contamination. The findings of this study showed that the following variables, coverall ($p=0.026$) and booties ($p=0.011$) of both departments, have a significant difference based on the Mann-Whitney U-Test, which indicates that the null hypothesis is rejected.

The Mann-Whitney U-test was applied to assess two surfaces, coveralls ($p=0.026$) and booties ($p=0.011$), indicating a significant difference in both departments. The null hypothesis is rejected. The suction port, face shield, floor, exhaust fan, cabinet, faucet, and dental light cap were measured through the Student T-test, which resulted in accepting the hypothesis except for the dental light cap ($p=0.031$), which displayed a significant difference in both departments, rejecting the null hypothesis. The wall lacks data, precluding interpretation.

Table 1

Difference of Contamination Between the Two Departments

Surface	Test	p
1. Coverall	Mann-Whitney U-test	0.026
2. Booties		0.011
3. Suction ports		0.913
4. Face shield		0.802
5. Floor	Student T-test	0.776
6. Exhaust fan		0.418
7. Cabinet		0.178
8. Faucet		0.148
9. Dental light cap	None	0.031
10. Wall		0

According to (Barros et al., 2022), high-speed operation resulted in a higher dispersion of aerosol created at 87cm from the source. The aerosol dispersion was significantly lower when performed using ultrasonic than highspeed.

The ultrasonic scaler produced substantially smaller spatter particles (ranging from 200 to 1020 μ m) than the splatter produced by high-speed handpieces (ranging from 257 to 3573 μ m). The ultrasonic scaler produces smaller particles of about <300 μ m compared to >550 μ m diameter aerosol produced by high-speed Handpieces. Large airborne particles scatter from the splattered fluid and fall onto surfaces in the dental operatory due to gravity, following a ballistic trajectory from the place of origin. At the same time, smaller particles with a diameter of less than 5 μ m can float in the air for a long time and can be a source of infection if inhaled by Han et al. (2021).

Conclusion and Recommendations

The result of the study revealed significant differences between the Restorative and Periodontology departments in terms of booties, coveralls, and dental light caps, rejecting the null hypothesis. On the contrary, no significant differences were found in the suction port, face shield, floor, exhaust fan, cabinet handle, and faucet, supporting the hypothesis. Statistical interpretation for the wall was not possible due to insufficient data. The homogeneity of both departments varied and attributed to the size of particles produced by high-speed and ultrasonic handpieces. High-speed handpieces in the restorative department generate larger ballistic trajectory particles, while ultrasonic handpieces in the periodontology department produce smaller particles that float until they touch surfaces.

This study recommends that future research include assessing aerosol contamination during live patient procedures, incorporating microbiological analysis, ensuring equal time allocation per quadrant, utilizing scientific measuring tools, and introducing dental assistants as independent variables. Additional precautions suggested involve implementing disposable personal protective equipment for patients, promoting hand and face hygiene post-procedure, using disposable

booties, employing garterized coveralls for dental professionals, replacing face shield frames, employing high-velocity air evacuation, allowing aerosols to settle before cleaning, recognizing non-critical areas as potential infection risks, practicing transmission-based measures, maintaining a well-designed operative room with adequate air changes.

Moreover, other recommendations include using barriers, preprocedural antibacterial rinses, installing air purification systems with HEPA filtration, adopting alternative instrument cleaning methods, and persisting with PPE use beyond the pandemic for ongoing infection prevention.

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COVID-19 Compliance with Minimum Health Standards and Lifestyle Practices Among Employees of Sectarian Institutions

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The COVID-19 pandemic was declared a public health emergency of international concern. As of September 15, 2023, 770,562,703 cases and 6,957,203 deaths were reported globally, requiring continued health response and cooperation from the public. This study aimed to investigate the extent of COVID-19 compliance to minimum health standards and lifestyle practices among the employees of sectarian institutions in the Philippines. Using descriptive research design, 349 employees from seven higher educational institutions were chosen from across the country using convenience sampling. The study findings showed that the respondents were highly compliant with minimum health standards. Lifestyle practices scored low in nutrition, good in sleep pattern, but excellent in physical activity. Using Levene's test and T-tests, results also revealed that those under 40 were more compliant with minimum health standards and spent more time in physical activity. However, respondents did not differ in terms of nutrition. Regarding sleep patterns, respondents under 40 did not have difficulty falling asleep and slept an hour more than those older. There was also a statistically significant difference in the number of hours and frequency spent engaging in physical activity between males and females. For a healthier workforce, the institutions may use the findings to develop programs that support lifestyle practices in nutrition and physical activities for women and older groups. Future studies may examine participants' difficulties and coping mechanisms associated with trying to live a healthy life.

Keywords: *Lifestyle practices, compliance with minimum health standards*

Novel coronaviruses that have emerged from animal reservoirs over the past 20 years are a global public health concern. According to the National Institute of Allergy and Infectious Diseases (2020), novel coronavirus infections include coronavirus disease 2019 (COVID-19), Middle East respiratory syndrome (MERS), and severe acute respiratory syndrome (SARS). Strict implementation and adherence to minimum health (MHS) are still the best defenses against communicable diseases (Buhat, 2021). Personal hygiene and handwashing have been identified as principal measures for preventing the transmission of respiratory diseases (Public Health England, 2020). Face mask use has been recognized within the scientific community as a suitable precautionary measure in acute crises such as the COVID-19 pandemic (Greenhalgh et al., 2020). Likewise, social distancing reduces the risk of spreading or catching the COVID-19 virus. Adhering to these measures has been seen to help save humanity and the globe for a better way of living. According to Zhou et al. (2020), during the pandemic, more than 80% have reported increased handwashing, wearing of face masks, and decreased close contact with other people, confirming compliance with basic protective behaviors against COVID-19. The risk of COVID-19 infection through contact with contaminated surfaces or objects is possible. Daily cleaning and disinfecting of touch surfaces such as tables, desks, handrails, faucets, doorknobs/handles, light switches, phone handsets, and computer workstations are necessary to reduce COVID-19 infection risk from surface contact. In addition, from a public health perspective, a healthy lifestyle seems like an important alternative to fight COVID-19 (Werf et al., 2021). Authorities and healthcare professionals globally recommended taking appropriate hygiene measures to stay healthy during the pandemic and resorting to restorative lifestyle measures such as assuring sufficient sleep, eating plenty of fresh fruits and vegetables, reducing stress, and staying active (World Health

Organization, 2022). A study by Lange and Nakamura (2020) on lifestyle factors preventing COVID-19 concluded that sufficient restorative sleep is needed for adequate immune functioning. Moreover, proper lifestyle changes in nutrition, exercise, and sleep may help shift the population distribution of infection risk and prevent severe COVID-19. On May 7, 2023, WHO declared the end of COVID-19 global health emergency. However, SARS-CoV-2 remains a serious concern for certain sub-populations; it is killing, and it is still changing; the risk remains, and new variants are emerging that cause recent surges in cases and deaths, thus requiring continued public health response. Vaccination is among the most successful public health interventions. Nevertheless, compliance with minimum health standards and lifestyle practices is important in controlling and preventing infectious diseases, which urged the researcher to explore further.

Methodology

Research Design

The study used descriptive language to describe the level of compliance of the respondents to minimum health standards and health practices in terms of nutrition, exercise, and sleeping patterns using statistical means, standard deviations, and frequency. The study used a survey questionnaire to gather numerical data. The research also used comparative design to determine if there is a difference in the respondents' compliance with minimum health standards and lifestyle practices when the respondents are grouped by age, sex, and educational attainment.

Population and Sampling Techniques

The study involved 349 employees chosen from seven higher educational sectarian institutions from across the country using convenience sampling. Their age varies from below 40 (37.20%) to 40 and above (62.80%). Most of them were females (62.80%), and 37.20% of them were

males. Educational attainment: undergraduate (4%), college graduate (42.70%), master's degree holders (42.40%), and doctorate holders (8.905).

Instrumentation

The study utilized a questionnaire in data gathering, composed of three major parts: Part 1 – Demographic Profile, Part 2 – Compliance with Minimum Health Standards, and Part 3 – Lifestyle Practices. The demographic profile includes age, sex, and educational attainment. The questionnaires for the respondents' compliance to minimum health standards used a five-point Likert Scale with a degree of intensity: 5- Always, 4 – Often, 3 – Sometimes, 2 – Rarely, and 1 – Never. Life practices were measured regarding nutrition, physical exercise, and sleep patterns. Frequency and number of servings per meal were used to assess Nutrition. For physical activity, number of minutes and frequency were used. For the sleep pattern, several hours of sleep were used. The reliability results showed an acceptable index of 0.938, 0.833, and 0.705 for compliance with minimum health standards, nutrition, and physical activity.

Data Analysis

Data were collected, encoded, organized, and analyzed using a statistical package for Social Science (SPSS). Describe statistics used to quantify compliance with minimum health standards and lifestyle practices, specifically mean, standard deviations, and frequency. T-tests were used to describe the significant difference in the respondents' compliance with minimum

health standards and lifestyle practices when the demographic profile of the respondents was considered.

Ethical Considerations

Ethical matters were considered in the conduct of the study. The respondents were informed that participation was voluntary, so their consent was necessary with the assurance that confidentiality and anonymity were strictly observed. The researcher and research assistants personally distributed the questionnaires to the participants.

Result and Discussions

After gathering enough responses, the data were encoded, summarized, and analyzed in SPSS. The results of the statistical analysis are discussed as follows:

Level of Compliance to Minimum Health Standards

The level of compliance of the respondents to minimum health standards is summarized in Table 1. Almost all (92%) items used to assess the respondents' compliance with minimum health standards were rated "often." The grand mean of compliance with minimum health standards is 3.74, interpreted as high. The result of the study confirms the study of Caldwell and her companions (2021) and the study of Buhat (2021), that minimum health standards were strictly complied with in the Philippines. According to them, continued compliance with minimum health standards reduced the probability of transmission per contract by 13-17%.

Table 1

Level of Compliance of the Respondents to Minimum Health Standards

Items Compliance to Minimum Health Practices	Mean	SD	Scaled Responses	Descriptive Interpretation
1. I wear a mask at my workplace. (e.g., Office and other work settings that are not my home)	3.60	1.137	Often	High

[table continues on the next page]

2. I wear a mask when outside of work. (For example, at the grocery store, when I am using public transportation, or in other aspects of my daily life mingling with people)	3.83	1.211	Often	High
3. I wash my hands with water and soap for 20 seconds.	4.02	0.991	Often	High
4. I use alcohol-based hand sanitizer	4.33	0.940	Often	High
5. I keep myself at least 2 meters away from others when I go into public or crowded areas.	3.49	1.202	Sometimes	Moderate
6. I clean and disinfect surfaces such as:				
a. handles	3.61	1.152	Often	High
b. doorknobs	3.59	1.157	Often	High
c. tables	3.73	1.111	Often	High
d. light switches	3.54	1.167	Often	High
e. desks	3.69	1.127	Often	High
f. phones	3.76	1.125	Often	High
Compliance with Minimum Health Practices	3.74	1.120	Often	High

Legend: Very High = 4.50 – 5.00 High = 3.50 – 4.49 Moderate = 2.50 – 3.49 Low = 1.50 – 2.49 Very Low = 1.00 – 1.49

The study also supports the analysis of Liu (2022) in China, in which the majority of their respondents showed a high level of compliance with COVID-19 preventive behaviors among employees returning to work in the post-epidemic period.

Lifestyle Practices of the Respondents

A. Nutrition

Table 2 shows the servings of food items the respondents eat daily. The formula used was that the number of servings per day equals the average (mean) number of servings multiplied by the number of meals taken in a week divided by seven (7) times.

Table 2

Number of Servings per Day

Food Items	Mean (Ave. # of Servings)	Equivalent Meal Frequency	# of servings per week	# of servings per day
1. Vegetables	1.56	Once a day		1.56
2. Fruits	1.46	5x a week	$1.46 * 5 = 7.3$	$7.3/7 = 1.04$
3. Carbohydrates				
a. Rice	1.74	Once a day		1.74
b. Bread	1.19	5x a week	$1.19 * 5 = 5.95$	$5.95/7 = 0.85$
c. Pasta	0.89	0.25x a week	$.89 * .25 = .22$	$.22/7 = 0.03$
Total Number of Servings				2.62

[table continues on the next page]

4. Protein				
a. Eggs	1.07	2.5x a week	2.68	0.38
b. Beans	1.02	Once a week	1.02	0.15
c. Fish	1.23	2.5x a week	3.08	0.44
d. Meat	0.88	0.25x a week	0.22	0.03
e. Chicken	0.96	Once a week	.96	0.14
Total Number of Servings				1.14

The result is summarized in Table 3. The respondents ate an average of 1.56 servings of vegetables, 1.04 servings of fruits, 2.62 servings of carbohydrates, and 1.14 servings of protein per day. According to the daily nutritional guide pyramid provided by the Food and Nutrition Research Institution of DOST (FNRI, 2023), a person whose age ranges from 20-69 is suggested to eat at least three servings of vegetables, 2-3 servings of fruits, 4 ½ - 8 servings of carbohydrates (rice, rice products, corn, root crops, bread, noodles), and 3-5 servings of protein (fish, shellfish, meat, poultry, beans, nuts, eggs). Based on the scale for the interpretation of lifestyle practices for nutrition, the respondents poorly practiced proper nutrition by taking a smaller number of servings than the number of servings suggested by the Food and Nutrition Research Institution of DOST (FNRI, 2023). The result of the study supports the study of Angeles-Agdeppa and Custodio (2020). Angeles-Agdeppa and Custodia conducted a cross-sectional survey on the usual nutrient intakes and food sources of working adults in the Philippines, involving 1264 respondents aged 19 to 59 from randomly selected job sectors. Results showed poor dietary intake based on their estimated energy requirements. Ratsavong (2020) did the same study in Laos. The dietary intake of men and women was assessed in a national cross-sectional survey with 1771 randomized participants aged 1.01 to 89 years old. Results showed that the dietary intake of both men and women in Laos was insufficient or poor.

Table 3*Lifestyle Practices of the Respondents in Terms of Nutrition*

Food Items	# of servings per day	Verbal Interpretation
Vegetables	1.56	Poor
Fruits	1.04	Very Poor
Carbohydrates	2.62	Poor
Protein	1.14	Very Poor

Legend:

1. *Vegetables, Fruits, And Protein*
 Very Poor (Below 1.51) *Poor (1.51-2.50)* *Good (2.51-3.50)*
 Very Good (3.51-4.50) *Excellent (4.51-5.00)*
2. *Carbohydrates*
 Very Poor (Below 2.01) *Poor (2.01-3.50)* *Good (3.51-5.00)*
 Very Good (5.01-6.50) *Excellent (6.51-8.00)*

B. Physical Activity

Light Physical Activities. The number of hours spent per week is computed by multiplying the equivalent number of hours spent per LPA with the mean frequency of LPA. Then, divide the calculated number of hours spent per week by 7 to get the hours spent per day. The results of the computation are shown in Table 4. The total hours the respondents spend for all their light physical activities per week is 17.66 and 2.52 per day.

Table 4*Number of Hours Spent Per Light Physical Activity/Week or Per Day*

Light Physical Activities (LPA)	Equiv. # of Hrs. spent per LPA	Mean Frequency of LPA	# of Hours per LPA/ Week	# of Hours per LPA/ Day
Light gardening	0.50	1.75	0.88	0.13
Light housework (dusting, sweeping, vacuuming, washing)	1.50	2.99	4.49	0.64
Leisure walking	1.50	2.83	4.25	0.61
Mall Touring	1.50	1.32	1.98	0.28
Fishing	0.50	1.28	0.64	0.09
Carpentry	0.50	1.36	0.68	0.10
Playing a musical instrument	1.50	2.25	3.38	0.48
Others	0.50	2.75	1.38	0.20
Total Hours Per Week/Day			17.66	2.52

Moderate Physical Activities. The number of minutes spent per week is computed by multiplying the equivalent number of minutes spent per MPA with the mean frequency of MPA. Then, divide the computed number of minutes spent per week by 7 to get the number of minutes spent per day. The results of the computation are shown in Table 5. The total number of minutes spent by the respondents for all their moderate physical activities per week is 298.18 and 42.60 per day.

Table 5*Number of Minutes Spent Per Moderate Physical Activity/Week or Per Day*

Moderate Physical Activities (MPA)	Equiv. # of Minutes per MPA	Mean (MPA Frequency)	# of Minutes per MPA/ Week	# of Minutes per MPA/ Day
Brisk Walking	13	2.67	34.84	4.98
Swimming	38	1.31	49.78	7.11
Gardening	38	1.72	65.36	9.34
Others	38	3.90	148.2	21.17
Total Minutes Per Week/Day			298.18	42.60

Vigorous Physical Activities. The number of minutes spent per week is computed by multiplying the equivalent number of minutes spent per VPA with the mean frequency of VPA.

Table 6*Number of Minutes Spent Per Vigorous Physical Activity/Week or Per Day*

Vigorous Physical Activities (VPA)	Equiv. # of Minutes per VPA	Mean (VPA Frequency)	# of Minutes per VPA/ Week	# of Minutes per VPA/ Day
Biking	23	1.91	43.93	6.28
Jogging	23	1.90	43.70	6.24
Lap Swimming	8	1.42	11.36	1.62
Aerobics	23	2.11	48.53	6.93

[table continues on the next page]

Soccer	23	1.36	31.28	4.47
Football	8	1.00	8.00	1.14
Baseball	8	1.20	9.60	1.37
Badminton	38	1.73	65.74	9.39
Volleyball	38	1.45	55.10	7.87
Lawn Tennis	38	2.07	78.66	11.24
Basketball	38	1.55	58.90	8.41
Others	38	3.00	114.00	16.29
Total Minutes Per Week/Day			568.80	81.26

The lifestyle practices of the respondents in terms of physical activities are summarized in Table 7. The respondents were doing an average of 17.66 hours per week or 2.52 hours per day for light physical activities, which is interpreted as poor. Based on the article by Jo Adetunji (2019), women who were doing light physical activity for 6 hours or more a day “were 46% less likely to have a heart attack or die from one and were 26% less likely to suffer any form of cardiovascular event (stroke, severe angina), compared with those women who did the least amount (3 hours or less per day) of light activity” and that for “every extra hour of light activity above three (3) hours reduced the risk of heart attack by about 15%”.

Table 7

Lifestyle Practices of the Respondents in Terms of Physical Activities

Physical Activities (PA)	# of Minutes/ Hours per Week	# of Minutes/ Hours per Day	Verbal Interpretation
Light Physical Activities (LPA)	17.66 hrs.	2.52 hrs.	Poor
Moderate Physical Activities (MPA)	298.18 mins.	42.60 mins.	Very Good
Vigorous Physical Activities (VPA)	568.80 mins.	81.26 mins.	Excellent
Total Number of Hours for Physical Activities	32.11 hours	4.58 hours	

Legend:

1. LPA	Very Poor (1 Hr. or Less./day)	Poor (2-3 Hrs./day)	Good (4-5 Hrs./day)
	Very Good (6-7 Hrs./day)		Excellent (>7 Hrs./day)
2. MPA	Very Poor (<75 Mins/week)	Poor (75-149 Mins/week)	Good (150-224 Mins/week)
	Very Good (225-299 Mins/week)		Excellent (>300 Mins/week)
3. VPA	Very Poor (<37 Mins/week)	Poor (37-74 Mins/week)	Good (75-112 Mins/week)
	Very Good (113-149 Mins/week)		Excellent (>149 Mins/week)

For the moderate and vigorous physical activities of the respondents, as shown in Table 40, 298.18 minutes/week or 42.60 minutes/day were used for moderate physical activities, and 568.80 minutes/week or 81.26 minutes/day were used for vigorous physical activities. Based on the MPA scale, spending 298.18 minutes for moderate physical activities and 568.80 minutes for vigorous physical activities is an excellent lifestyle practice. According to the Physical Activity Guidelines for Americans of the US Department of Health and Human Services (2023), “Adults should do at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity”. Dong Hoon Lee and his associates analyzed more than 100,000 adults from 2 large prospective US cohorts (Lee et al., 2022) to determine the effect of Long-Term Leisure-Time Physical Activity Intensity on Health. Their study showed that those participants who met the long-term leisure-time physical activity guidelines of 75-149 minutes

per week of vigorous physical activity (VPA) had 19% lower all-cause mortality, 31% lower CVD mortality, and 15% lower non-CVD mortality. Those who reported 150-299 per week, 2 to 4 times the recommended minimum long-term leisure-time VPA, had 21%-23% lower all-cause mortality, 27%-33% lower CVD mortality, and 19% lower non-CVD mortality.

Their research study also showed that those who met the long-term leisure-time physical activity guidelines of 150-224 and 225-299 minutes per week of moderate physical activity (MPA) had 20% to 21% lower all-cause mortality, 22%-25% lower CVD mortality, and 19%-20% lower non-CVD mortality. Those participants who reported 300-599 minutes per week of MPA had 26%-31% lower all-cause mortality, 28-38% lower CVD mortality, and 25%-27% lower non-CVD mortality.

The National Nutrition Council (2019), in their 2019 Nutrition Month PowerPoint, stated that the Philippine National Guidelines on Physical Activity for adults is to have 30-60 minutes daily physical activity on any or a combination of the following physical activities: Activities for daily living (walking, cycling, stair climbing, household chores); Exercise, dance and recreational activities - moderate intensity and vigorous aerobic physical activity (brisk walking, dancing, cycling, swimming, jogging, vigorous dancing, ballgames).

The respondents' total number of physical activities, as indicated in Table 40, is 4.58 hours, four times greater than the number of minutes recommended by the Philippine National Guidelines for Physical Activity.

C. Sleep Pattern

For the sleep pattern six (6) questions were used to assess the sleeping pattern of the respondents. Table 8 summarizes the result of question number 1. More than half (58.5%) of the respondents answered, "little of the time" to "none of the time," and about 41.5% answered "all the time" to "some of the time."

Table 8

Summary Results of Question Number 1 – Trouble Getting to Sleep

How often do you have trouble getting to sleep?	Frequency
None of the time	91 (26.1%)
Little of the time	113 (32.4%)
Some of the time	114 (37.7%)
Most of the time	26 (7.4%)
All the time	5 (1.4%)

The summary results of question number 2 are shown in Table 9. Forty-seven percent (47%) of the respondents had an average sleep of 7 hours and above a day, 47.3% had an average sleep of 5-6 hours, and 5.7% had an average of 1-4 hours. According to Mayo Clinic (2023), a healthy adult's recommended amount of sleep is 7 hours. People do not need more than 8 hours of sleep to be well rested. However, the National Library of Medicine (2023) stated that "sleep changes as you age". A person around the age of 40 needs an average sleep of seven (7) hours a night, six and a half (6 ½) hours a night between the ages of 55 and 60, and a healthy 80-year-old needs about six (6) hours of sleep a night.

Table 9

Summary Results of Question Number 2 – Average Hours of Sleep Per Day

On the average, how many hours per day do you usually sleep, including naps?	Frequency
Less than 3 hours	4 (1.1%)
3 – 4 hours	16 (4.6%)
5 – 6 hours	165 (47.3%)
Seven and above	164 (47%)

When the respondents were asked at what time they usually go to bed, most (61.3%) of them answered "10:00-11:59 PM", 33% go to bed at "8:00-9:59 PM", some (5.2%) go to bed at "midnight onwards," and few (0.6) of them go to bed "earlier than 8:00 PM".

For the wake-up time, 46.4% of them wake up at “5:01-6:00 AM”, 23.2% wake up at “4:01-5:00 AM”, 22.10% wake up at “6:01-7:00 AM” and about 8.3% wake up at “3:00-4:00 AM”.

The respondents were also asked how they woke up in the morning. Most (63.3%) of them woke up in the morning without using an alarm clock, nor were they awakened by someone else. 80.8% felt well-rested when they woke up in the morning, and 90.5% usually woke up in a good mood. The summary results for questions 5-7 are shown in Table 10.

Table 10

Summary Results for Questions 5-7

Question Items	Yes	No
Do you have to be awakened by someone else, an alarm clock, etc., in the morning?	128 (36.7%)	221 (63.3%)
Do you usually wake up well-rested in the morning?	282 (80.8%)	67 (19.2%)
Do you usually wake up in a good mood?	316 (90.5%)	33 (9.5%)

Difference in the Level of Compliance to Minimum Health Standards and Lifestyle Practices When the Demographic Profile of the Respondents is Considered

Table 11 shows the summary of values used to compare the level of compliance to minimum health standards and lifestyle practices of the respondents considering their demographic profile, such as age, sex, and educational attainment; T-Test was used. Lifestyle practices have three subdimensions: nutrition, physical activity, and sleep pattern. Nutrition was analyzed using two measures: number of servings per meal and frequency. The number of hours per physical activity and frequency of physical activity were used for the physical activity subdimension. Trouble getting to sleep, average hours per day, time going to bed, and wake-up time were used for sleep patterns. The study used Levene's Test or T-Test significance value to reference significant differences. The difference is significant if the Levene's Test or T-Test significance value is $<.05$.

Age. The age groups considered in the comparison were only below 40 and 40 to 59. The age group 60 and above was not included in the analysis because their number was small. Using Levene's or T-Test as a reference for the significance value considering age, the results can be summarized as follows:

- The respondents under 40 had a higher level of compliance with minimum health standards than those aged 40-59. Galende (2022) investigated the factors that influence the levels of compliance to minimum health standards among the respondents from the three provinces of Basque Country, Northern part of Spain, during the COVID-19 pandemic, and age was a significant factor influencing compliance.
- The number of servings per meal and frequency of meals of the respondents (<40 & >39 years) did not significantly vary. The study supports the study of Angeles-Agdeppa (2019) that the dietary intake of working adults in the 19-49 and above 49 age groups does not significantly vary.
- The respondents below 40 were doing physical activity more often and had spent more hours per physical activity than those aged 40-59. The results of the study are consistent with the study of Suryadinata (2020) which studied the effects of age and weight on physical activity with 154 respondents from Surabaya, East Java, Indonesia, who were selected using purposive sampling. The respondents were divided into two age groups: 21-60 and above 60. Using the Chi-Square test, results showed significant differences between the two groups. The age group 61 and above has lower physical activities compared to the age group 21-60 years old.

- d. The 40 to 59-year-old respondents had experienced more trouble getting to sleep than the age group < 40.
- e. The group below 40 had more hours of sleep per day compared to the group 40-59.
- f. The respondents, when grouped according to age, do not significantly vary in their time going to bed.
- g. The wake-up time of the below 40 respondents is significantly different from those aged 40-59. The results of the study support the study of Ismah (2021). Ismah group studied the sleep quality of 192 people living in the urban and rural areas of North Sumatra Province who were above 18 years old. Their study showed that ages 61-70 years in both urban and rural areas experienced the highest proportion of poor-quality sleep.

Table 11*T-Test results for Compliance with Minimum Health Standards and Lifestyle Practices*

Items	Age (Mean Difference)	Sex (Mean Difference)	Educational Attainment (Mean Difference)
Compliance to Minimum Health Standards	1.29150	-0.37269	058399
Levene's Test/T-Test (p-value)	0.015	0.367	0201
Nutrition			
Number of Servings Per Meal	0.7036	0.10435	0.18494
Levene's Test/T-Test (p-value)	0.239	0.060	0.001
Frequency of Meals (Sig)	0.04253	-0.02011	0.04592
Levene's Test/T-Test (p-value)	0.252	0.189	0.429
Physical Activity			
Number of Hours Per Physical Activity	2.41650	4.25364	0.52076
Levene's Test/T-Test	0.007	0.000	0.557
Frequency of the Physical Activity	2.00638	2.78172	0.14992
Levene's Test/T-Test	0.038	0.003	0.427
Sleep Pattern			
Trouble Getting to Sleep	-0.311	0.345	-0.293
Levene's Test/T-Test	0.005	0.002	0.013
Average number of hours of sleep per day.	0.176	0.024	0.032
Levene's Test/T-Test	0.029	0.270	0.032
Time Going to Bed	0.097	0.053	-0.037
Levene's Test/T-Test	0.122	0.395	0.301
Wake-up Time	0.392	-0.72	0.062
Levene's Test/T-Test	0.00	0.460	0.532

Sex. Table 11 shows the summary of values used to compare the level of compliance to minimum health standards and lifestyle practices of the respondents according to sex. Using Levene's or T-Test as a reference for the significance value considering sex, the results can be summarized as follows:

- a. There is no significant difference in the level of compliance to minimum health standards considering sex. Liu (2022) investigated the behavioral compliance and related factors for COVID-19 prevention among employees returning to the workplace and provided strategic recommendations for improving

individual-level preventive behavior to prevent a new outbreak in China. The result of their study showed that sex was not associated with COVID-19 compliance of the respondents in China. The same result was established in the study of Galende (2022) and her group. When they studied the factors that influence the levels of compliance to minimum health standards among the respondents from the three provinces of Basque Country, Northern part of Spain, during the COVID-19 pandemic, sex was not a significant factor.

- b. The number of servings per meal and the frequency of meals of the respondents did not significantly vary when sex was considered. The result of the study is the same as the study of Ratsavong (2020) in that there is no significant difference in the dietary intake of men and women in Lao.
- c. The male group did physical activity more often and spent more hours per physical activity than the female group. Parra-Rizo (2022) investigated the physical activity levels of 397 elderly residents in Alicante, Spain, aged 61-93. Results of the study showed that females scored lower in physical activity than males.
- d. The male respondents had experienced more trouble getting to sleep than the female respondents. Silva (2019) investigated the sleep patterns and complaints of the 146 elite athletes from the Brazilian Olympic Team. The study showed that most of the athletes reported to have sleep complaints sleep disorder were men.
- e. The average hours of sleep per day, time going to bed, and wake-up time of the male and female respondents did not significantly vary. The results of the study agree with the study of Diogo (2021), who and her group made a comparative analysis of the sleep patterns (sleep habit and quality, sleepiness upon awakening) of 71 adolescents (45 girls and 26 boys). Results of the study showed that the groups did not differ in bedtime, get-

up time, time in bed, and sleep irregularity. McCarthy and Warne (2022), in their study "Gender Differences in Physical Activity Status and Knowledge of Irish University Staff and Students," found that among their respondents (419 males and 401 females), male students had greater levels of physical activity participation than female students.

Educational Attainment. Table 11 shows the summary of values used to compare the level of compliance to minimum health standards and lifestyle practices of the respondents according to educational attainment. The groups considered in the educational attainment for comparison were only bachelor's and master's degrees. The other groups were not included in the analysis because the number of respondents in those groups was small. Using Levene's or T-Test as a reference for the significance value considering educational attainment, the results can be summarized as follows:

- a. The level of compliance of the respondents to minimum health standards was not significant when their educational attainment was considered. The result of the study is very much related to the study of Roga (2022) about the compliance level towards COVID-19 preventive measures among the Ambo University community members in Ethiopia. It was a cross-sectional study with a sample of 380 randomly selected from the Ambo University community members pursuing different levels of education (college, master's, and doctoral degrees). Results of the study showed that the university students pursuing various levels of education did not differ in their compliance toward the preventive measures for COVID-19.
- b. The respondents with bachelor's degrees had more servings per meal than those with master's degrees. However, their frequency of meals did not significantly vary. The study by Biesbroek (2018) about the dietary patterns of educational groups found that dietary patterns are similar

- over different education groups and do not differ from patterns observed in the total population.
- c. There is no significant difference in the frequency of physical activity and number of hours spent by the respondents per physical activity when educational attainment was considered. Scholes and Bann's (2018) research revealed that work-based physical activity was highest amongst adults with high school or some college education and was lowest amongst college graduates or higher. However, these disparities did not systematically differ over the 10 study period (2006-2016).
 - d. The respondents who finished their master's degree had experienced more trouble getting to sleep than those who completed their bachelor's degree. The same result was found in the study of Mariani (2019), conducted at Adam Malik Hospital in Medan, Indonesia, that poor sleep quality was greatest in the group with higher education.
 - e. The respondents' average hours of sleep per day, their time going to bed, and their wake-up time did not significantly vary when educational attainment was considered. The results of the study were consistent with the study of Diogo (2021), who made a comparative analysis of the sleep patterns (sleep habit and quality, sleepiness upon awakening) of 71 adolescents (45 college students and 26 high school students). Results of the study showed that neither group, college students or high students, differed in bedtime, get-up time, time in bed, or sleep irregularity.

Conclusion and Recommendations

The respondents' compliance with minimum health standards is high. Their lifestyle in terms of nutrition is poor; their physical activity is excellent, four times greater than the number of minutes recommended by the Philippine National Guidelines on Physical Activity for Adults. As for sleep patterns, most of the participants experienced little to no trouble getting to sleep; almost all of

them spent 5 hours of sleep or more, woke up in a good mood, and were well-rested every day. Respondents below forty years old were more compliant with minimum health standards, spent more time in physical activity, experienced less trouble getting to sleep, and slept an hour more than those older. However, respondents did not differ in terms of nutrition. Male respondents engage more in physical activity than female respondents. And respondents with bachelor's degrees have higher servings per meal than those with master's degrees. The institutions may use the findings to create programs that support healthy lifestyle practices in diet and physical activity for women and older groups to have a healthier workforce. Future research may examine participants' challenges and coping strategies for maintaining a healthy lifestyle.

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Dental Hygiene Practices and Oral Health-Related Quality of Life of Selected Working Students in a Private University of Silang, Cavite

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Students tend to take their oral health for granted. Flossing and brushing of teeth are not done regularly. Poor oral health habits can cause present health matters, and good OHRQoL is integral to overall health. This study aimed to determine the relationship and difference between dental hygiene and oral health-related quality of life in terms of age, gender, social history, and socioeconomic status. Researchers collected data for this study from the working students enrolled during the second semester of the 2021-2022 academic year at a university in Silang, Cavite. Convenience sampling was utilized in this study. In general, the extent of the dental hygiene practices of the participants was *satisfactory*. The extent of the respondents' oral health-related quality of life was *poor*. There is no significant relationship between the influence of dental hygiene practices and the oral health-related quality of life. Differences in the respondents' sociodemographic profile, such as gender, social history, and monthly allowance, did not affect dental hygiene practices. Results for the oral health-related quality of life between the respondents' sociodemographic profiles, such as age, gender, and social history, were found to have no significant difference. Results only established correlations between age for dental hygiene practices and monthly allowance for oral health-related quality of life.

Keywords: *dental hygiene practices, oral health-related quality of life, working students*

According to a 2023 World Health Organization (WHO) feature, oral health is the condition where an individual is free from any long-term mouth and facial pain, cancer of the mouth and throat, infections and sores of the oral cavity, disease of the gums, tooth decay and subsequent tooth loss, and other maladies and disorders that can prevent an individual from chewing, biting, speaking, and smiling at full capacity, additionally, WHO described oral health as a state of being free from oral and periodontal diseases that may affect an individual's psychosocial well-being.

Working students are no different from other students. They might forget to use dental floss after brushing or only brush their teeth once daily. Furthermore, these students may even go without brushing their teeth once a day. The combination of demanding hours working while studying and limited opportunities for campus dental education is an unsafe triad for the current and future. Poor oral health habits can cause present health matters. Knowing one's oral health is vital for young adults to establish a healthy practice to further enhance their dental hygiene and grant protection among the respondents in achieving good overall health. Good oral hygiene practices are the most significant factors that help the oral cavity fight oral diseases by properly cleaning teeth. (Tadin et al., 2022).

Regarding the production of measurement devices, these are used to measure impact and as complementary research data for future studies. The Oral Health Impact Profile is one of these measurement methods (OHIP-14). The OHIP-14 indicator, which consists of 14 questions, is highly regarded internationally and measures the functional restrictions, discomfort, and incapacity patients report as being caused by oral diseases. It also started as a 49-item theoretical model established by the World Health Organization (2023). It was purposed to determine the connection between the resulting impairment caused by oral diseases and its link to an individual's biological, behavioral, and social aspects (Montero-Martin et al., 2008).

The study from Jepara District, Indonesia, discerns whether males and females also have different Oral health-related quality of life levels. In addition, the Oral Health Impact Profile is also used as a survey questionnaire to scale oral health RQoL in both genders. Results of this study show that 83.3% of males and 71.1% of females had good OH-related quality of life. Satisfactory results aligned with a decent knowledge of both genders' general and oral health conditions. So, according to the research analysis, gender, as an independent variable, did not significantly influence their oral health-related quality of life; thus, no statistically significant difference was established. Also, this study emphasizes limitations such as the pandemic, which limits researchers from collecting more data. (Nasia et al., 2022)

Smoking is a vital factor that can affect oral health and the related quality of life, which has gained much attention, so further studies have been done in India. A group of 620 individuals in Ghaziabad was taken to use the pretested questionnaire to obtain the oral health status using the WHO 2013 Oral Health Assessment Form and the OHIP-14, which measured oral health-related quality of life. The findings of the study showed a statistically significant difference in the oral OHRQoL between smoker users with poor Oral Health-Related QoL and non-smokers. This study shows us that smoking influences OH-related quality of life and that it can indeed contribute to oral health-related problems in tobacco users as compared to nonusers (Ahsan et al., 2021). Forty-five respondents aged between 18 and 70 reside at the People's Housing Project in Kuala Lumpur, Malaysia. Most occupants aged 40 and below who participated in this study occasionally experienced oral discomfort. The general population of the neighborhood from a lower socioeconomic status in an urban area indicates the notable impact of oral health problems either moderately or frequently. Due to financial constraints, satisfaction with these population's oral health status and seeking treatment for their dental problems is hard. (Kuppusamy et al., 2021)

The center of the study was to primarily assess the influence of dental hygiene practices on oral health-related quality of life by age, gender, social history, and socioeconomic status and the questionnaires that will evaluate how oral health conditions can affect the quality of life and their features. It was known that the OHIP-14 is the most often generally used tool to evaluate the adverse influence caused by oral situations on the well-being and quality of life. OHIP-14 is better at evaluating the psychological dimensions of the respondents. The opportunity to combine these subjective indicators in evaluating the respondents as they are good self-assessment analysts of oral health. The creation of a patient-centered treatment plan is made possible in clinical practice by knowledge of Oral Health-Related QoL. Moreover, it enables medical practitioners, whether licensed or in training, to view their patients as more than just a physical issue or component that must be handled. (Campos et al., 2021)

Methodology

Research Design

This study is a quantitative descriptive-correlational study. Descriptive correlational will determine the associations between the influence of dental hygiene and working students' oral health quality of life. Correlational designs help identify one variable's relation to another and the frequency of co-occurrence in two natural groups. In addition, correlational design determines the type and strength of the relationship.

Population and Sampling Technique

The study population comprised working students enrolled in a private institution in Silang, Cavite. Overall, 100 working students participated in this study, wherein convenience sampling was utilized after choosing the study respondents. This non-probability sampling is done for convenience when samples are chosen based on a particular

study criterion and are close to and accessible to the participants. The inclusion criteria of this study were the working students enrolled in the university during the first semester of 2020 and whose ages ranged from 18 to 30. Respondents below and above the study's age range and residing outside the institution were excluded.

Instrumentation

Information was obtained using online survey questionnaires distributed to the participants using Google Forms. There were three parts to the questionnaire. The first part contains the respondent's socio-demographic profile: age, gender, civil status, monthly allowance, workplace, and social history. The second and third parts use a 5-point scale to measure the respondents' level of dental hygiene practice and assess their oral health quality of life. This scale was chosen because it allows for item construction flexibility and quick completion, is most appropriate for measuring the measured variables, and is simple to create and score.

It is a 34-item questionnaire containing 20 item questions for dental hygiene practices (6 for frequency of brushing, 4 for the use of tooth cleaning agent, 4 for method of tooth cleaning, and 6 for dental visits) and 14 item questions for oral health-related quality of life which cover the seven dimensions of impact: functional limitation, physical pain, physical disability, psychological disability, psychological discomfort, social disability, and handicap.

A pilot study was conducted to find any potential weak points in the research instruments before they were used in the main study. The pilot study results show a Cronbach alpha value of greater than 0.7, indicating internal consistency of proximity of a group of items. Moreover, $p = 0.05$ was used as the critical value in all statistical analyses to determine whether the null hypothesis was acceptable.

Analysis of Data

Statistical tests used in the study to interpret the gathered data were descriptive and mean standard deviation in determining the extent of dental hygiene practices and the respondents' oral health-related quality of life. The relationship between dental hygiene practices and oral health-related quality of life was tested using Pearson's *r* Correlation. Differences in variables, when grouped according to age, gender, social history, and socioeconomic status were assessed using ANOVA and T-test.

Ethical Considerations

Before distributing the questionnaire, an application was submitted to the University's Ethics Board, and approval was granted. The consent form was included before answering the attached questionnaire for voluntary participation. Data was obtained with the confidentiality and anonymity of the participants by using their school ID numbers, about which an individual has a reasonable expectation of privacy.

Results and Discussion

Extent of Dental Hygiene Practice

Table 1 shows the perceived interpretation of the respondents' adherence to various aspects of dental hygiene practices. Results show that the respondent's overall dental hygiene practice is satisfactory ($M=2.98 \pm .64$).

Table 1

Mean and Standard Deviation of Dental Hygiene Practices

	Mean	SD	Interpretation
Methods of Toothbrushing	4.03	.906	Very Satisfactory
Frequency of Toothbrushing	3.84	.760	Satisfactory
Use of Tooth Cleaning Agent	2.23	1.133	Poor
Dental Visit	1.83	.962	Very poor
Overall Mean	2.98	.64	SATISFACTORY

Legend: Very Poor=0.00-1.50; Poor=1.51-2.50; Satisfactory=2.51-3.50 Very Satisfactory=3.51-4.50; Excellent= 4.51-5.00

Respondents mostly demonstrate the right technique of toothbrushing. They are compliant in brushing their teeth, but utilizing the right tooth cleaning agent, including the importance of a dental visit, is something they are least likely to practice. The result implies that a portion of the respondents can manage to have a good dental hygiene practice despite their hectic schedules.

The Extent of Oral Health-Related Quality of Life

Table 2 shows the perceived interpretation of the overall impact of the respondents' oral health on their quality of life, which encompasses different factors such as pain, discomfort, functional limitations, psychological well-being, and overall satisfaction with oral care. Results showed a *poor* oral health-related quality of life. ($M=2.465 \pm 1.16$).

Table 2*Mean and Standard Deviation of Oral Health-Related Quality of Life*

	Mean	SD	Interpretation
1. Have you been self-conscious because of the status/appearance of your teeth or mouth?	3.39	1.4134 63	Satisfactory
2. Have you had to interrupt your meals because of problems with your teeth or mouth?	2.77	1.3246 31	Satisfactory
3. Have you had difficulties chewing or drinking because of the problems with your teeth or mouth?	2.48	1.2430 01	Poor
4. Have you avoided smiling because of the appearance of your teeth or mouth?	2.62	1.4339	Satisfactory
5. Have you experienced sleep interruption because of the painful aching in your teeth or mouth?	2.36	1.3447	Poor
6. Have you taken work absences because of a problem with your teeth or mouth?	2.15	1.3586	Poor
7. Have you tried not participating in recreational activities because of a problem with your teeth or mouth?	2.26	1.4538	Poor
8. Have you had difficulty pronouncing words because of problems with your teeth or mouth?	2.24	1.4007	Poor
9. Have you been a bit irritable with other people because of the problem with your teeth or mouth?	2.34	1.4229	Poor
10. Have you felt uncomfortable because of problems with your teeth or mouth?	2.69	1.4473	Satisfactory
11. Has your diet been unsatisfactory because of the problem with your teeth or mouth?	2.32	1.3698	Poor
12. Have you had difficulty interacting with other people because of problems with your teeth or mouth?	2.32	1.3324	Poor
13. Have you felt that life, in general, was less satisfying because of the problems with your teeth or mouth?	2.37	1.4400	Poor
14. Have you been unable to function because of problems with your teeth or mouth?	2.2	1.4284	Poor
OVERALL MEAN	2.465	1.1628 P	Poor

Legend: Very Poor=0.00-1.50; Poor=1.51-2.50; Satisfactory=2.51-3.50 Very Satisfactory=3.51-4.50; Excellent= 4.51-5.00

The OHIP-14 comprises 14 questions, each referring to the seven dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicaps. The result also implies that the respondents enhanced four out of the seven dimensions. Particularly, the highest is on physical disability ($M=3.39 \pm 1.14$) and interpreted as satisfactory. This implies that working students are content with the appearance and status of their teeth or mouth. On the other hand, the second

question "Have you had to interrupt your meals because of the problems with your teeth or mouth?" got the second highest mean ($M=2.77 \pm 1.32$) with a standard deviation of 1.32 satisfactory. It denotes that the respondents have no problem eating their meals even though they experience dental problems.

The two lowest mean is on psychological disability ($M=2.37 \pm 1.44$), which suggests that problems with the teeth or mouth can contribute to the respondents' life in general. Another is on

Question 14, “Have you been unable to function because of the problems with your teeth or mouth?” ($M=2.2 \pm 1.42$ and interpreted as “poor.” This implies that problems with teeth or mouth can affect the respondents’ ability to function.

Relationship Between Dental Hygiene Practices and Oral Health-Related Quality of Life

Table 3 presents the linear regression model between dental hygiene practices and oral health-related quality of life. The analysis was conducted to determine if dental hygiene practices can influence the respondents’ oral health-related quality of life.

Table 3

Correlation Between Dental Hygiene Practices and Oral Health-Related Quality of Life

	<i>N</i>	<i>F</i>	<i>P</i>
Practices	100	-.014	.891
OHRQoL	100		

Legend: Correlation is significant at 0.05 level

The result showed that the overall regression model was not significant, $F (-.014)$ with a p -value of .891. A research study was conducted in Kosova to look for a correlation between dental hygiene practices and oral health-related quality of life. Statistical data shows that there is no correlation between the two. However, a negative interpretation was found on the OHRQoL scores. Although dental hygiene doesn’t contribute to the oral health RQoL, this can be due to only having a small number of respondents, totaling 117. One thing they found in this study is that dental visits can contribute to a better awareness of an N F P Practices 100 100 -.014 .891 OHRQoL 40 individual’s oral health, which can impact their quality of living compared to the other group who does not visit the dental clinic or their dentist. (Fehim Haliti, 2022)

Difference in the Dental Hygiene Practices, Grouped According to Sociodemographic Profile

Tables 4 to 7 present the corresponding interpretations of differences in respondents’ dental hygiene practices when grouped according to their sociodemographic profile, such as age, gender, social history, and socioeconomic status.

Table 4

Mean Standard Deviation of Dental Hygiene Practices According to Age

Age	Mean	SD	Verbal Interpretation
18-20	3.0501	.73491	Satisfactory
21-23	2.8974	.55573	Satisfactory
24-26	2.8150	.47019	Satisfactory
27-29	3.6597	.69854	Very Satisfactory
Overall	2.9856	.64473	Satisfactory

Results revealed that the respondent’s dental hygiene practices, when grouped according to their age ($M=2.98 \pm .644$), are interpreted as satisfactory. This means working students in different age groups can have an appropriate dental hygiene practice despite their busy schedules.

Table 5*Model Summary Regression of the Predictors of Dental Hygiene Practices According to Age*

Independent Variable	Age	Mean Square	F	p	Interpretation
Dental Hygiene Practices	Between Groups	1.229	3.149	.029	Significant
	Within Group	.390			

 $p \leq 0.05$ (probability value)

Table 5 presented the differences in dental hygiene practices when the respondents were grouped according to age. There is a significant difference in dental hygiene practices ($F = 3.149$, $\text{sig} = .029$) between different age groups.

Moreover, Table 6 showed a *significant difference* of .027, which reaches the p-value of ≤ 0.05 . A mean difference of .844 between age groups 24-26 and 27-29 implies that age 27-29 respondents have significantly higher results than respondents belonging to the age group 24-26 regarding their dental hygiene practices. Moreover, the findings correspond with several studies showing that young adults still studying in Japan have better dental hygiene practices and are less prone to dental problems than the elderly. (Yamane-Takeuchi et al., 2016).

Table 6*Mean Difference in Dental Hygiene Practices According to Age*

		Age	Mean Difference	Std. Error	P	VI
Dependent Variable	18-20	21-23	.15272	.14249	.707	Not significant
		24-26	.23516	.18304	.575	
		27-29	-.60961	.27494	.126	
	21-23	18-20	-.15272	.14249	.707	Not significant
		24-26	.08244	.18087	.968	
		27-29	-.76233*	.27349	.032	
Dentail Hygiene Practice	24-26	18-20	-.23516	.18304	.575	Significant
		21-23	-.08244	.18087	.968	
		27-29	-.84477*	.29665	.027	
	27-29	18-20	.60961	.27494	.126	Not significant
		21-23	.76233*	.27349	.032	
		24-26	.84477*	.29665	.027	

Table 7 shows the perceived interpretation of the overall impact of the respondents' gender, social history, and socioeconomic status on their dental hygiene practices. Results showed that there is no significant difference in their dental hygiene practices when variables such as gender ($F=2.94$, $p=.090$), social history ($F=.104$; $p=.079$, $p=208$, 833), socioeconomic status ($F=.977$, $p=.436$) are considered.

Table 7*Mean Difference in Dental Hygiene Practices According to Gender, Social History and Socioeconomic Status*

Dental Hygiene Practices		M	SD	F	p	Interpretation
Gender	Male	2.94	.79245	2.942	.090	Not significant
	Female	3.02	.49732			
Social History	Drinking	Yes	3.08	.104	.196	Not significant
		No	2.91		.208	
	Smoking	Yes	3.01	.079	.833	
		No	2.97			
Socioeconomic Status	Between Groups	.407		.977	.436	Not Significant
	Within Groups	.416				

Difference in the Oral Health-Related Quality of Life Grouped According to Sociodemographic Profile

Tables 8 to 12 present the corresponding interpretations of differences in respondents' dental hygiene practices when grouped according to their sociodemographic profile, such as age, gender, social history, and socioeconomic status.

Table 8*Mean Standard Deviation of Oral Health-Related Quality of Life According to Age*

Age	N	Mean	SD	Verbal Interpretation
18-20	37	2.5019	1.13520	Poor
21-23	40	2.3875	1.25970	Poor
24-26	17	2.4790	.90870	Poor
27-29	6	2.7143	1.52997	Satisfactory
Overall	100	2.4650	1.16282	Poor

Results revealed that the respondent's oral health-related quality of life, when grouped according to their age ($M=2.46 \pm 1.16$ is interpreted as *poor*. This means that age contributes to poor oral health-related quality of life, which suggests a need for interventions to improve oral health awareness among the younger populations. Table 9 presented the differences in dental hygiene practices when the respondents were grouped according to age. There is *no significant* difference in dental hygiene practices ($F = .160$, $sig = .923$ between different age groups.

Table 9*Model Summary Regression of the Predictors of Dental Hygiene Practices According to Age*

Dependent Variable	Age	Sum of Squares	F	p	VI
OHRQoL	Between Groups	.667	.160	.923	Not significant
	Within Groups	133.95			

Table 10 shows the perceived interpretation of the overall impact of the respondents' gender and social history on their oral health-related quality of life. Results showed that there is *no significant* difference in their oral health-related quality of life when variables such as gender ($F=2.94$, $p=.090$), social history ($F=.925$; 227 , $p=.655$, 656 ; $.205$, $.224$) are considered.

Table 10*Mean Difference in Dental Hygiene Practices According to Gender, Social History and Socioeconomic Status*

Oral Health-Related Quality of Life		M	SD	F	p	Interpretation
Gender						
Male		2.56	1.23	2.942	.090	Not significant
Female		2.17	1.05			
Social History						
Drinking	Yes	2.38	1.23	.925	.655	Not significant
	No	2.49	1.05		.656	
Smoking	Yes	2.81	1.18	.227	.205	
	No	2.42	1.15		.224	

Other studies imply that men tend to have better oral health literacy in relation to the Oral Health-Related QoL, resulting in a mean score of 2.56 in males rather than 2.17 in females. It is said to have a better association with oral health quality of life. A study was conducted 2018 in the United Kingdom to raise awareness of oral health among nonsmokers and smokers. Bakri's research team used OHIP-14 and OIDP to determine the oral health-related quality of life among 11,680 respondents who were 16 years of age and above. Results showed that there is no statistical difference between past smokers and those who have never smoked. They found that respondents suffer from poor oral health-related quality of life due to socioeconomic status, general health, and clinical conditions.

Table 11*Mean Standard Deviation of Oral Health-Related Quality of Life According to Socioeconomic Status*

Monthly Allowance	Mean	SD	Verbal Interpretation
500-1000	2.8110	1.18826	Satisfactory
1001-2000	2.7500	1.41142	Satisfactory
2001-3000	2.3571	1.61624	Poor
3001-4000	1.5000	.60609	Very Poor
4001-5000	3.2500	.35355	Satisfactory
no allowance	1.8929	.80740	Poor
Overall	2.4650	.16282	Poor

The result also implies the overall impact of monthly allowance on the respondents' oral health-related quality of life. Mostly, respondents with a monthly allowance ranging from 500-1000 ($M=2.81 \pm 1.18$) were interpreted as *satisfactory*. This implies that the respondents' finances affect their oral health-related quality of life. The same results were interpreted as satisfactory within an allowance of 1001-2000 ($M=2.75 \pm 1.41$) and an allowance of 4001-5000 ($M=3.25 \pm .35$). This means that having even a little resource can lead to good oral health-related quality of life.

Respondents with no allowance ($M=1.89 \pm .80$) resulted in having a "poor" oral health-related quality of life. Results of the study imply that the lack of financial resources shows some correlation with oral health-related quality of life. Table 12 presented the differences in oral health quality of life when the respondents were grouped according to their socioeconomic status. There is a *significant difference* in the oral health quality of life ($F = .349, p=.006$) of the respondents based on their socioeconomic status.

Table 12*Difference in the Respondents' OHRQoL According to Socioeconomic Status*

Oral Health-Related Quality of Life	Sum of Squares	F	p	Interpretation
Monthly Allowance				
Between Groups	20.969	3.492	.006	Significant
Within Groups	112. 893			

Table 13*Mean Difference in Socioeconomic Status Between Different Age Groups*

Independent Variable		Monthly Allowance	Mean Difference	Std. Error	P	VI
OHRQoL	500-1000	1001-2000	.06101	.35370	1.000	Not Significant
		2001-3000	.45387	.79089	.993	
		3001-4000	1.31101	.79089	.563	
		4001-5000	-.43899	.79089	.994	
		no allowance	.91815*	.24565	.004	
	1001-2000	500-1000	-.06101	.35370	1.000	Significant
		2001-3000	.39286	.83700	.997	Not Significant
		3001-4000	1.25000	.83700	.669	
		4001-5000	-.50000	.83700	.991	
		no allowance	.85714	.36797	.193	
	2001-3000	500-1000	-.45387	.79089	.993	Not Significant
		1001-2000	-.39286	.83700	.997	
		3001-4000	.85714	1.09590	.970	
		4001-5000	-.89286	1.09590	.964	
		no allowance	.46429	.79738	.992	
	3001-4000	500-1000	-1.31101	.79089	.563	Not Significant
		1001-2000	-1.25000	.83700	.669	
		2001-3000	-.85714	1.09590	.970	
		4001-5000	-1.75000	1.09590	.603	
		no allowance	-.39286	.79738	.996	
	4001-5000	500-1000	.43899	.79089	.994	Not Significant
		1001-2000	.50000	.83700	.991	
		2001-3000	.89286	1.09590	.964	
		3001-4000	1.75000	1.09590	.603	
		no allowance	1.35714	.79738	.534	
	no allowance	500-1000	-.91815*	.24565	.004	Significant
		1001-2000	-.85714	.36797	.193	Not Significant
		2001-3000	-.46429	.79738	.992	
		3001-4000	.39286	.79738	.996	
		4001-5000				

Results show a significant difference of .004 with a mean difference of .918 between respondents with monthly allowance of 500-1000 and respondents with no allowance. Results of the study imply that respondents with an allowance of 500-100 have significantly higher scores in their oral health-related quality of life than respondents with no allowance. These findings indicated that the presence of monthly allowance affects the respondents' oral health and quality of life. This study helps in becoming aware that socioeconomic imbalances play a considerable role in whether the respondent has a better or worse Oral Health-Related QoL. (Knorst et al., 2020). Previous studies have also shown that a better oral health perception is seen in those with a higher socioeconomic position associated with oral health status and are less likely to experience dental problems (Mejia, et al., 2018).

Conclusion and Recommendation

The study provides insights into the influence of dental hygiene practices on oral health-related quality of life. Working students have satisfactory dental hygiene practices and poor oral health and quality of life. The satisfactory dental hygiene practices and the poor oral health quality of life of working students are quite alarming because it implies that they are just barely doing the right dental hygiene practices and they tend to have a poor oral health quality of life since they have a hectic schedule in juggling work and studies. On the other hand, the relationship between the influence of dental hygiene and oral health quality of life was of no significance, implying that regardless of doing the oral care routine, it does not guarantee a good quality of oral health.

There is also no significant difference in dental hygiene practices between the respondents' sociodemographic profiles, such as gender, social history, and socioeconomic status. The same results were for the oral health-related quality of

life between the respondents' sociodemographic profiles, such as age, gender, and social history. Results only established correlations between age for dental hygiene practices and monthly allowance for oral health-related quality of life.

This study recommends having a program about the importance of dental hygiene practices and addressing dental concerns to the dentist by having access to free dental treatments because they are interested in those that can help lessen their daily expenses. A similar or comparative study on knowledge about dental hygiene and its influence on oral health and quality of life can be done using the same population of different universities and age groups that are above thirty years old and beyond to further assess if the result is consistent with other working students in different universities.

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Alpha-Amylase Inhibitory Activity of Honey Produced by Five Species of Honeybees (*Apis Spp.* and *Trigona Biroi*) Endemic in the Philippines

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The use of alternate organic α -amylase inhibitors, such as honey, can gradually eliminate the dilemma of using potentially hazardous synthetic drugs to maintain the blood glucose levels of diabetic patients within the normal range. Hence, this research analyzed the amylase inhibitory effects of honey produced by bee species that are endemic to the Philippines. Each honey sample was mixed with a solution containing carbohydrates and amylase, and the liberated reducing sugar was measured using spectrophotometry. The inhibitory effect of each honey sample was measured three times, and the results were then compared to those of the control samples. Results revealed that *Apis dorsata* honey (4308 ± 124.18 ug/mL), *Apis breviligula* honey (5370 ± 141.6 ug/mL), *Apis cerana* honey (5458 ± 180.75 ug/mL), and *Apis mellifera* honey (4810 ± 107.47 ug/mL) significantly reduced the amount of produced reducing sugar as compared to the negative control without amylase inhibitor (6316 ± 123.0 ug/mL), p -value = <0.001 . The inhibitory effects of the honeys were 31.49%, 14.83%, 13.46%, and 23.57%, respectively. However, the inhibitory effects of the honeys were still lower compared to the positive control (2966 ± 64.65 ug/mL) with inhibitory effects of 52.52%. Moreover, *Trigona biroi* honey (6360 ± 236.33 ug/mL) was not able to inhibit the amylase activity (-.70%). This study proved that among the five honeys studied, four have inhibitory activity against amylase. To further understand the effects of honeys on blood sugar level, it is recommended to perform in vivo analysis of the honeys.

Keywords: honey, α -amylase inhibition, reducing sugar

The dilemma of requiring synthetic medicines to maintain the blood glucose level in diabetic patients within the normal range can progressively be eliminated with the development of organic α -amylase inhibitors, such as honey. Honey is a sweet natural substance made by honeybees from plant nectar and exudation, commonly used as a healthy and organic alternative for commercial sweeteners worldwide (Cheung et al., 2019). Aside from its nutritional use, honey is one of the best natural therapeutic agents traditionally used to treat and control certain disease conditions such as eye diseases, wounds, diabetes mellitus, and problems of the respiratory, gastrointestinal, and cardiovascular systems (Samarghandian et al., 2017). In addition, studies show that the phytochemical compositions of honey exhibit the following beneficial properties: antidiabetic, antibacterial, antihyperlipidemic, antioxidant, immune booster, anticancer, wound healing, and tissue repair (Ab Hadi et al., 2016; Ciansiosi et al., 2018; Rana et al., 2018). However, despite its potential to be used as an antidiabetic medication, there is a misconception regarding its high carbohydrate content and its suitability for diabetic patients' diets (Olamoyegun, et al., 2018; Bobis et al., 2018). Nevertheless, its hypoglycemic action is directly linked to its antioxidant capacity and specifically functions to inhibit the α -amylase and α -glucosidase enzymes that are in charge of maintaining the body's blood glucose levels (Ali et al., 2020; Ciansiosi et al., 2018).

The enzymes α -amylase and α -glucosidase break down carbohydrates to create a simple sugar that is easily absorbed through the gut mucosa. α -amylase (salivary or pancreatic) targets the long-chain carbohydrates while α -glucosidase targets the shorter carbohydrate chains and disaccharides producing glucose, which in turn causes an increase in the postprandial blood glucose level (Jiang & Ghosh, 2019; Gopinath et al., 2017; Jijith & Jayakumari, 2017). Patients with diabetes experience problems with an increase in blood glucose levels due to a defective mechanism for utilizing glucose in these

individuals. As their blood glucose rises, excess sugar in the blood accumulates, leading to more health complications if uncontrolled (Etsassala et al., 2020; Dinh & Toi, 2018).

Globally, diabetes mellitus has increased in incidence and prevalence, with 422 million individuals affected in 2014, up from 108 million in 1980. In 2019, around 463 million diabetic persons aged 20 to 79 were reported, with the number expected to increase to 700 million by 2045 (World Health Organization, 2009; International Diabetes Federation, 2020). In the Philippines, diabetes mellitus ranked fifth among the ten leading causes of mortality (Department of Health, 2018). This significant increase in diabetes cases has prompted a search for an antidiabetic substance that particularly inhibits α -amylase and α -glucosidase enzymes (Lankatillake et al., 2019).

Currently, oral diabetic drugs approved by the US Food and Drug Administration [US FDA] include acarbose and miglitol (Jiang & Ghosh, 2019). These drugs may differ in structure, but they have a similar mechanism of action. Acarbose bears a resemblance to oligosaccharides, while miglitol resembles monosaccharides. Both reduce the effect of carbohydrates on blood glucose levels through competitive, reversible inhibition of the α -amylase and α -glucosidase enzymes. Nonetheless, the severity of these drugs' side effects is an impedance to their usage, thus emerging the need to discover natural enzyme inhibitors that would not cause adverse side effects (Etsassala et al., 2020, Dinh et al., 2018; Li et al., 2018; Salehi et al., 2019).

Consequently, researchers attempted to work on different organic materials that can substitute as a natural antidiabetic drug (Mohiuddin et al., 2016; Ali et al. 2020; Krishnasree & Ukkuru, 2017; Li et al., 2018; Al-Snafi et al., 2019; Etsassala et al., 2020; Salehi et al., 2019). Organic substances are often effective in the treatment of diabetes. Around the world, their components with low toxicity and minimal to zero adverse effects are renowned therapeutic choices for diabetes treatment (Salehi et

Alpha-Amylase Inhibitory Activity of Honey Produced by Five Species of Honeybees (*Apis* Spp. and *Trigona* Biroi) Endemic in the Philippines al., 2019; Al-Snafi et al., 2019). Organic substances that have gained the interest of researchers include plant extracts and honeybees.

As aforementioned, honey is known to have antidiabetic activity by inhibiting some of the body's enzymes responsible for elevating the blood glucose level. Researchers from India and Malaysia tested and compared the inhibitory activity of different species of bee honey (Krishnasree & Ukkuru, 2017; Ali et al., 2020). However, Soares et al. (2017) and Kek et al. (2017) posit that geographic location influences the composition of the honey that different bee honey species produce. The researchers noted the lack of comparative studies on the inhibition of α -amylase in honey from species of bee present in the Philippines. As a result, that lead to the primary objective of this study, to analyze honeys from five species of bees from the Philippines, specifically *Apis cerana*, *Apis florea*, *Apis dorsata*, *Apis mellifera*, and *Trigona irridipennis*, with the potential to block α - amylase activity.

Methodology

Research Design

This research utilized a quantitative experimental design that structures the study through objective measurements and statistical analyses during treatments. This design explains a particular phenomenon and the causal relationship between the independent and dependent variables. Specifically, a posttest-only control group experimental research design was used since it assessed the inhibition of honeybee samples on the α -amylase (experimental group) after treatment and observation. Results for the control groups were also examined. The amount of reducing sugars produced was quantified to determine the percent inhibition on the α -amylase enzyme and analyze the statistical differences in honey samples' inhibitory effects on the enzyme between bee species. This method enabled the evaluation and comparison of samples collected from the common bee species in the Philippines for their ability to inhibit α -amylase.

This study examined experimental and control groups. Five experimental groups in this study corresponded to the number of bee species tested. Each experimental group was composed of carbohydrate solution and enzyme (α -amylase), treated with one of the following bee honey species: *Apis breviligula*, *Trigona biroi*, *Apis dorsata*, *Apis mellifera*, and *Apis cerana*. For the control groups, there were two: positive and negative. The positive control included carbohydrate solution and enzyme treated with acarbose (enzyme inhibitor). In contrast, the negative control included the same mixture (alpha-amylase and carbohydrate solution) but exempting the honey samples and acarbose.

Population and Sampling Technique

The subjects of interest for this study were honeys from bee species commonly found in the Philippines. Yap (2018) and Taculao (2020) mentioned that *Apis dorsata*, *Apis breviligula*, *Tetragunola biroi*, *Apis mellifera*, and *Apis cerana* are commonly found in the Philippines. This study collected honey samples from the bee species from a registered bee farm in Balete, Batangas.

Instrumentation

This research used laboratory experiments to determine the percent inhibition of honey from common bee species in the Philippines on the α -amylase enzyme. The researchers adopted methods Li et al. (2018) utilized in evaluating the α -amylase inhibition activity of organic substances.

During the measurement of the inhibitory activity of honey samples on α -amylase, the enzyme activity was evaluated through the saccharogenic method. In a saccharogenic method, the enzyme hydrolyzes a complex carbohydrate substrate, producing simpler carbohydrate molecules with reducing properties. The presence of the products (reducing sugars) formed upon hydrolysis is determined using an indicator reagent. In this study, 3,5-Dinitrosalicylic acid was used to react with any reducing sugars present via their free carbonyl

group, resulting in the formation of 3-amino-5-nitrosalicylic acid, which effectively absorbs light at a specific wavelength (Orbit Biotech, n.d.). The reduction in absorbance of the solution caused by the lower amount of reducing sugars liberated because of the honey treatment was used to express the enzyme inhibitory activity.

In the α -amylase inhibition assay, the absorbance of the reducing sugars in the solution was measured using a spectrophotometer (GENESYS 10S UV-VIS). A spectrophotometer is a device for measuring the light intensity that a sample absorbs to determine the concentration of a solute in a solution. By evaluating the quantity of reducing sugars the experimental and negative control groups generated, the α -amylase inhibitory activity of the various honey samples was identified.

Data Gathering Procedures

The experiment for this study was carried out in a laboratory in Los Baños, Laguna. Before the implementation of the experiment, the researchers obtained permission from the Ethics Review Board (ERB) to conduct the study. After the approval, the materials and the samples (honey from different bee species) were purchased from the respective suppliers. Samples of honey were purchased from a registered bee farm in Balete, Batangas, Philippines.

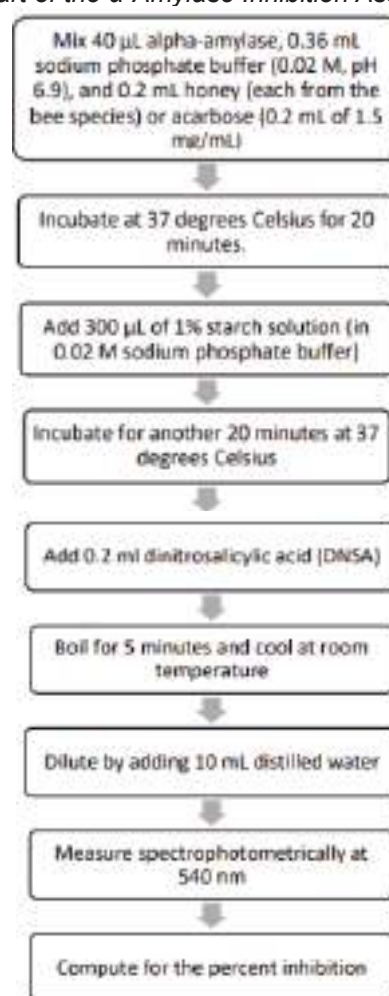
Alpha-Amylase Inhibition Assay

In the α -amylase inhibition assay, the researchers utilized the same procedure Li et al. (2018) used with some modifications (Figure 1). 40 μ L α -amylase, 0.36 mL sodium phosphate buffer (0.02 M, pH 6.9), and 0.2 mL honey (200mg/mL) or 0.2 mL of acarbose (1.5 mg/mL) were mixed and incubated at 37 degrees Celsius for 20 minutes. Afterward, 300 μ L of 1% starch solution (in 0.02 M sodium phosphate buffer) was added, and the solution was incubated for another 20 minutes at the same temperature. 0.2 mL of dinitrosalicylic acid (DNSA) was added after incubation, and the solution was allowed to boil for 5 minutes to stop the reaction and cool at

room temperature. The mixture was diluted by adding 10 mL of distilled water, and its absorbance was measured spectrophotometrically at 540 nm. The measured absorbance corresponds to the concentration of reducing sugars in the solution. An identical approach was used for the negative control, but neither honey nor acarbose was included. All in all, 35 solutions were prepared—five samples for each of the five honeys and five samples for each positive and negative control group.

Figure 1

Flowchart of the α -Amylase Inhibition Assay



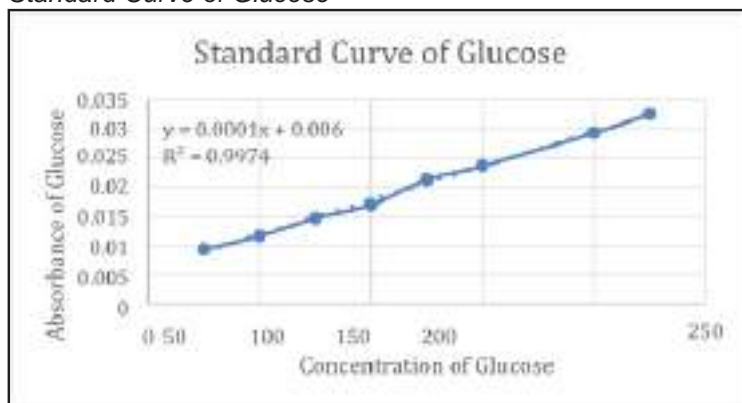
A calibration curve was created by measuring the absorbance of the standard glucose solutions. A calibration curve is used to identify the unknown concentration of a substance in a sample by

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$$\text{Concentration in ug/mL} = \frac{\text{Absorbance} - 0.006}{0.0001}$$

Figure 2

Standard Curve of Glucose



The inhibition effect of honey was determined by calculating the difference in the absorbance of the negative control and the sample, dividing it by the absorbance of the negative control, and multiplying the result by 100. The formula is shown below:

$$\text{Inhibitory Effect} = \frac{\text{Negative Control Absorbance} - \text{Sample Absorbance}}{\text{Negative Control Absorbance}} \times 100$$

Analysis of Data

Statistical Package for Social Sciences (SPSS) software was used to analyze the data acquired throughout this study. The descriptive study of the enzyme inhibitory activity of the honey samples utilized mean, percentage, and standard deviation. The amount of reducing sugar produced by the control and experimental groups were compared, and a one-way Analysis of Variance (ANOVA) was used to see if there was a significant difference in the enzyme inhibitory activity of the various honey samples. Furthermore, post hoc analyses, specifically the Dunnett t-test and Tukey test, were carried out after the analysis of variance. In the analysis of reducing sugar, the means of each experimental group were compared to the means of the control groups using the Dunnett t-test. On the other hand, the Tukey test was used to compare the mean of the percent inhibition of each honey species.

Results and Discussion

Reducing Sugar

Five samples were examined for the negative control group and five samples were tested for the positive control group to determine the amount of reducing sugars generated. Additionally, five samples of each type of honey were examined. The ranges of the amount of reducing sugars produced by the experimental and control groups are presented in Table 1. The group with the least amount of reducing sugar is the Acarbose (2966 ± 64.7), followed by *Apis Dorsata* (4308 ± 124.2), *Apis Mellifera* (4810 ± 107.5), *Apis breviligula* (5370 ± 141.6), *Apis cerana* (5458 ± 180.7), the negative control group (6316 ± 123.0), and lastly, *Trigona biroi* (6360 ± 236.6).

Table 1*Descriptive Statistics of Reducing Sugar Produced by the Experimental and Control Groups*

Sample	N	Mean	SD	Minimum	Maximum
Apis dorsata	5	4308	124.2	4170	4490
Apis mellifera	5	4810	107.5	4720	4970
Apis breviligula	5	5370	141.6	5230	5600
Apis cerana	5	5458	180.7	5230	5630
Trigona biroi	5	6360	236.3	6060	6700
Acarbose	5	2966	64.7	2900	3060
Negative Control	5	6316	123.0	6140	6480

The comparison of the reducing sugars produced by the experimental group with the negative control group using a one-way ANOVA is shown in Table 2. The statistical analysis revealed a significant difference ($p < 0.001$) between the groups. The null hypothesis was thus rejected. The samples treated with honey and the negative control group produced significantly varying amounts of reducing sugar.

Table 2*One-way Analysis of Variance in the Amount of Reducing Sugar by α -Amylase Inhibitors and the Negative Control*

F	df1	df2	p
321	6	28	<.001

A post hoc test using Tukey's revealed that among the five species of honeybees, only the samples treated with Trigona biroi honey did not significantly differ from the negative control group in terms of the amount of reducing sugars generated, as shown in Table 3.

Table 3*Tukey's Post-Hoc Test of the Comparison of the Reducing Sugar Produced by the α -Amylase Inhibitors and the Negative Control Group*

		Apis breviligula	Apis cerana	Apis mellifera	Trigona biroi	Acarbose	Negative Control
Apis dorsata	Mean difference	-1062	-1150.0	-502	-2052	1342	-2008.0
	p-value	<.001	<.001	<.001	<.001	<.001	<.001
Apis breviligula	Mean difference	—	-88.0	560	-990	2404	-946.0
	p-value	—	0.963	<.001	<.001	<.001	<.001
	Mean difference		—	648	-902	2492	-858.0
	p-value		—	<.001	<.001	<.001	<.001
	Mean difference			—	-1550	1844	-1506.0
	p-value			—	<.001	<.001	<.001
	Mean difference				—	3394	44.0
	p-value				—	<.001	0.999
	Mean difference					—	-3350.0
	p-value					—	<.001

Alpha-Amylase Percent Inhibition

Five samples for each type of honey were tested, and the α -amylase percent inhibition of each sample was determined by comparing the amount of reducing sugars they produced to the amount of reducing sugar produced by the negative control group. Table 4 shows the ranges of the α -amylase percent inhibition of each honey sample. The honey with the most percent inhibition is the *Apis dorsata* (31.49 \pm 1.41%), followed by *Apis mellifera* (23.58 \pm 2.87%), *Apis breviligula* (14.83 \pm 1.67%), *Apis cerana* (13.46 \pm 2.18%), and lastly, *Trigona biroi* (-0.66 \pm 1.82%). On the other hand, the percent inhibition by Acarbose is 52 \pm 1.52%)

Table 4

Descriptive Statistics of the Alpha-Amylase Percent Inhibition by α -Amylase Inhibitors

Inhibitor	N	Mean	SD	Minimum	Maximum
<i>Apis dorsata</i>	5	31.49	1.41	30.43	33.80
<i>Apis mellifera</i>	5	23.58	2.87	20.48	26.91
<i>Apis breviligula</i>	5	14.83	1.67	13.46	17.47
<i>Apis cerana</i>	5	13.46	2.18	10.95	15.29
<i>Trigona biroi</i>	5	-0.66	1.82	-3.36	1.29
Acarbose	5	52.522	1.52	50.79	54.43

The increase in blood sugar level is partially dependent on the rate of glucose absorption, which the amylase enzyme could regulate as it digests the carbohydrates ingested (Nair et al., 2013; Zhang et al., 2020; Etsassala et al., 2020). As per the findings of this study, the four common bee honey species found in the Philippines—*Apis dorsata*, *Apis mellifera*, *Apis breviligula*, and *Apis cerana*—produce honeys that have hypoglycemic properties due to their activity in inhibiting the α -amylase enzyme.

Compared to the negative control group, the amount of reducing sugars liberated from the complex carbohydrate treated with honeys from the four bee species was significantly lower. Specifically, reducing sugars produced by the solutions treated with *Apis dorsata*, *Apis mellifera*, *Apis breviligula*, and *Apis cerana* honey at the concentration of 200mg/mL were lower by 31.49%, 23.58%, 14.83%, and 13.46%, respectively, compared to the solution without the treatment of honey. This showed that, in comparison to the negative control group, the honeys from the four species of honeybees were able to inhibit the activity of amylase enzymes, which slowed the digestion of carbohydrates, similar to the findings of Krishnasree and Ukkuru (2017). A decrease in the amount of reducing sugar liberated can be used to express the enzyme inhibitory activity.

Acarbose produced the least amount of reducing sugars compared to the experimental and negative control groups. This indicates that among all the groups, the synthetic amylase inhibitor (acarbose) treatment has the most effective enzyme-inhibiting property that decreased the rate of carbohydrate breakdown by preventing the amylase enzyme from converting complex carbohydrates into a simpler sugar. This finding is also comparable with that of Krishnasree and Ukkuru (2017), wherein acarbose showed higher percent inhibition than the honey samples. Nonetheless, the four honeybees—*Apis dorsata*, *Apis breviligula*, *Apis cerana*, and *Apis mellifera*—still manifest α -amylase inhibition. Inhibiting the α -amylase enzyme is merely one of honey's several ways of lowering blood sugar levels. (Naseem et al., 2016; Naznin et al., 2017; Ghandi et al., 2020; Pasupuleti et al., 2020).

Apis dorsata showed the strongest α -amylase inhibition activity in this study. This finding differs from the study by Krishnasree and Ukkuru (2017), which revealed that *Trigona* spp. has the highest inhibitory effect among the honey species. Moreover, in their study, *Apis dorsata* also showed a higher percent inhibition in most concentrations than the other species excluding *Trigona* spp.

The phenolic content of the honey was believed to be responsible for its capacity to suppress the activity of α -amylase, as pointed out by Ali et al. (2020) and Pasupuleti et al. (2016). There is a considerable difference between the inhibitory actions of the honeys, according to the results of the α -amylase inhibition assay. Only the *Apis breviligula* and *Apis cerana* do not significantly differ. The rest of the honey species showed significant differences between each other. This study showed similar results to the study conducted by Krishnasree and Ukkuru (2017) wherein it was concluded that the enzyme inhibition of honeys from different honeybee species was significantly different. The difference in the composition and quality of the honey produced by the different honeybee species contribute to the α -amylase inhibition activity of the sample, as explained by Soares et al. (2017), Kek et al. (2017), Tomczyk et al. (2019), and Ali et al. (2020).

Conclusion and Recommendation

This study concludes that at the concentration of 200 mg/mL, honeys from *Apis dorsata*, *Apis mellifera*, *Apis breviligula*, and *Apis cerana* exhibited an inhibitory effect on α -amylase activity by lowering the amount of reducing sugars produced. Moreover, this study proved that honeys produced by different species of honeybees differ in terms of α -amylase inhibitory activity. Compared to the other honeybee species common in the Philippines, *Apis dorsata* produced honey with the highest α -amylase inhibitory activity. In contrast, honey produced by *Trigona biroi* did not inhibit the activity of α -amylase.

This study recommends informing the public

that honey samples from different honeybee species have varied α -amylase inhibitory activities, which can impact health. It is recommended that different concentrations of honey samples in the α -amylase percent inhibition assay be included to further determine which concentration would be comparable to the alpha-amylase percent inhibition of acarbose. Moreover, since α -amylase inhibition is just one of the ways that honey lowers blood sugar levels, the researchers recommend determining the antidiabetic activity of honey in vivo.

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Knowledge and Awareness of Telehealth Among Selected Residents in Cavite: A Basis of Promotion Program

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Telehealth is one of the leading eHealth innovations used worldwide to reach people due to the restrictions during the COVID-19 pandemic, offering multiple benefits and advantages. The use of telehealth is still new in the Philippines. This study aimed to determine the level of knowledge and awareness regarding telehealth among selected residents of Cavite province in the Philippines. Based on the results, the study also created a promotional program to promote telehealth. Purposive sampling consisted of 121 respondents who consented to participate in this study. Results show that the overall level of knowledge about telehealth is high. The overall level of awareness of telehealth is moderate. There was a significant relationship between the knowledge and awareness of the respondents about telehealth. When their profiles were considered, there was no significant difference in the respondents' awareness of telehealth in terms of age or sex. However, there is a statistically significant difference in the respondents' socio-economic status, primarily between those earning 81,832 pesos and above and those earning less than 11,960 pesos. With these results, the promotional program created a brochure that presents the study's findings, the basic information, contact numbers, and the government website for telehealth that provides support and information regarding the advantages of utilizing the system. The brochure was disseminated to the selected local barangays in Cavite, and a copy of the study in IMRAD format was shared with the Knowledge Management and Information Technology Service of the Department of Health of the Philippines.

Keywords: *telehealth, knowledge, awareness, promotion program, age, sex, socioeconomic status*

The declaration of the worldwide COVID-19 pandemic in March 2020 led the Philippines to implement travel restrictions and quarantine protocols. To reduce the spread of the virus, healthcare systems had to adjust to remote delivery. It was difficult to accommodate patients and differentiate between those who have COVID-19 and those who are not infected. Research supports the use of telehealth for public safety and asserts that it improves the delivery of healthcare during restrictions such as those brought about by the pandemic (Monaghese & Hajizadeh, 2020; Bagayoko et al., 2014). Telehealth is the practice of delivering medical treatment outside of traditional medical institutions utilizing telecommunications and virtual technologies, according to the World Health Organization (WHO). The most fundamental component of “eHealth,” which makes use of a more comprehensive array of information and communication technologies, is telehealth, which only requires access to telecommunications.

Despite the many advantages of telehealth, several obstacles must be overcome for it to be successful. In the Philippines, challenges range from inadequate internet connectivity, poor cellphone coverage, technological illiteracy in some segments of the population, and a lack of access to devices. According to the Centers for Disease Control and Prevention (2020), low understanding and awareness of telemedicine may be due to worries about negative results and disparities in diagnosis and treatment between virtual and in-person consultations. Moreover, concerns about remuneration, liability, and inadequate training are other problems faced by primary care physicians (Gajarawala & Pelkowski, 2021). According to the National Telehealth Center of the Philippines, there are 416 telemedicine sites in the whole country that provide telehealth services, such as teleconsultations and R4Health, or Real-time Regular Reporting for health. But despite the number of telemedicine sites and

available telehealth services, only 24% of patients had used telehealth, and 29% intended to use telehealth, even during the pandemic.

The United Nations Sustainable Development Goals state that fostering well-being at all ages and ensuring healthy lifestyles are crucial to sustainable development. It seeks its place to contribute to the body of knowledge that the Philippines needs today in the modern responsive health system. Telehealth is now a safe and essential tool, especially during times when restrictions on personal mobility exist, such as the community quarantines during the pandemic. Telemedicine consultations have been useful in the fields of psychiatry, chronic diseases, and wound care (Castro et al., 2018).

This study's purpose was to determine the respondents' level of knowledge and awareness of telehealth, the relationship between their knowledge and awareness, and the difference in the awareness of telehealth when age, sex, and socio-economic status are considered. Based on the results of the study, a promotional program was created to promote telehealth among the respondents.

Methodology

Research Design

In this quantitative study, a descriptive-correlational design was used. Descriptive research is a well-known market technique that allows researchers to gather data and define the characteristics of each respondent's profile (Voxco, 2022). The researchers also used a correlational design to determine whether there is a relationship between the respondents' knowledge and awareness of telehealth. Additionally, the researchers also determined whether there would be a significant difference in the respondents' awareness when the profiles of the respondents were considered.

Population and Sampling Technique

The study used non-probability sampling while following a set of inclusion criteria. The inclusion criteria for the respondents are that they are Filipinos 18 years old and older, have access to a smartphone or laptop, and know how to answer either a Google Form or a printed questionnaire. A total of 121 individuals participated in this study.

Instrumentation

The researchers adapted a three-part questionnaire that was distributed either as a paper-based questionnaire or as a Google Form sent to the respondents' email. The first part asked about the demographic profile of the respondents, including their age, sex, and combined family monthly income.

The second part is a set of 10 statements that measure the respondents' knowledge of telehealth by answering either true or false. The third part of the questionnaire is a set of statements that measure the respondents' awareness of the accessibility of telehealth. The respondent's awareness was measured on a five-point Likert-type scale from extremely aware (5), moderately aware (4), somewhat aware (3), slightly aware (2), and not at all aware (1). The questionnaire was tested for reliability using Cronbach's alpha, obtaining a high-reliability index of .8 and .9 for Awareness and Knowledge, respectively.

Table 1

Reliability Statistics of the Scales Used

	Cronbach's Alpha	Number of Items
Knowledge	0.90	10
Awareness	0.845	10

Analysis of Data

The study used various statistical tools, from the reliability test of the result of the pilot study to the data gathered in the actual data gathering. The statistical software Jamovi, version 2.3, was used. A descriptive table with the mean reported the level

of knowledge and awareness of telehealth. The Pearson coefficient was also used to determine the relationship between the respondents' knowledge and their awareness of telehealth. Furthermore, one-way ANOVA (non-parametric), one-way ANOVA (Welch's), Mann-Whitney U or Wilcoxon Rank-Sum Test, Dwass-Steel-Critchlow-Fligner pairwise comparisons, and assumption tests such as the normality test (Shapiro-Wilk) and the homogeneity of variances test (Levene's) were also used to determine the significant difference in the awareness of the respondents in regards to their age, gender, and socio-economic status.

Ethical Considerations

The research was carried out in line with the principles of human research ethics and was reviewed by the ethics review board of the educational institution. The researchers took measures to maintain confidentiality with the respondents' data. Before delivering any research methods, the researcher explained the study's goals to the key informants and obtained informed consent. During the study, voluntary participation was emphasized, as the respondents were given the option to disengage from the study at any time should they choose to do so. Only the researchers and the adviser had access to the information on the respondents.

Results and Discussion

Level of Knowledge on Telehealth

This section presents the respondents' level of knowledge of telehealth based on their responses to the questionnaire.

Table 2 shows the items that have a very high level of knowledge were from the item where it states that "telehealth is the use of telecommunication to provide medical information and services" (100%), "patient management with drugs can be done through telehealth" (90.1%), and "follow-up of patients can be done through telehealth" (89.3%). These results show that the majority of the

respondents have knowledge of what telehealth is and are most likely to have heard about it or have already used it to obtain health care services. There are indications that the respondents have used telehealth and have a general knowledge of its functions in healthcare. According to Gajarawala and Pelkowski (2020), telehealth is “the use of telecommunications technology in the delivery, information, and education of health care.”

On the one hand, items that presented a high level of knowledge were “Direct full consultation of patients is possible through telehealth” (79.3%), “Telehealth consultation with patients through another professional via the internet is common” (87.6%), “Patients’ examinations can be communicated through telehealth” (74.4%), and “Patients’ investigations can be communicated through telehealth” (76.9%). This implies that most respondents know that through telehealth, physicians can reach their clients from anywhere and have consultations with other professionals via the Internet. Since most respondents know this, they understand that they need the internet and gadgets. Telehealth consultations allow healthcare clinicians to give healthcare services and information directly to patients in distant places, mitigating access challenges related to distance and travel, waiting hours, cost, and restricted patient and clinician time (Truong et al., 2022). According to Horrell et al. (2021), in the future, patients and medical professionals will continue to connect through text-based telemedicine.

The item that yielded an average level of knowledge was the management of patients,

including surgical procedures through telehealth (53.7%). This indicates that the respondent in the study somehow knows that telehealth can be used to manage patients, including surgical procedures. There is a possibility that not all respondents have used telehealth to manage surgical procedures, which explains the average result. Telemedicine is currently being utilized to provide pre-and post-operative surgical consultation monitoring and educational opportunities for surgeons. Telemedicine has expanded into the area of surgery, allowing for remote pre- and post-operative consultations, monitoring, and even worldwide surgical teleconferencing and education (Asiri et al., 2018). The last item that shows the respondents have a low level of knowledge was that patients’ electronic medical records could be maintained through telehealth (9.1%). This indicated that the majority of the respondents in the study have only a low level of knowledge of this aspect of telehealth.

Overall, the respondents’ knowledge level is high, with the percentage of total correct answers being 75.7%. This indicates that even though some items present very low and average levels of knowledge, overall, all the respondents’ understanding of telehealth, facts, and information is known. Various aspects, including knowledge, understanding, learned skills, and working environment, determine the success of every modern technology. This is true for any new medical technology, such as telehealth, where it is essential to understand its principles and people’s understanding for it to thrive (Zayapragassarazan, 2016).

Table 2

Level of knowledge of the respondents on Telehealth

I know that:	% of the total correct answer	Qualitative Description
1. Telehealth uses telecommunication to provide medical information and services.	100	Very High
2. Patient management with drugs can be done through telehealth	90.1	Very High
3. Direct, full consultation with patients is possible through telehealth.	79.3	High

[table continues on the next page]

4. Telehealth Consultation of patients through another professional via the Internet is common	87.6	High
5. Patients' examination can be communicated through telehealth	74.4	High
6. Patients' investigations can be communicated through telehealth.	76.9	High
7. Patient follow-ups can be done through telehealth.	96.7	Very High
8. Management of patients, including surgical procedures, through telehealth.	53.7	Average
9. Electronic medical records of patients' registration can be maintained through all telehealth	9.1	Very Low
10. Health care through the Internet is a recognized service.	89.3	Very High
Overall Knowledge	75.7	High

Legend: 100-81% =Very High; 80-61% =High; 60-41% =Average; 40-21% =Low; 20-0% =Very Low

Level of Awareness of the Respondents of Telehealth

This section presents the descriptive statistics for the respondent's responses to the level of awareness of Telehealth, of which, according to the table below, there were two items interpreted as extremely aware.

Table 3

Level of Awareness of the Respondents of Telehealth

I am aware that:	Mean	SD	Qualitative Descriptor
1. The Department of Health offers telehealth services as part of the Prevent, Detect, Isolation, Treat, and Reintegration strategy of the government against COVID-19.	4.33	0.907	Moderately Aware
2. My local government promotes telehealth in the provision of health services to its constituents.	3.74	1.196	Moderately Aware
3. Telehealth is a program supported by the national government, especially during this time of pandemic.	4.31	0.866	Moderately Aware
4. Internet connection is very important when it comes to online consultation.	4.75	0.609	Extremely Aware
5. Telehealth can facilitate health education for me.	4.46	0.764	Moderately Aware
6. Telehealth can be accessed by anyone, regardless of age, gender, nationality, and location.	4.20	1.145	Moderately Aware
7. Telehealth can be very convenient to use.	4.40	0.832	Moderately Aware
8. Telehealth can save me time.	4.59	0.628	Extremely Aware
9. Telehealth can potentially reduce delays in healthcare consultation	4.48	0.786	Moderately Aware
10. Telehealth can be cost-saving in terms of transportation to medical checkups.	4.70	0.614	Moderately Aware
Awareness Level	4.40	0.552	Moderately Aware

Legend: Mean = 5.00 – 4.50 extremely aware; 4.49 – 3.50 moderately aware; 3.49 – 2.50 somewhat aware; 2.49 – 1.50 slightly aware; 1.49 – 1.00 not at all aware SD =Standard Deviation

Based on the table above, the first item had a mean of 4.75 (SD= 0.609), and Telehealth can save my time with a mean of 4.59 (SD= 0.628). The items that revealed a moderately aware level of awareness were the Department of Health offers Telehealth service as part of the Prevent, Detect, Isolation, Treat, Reintegration strategy of the government against COVID-19 with a mean of 4.33 (SD: 0.907), My local government promotes telehealth in the provision of health services to its constituents with a mean of 3.74 (SD: 1.196). Internet connection is very important when it comes to online consultation with a mean of 4.75 (SD: 0.609), Telehealth can facilitate health education for me with a mean of 4.46 (SD: 0.764), Telehealth can be accessed by anyone anyone despite of their age, gender, nationality, and location with a mean of 4.20 (SD: 1.145), Telehealth can be very convenient to use with a mean of 4.40 (SD: 0.832), can potentially reduce delay of health care consultation with a mean of 4.48 (SD: 0.786) and can be cost saving in terms of transportation to medical checkups with a mean of 4.70 (SD: 0.614) Thimbleby, 2018 claims that developing countries need to catch up in implementing technology to save costs and raise the standard of healthcare.

Telehealth presents a solution for removing the barriers to treatment. Developing countries have quickly embraced telehealth technology without adequate planning or strategy. Even after more than two decades of telehealth use, less developed nations still need to significantly improve access to treatment or cut care costs. According to Ajello (2021), it has been discovered that women are more likely than males to participate in telehealth. Another study supported by Choi et al. (2021) says that in logistic regression models excluding technology-enabling features, age and income were negatively linked with telehealth usage. However, this correlation disappeared after these variables were included. Providing older people access to information and communication technologies and the internet may improve health outcomes and the

quality of telehealth care. The average degree of telehealth awareness among Filipinos is 4.40, with a 0.552 standard deviation. These results show that Filipinos in the Cavite region have a moderate awareness of telehealth.

Relationship Between the Knowledge of the Respondents and Awareness of Telehealth

Table 4 presents the relationship between respondents' knowledge and the awareness of telehealth among 121 Filipino respondents in the Cavite Area, which was examined using a Pearson product-moment correlation.

Table 4

Relationship Between the Knowledge of the Respondents and Awareness of Telehealth

		Awareness Level	VI
Knowledge Level	Pearson's r	0.297	
	p-value	<.001	Significant

Note: Significant at $P < 0.05$, VI = verbal interpretation

There is a significant relationship between the knowledge and awareness of the respondents, and there is very strong evidence to reject the null hypothesis. It implies that the higher the respondents' awareness of telehealth, the more knowledgeable they are naturally. According to the premise, "if individuals have a better knowledge of the environment and the problems it faces, they will also have a greater awareness of those issues and a greater desire to behave in ways that are more considerate of the environment Aminrad et al., (2013). Another study by Trevethan (2017) implies that knowledge and awareness are frequently ambiguous. Although they are regularly used interchangeably without causing any issues, these words occasionally seem to have different intended meanings that are either not made apparent or, when they are, are not followed. When knowledge and awareness are intended to stand for various areas, obscurities must be addressed. This happens when

knowledge and awareness are compared to one another, as well as when they are evaluated individually in connection to factors including health behavior, physical, psychological, or socioeconomic situations, gender, age, and ethnic backgrounds.

Difference in the Level of Awareness in Terms of their Age, Sex and Socio-Economic Status

This section presents the significant difference in the level of awareness of age, sex, and socioeconomic status of the respondents, using Welch's T-test. The results show no significant difference in the respondents' awareness when age is considered.

Table 5

Significant Difference in the Level of Awareness in Terms of their Age, Sex and Socio-Economic Status using Welch's T-Test

Profile	p-Value	VI
Age	0.453	Not Significant
Sex	0.606	Not Significant
Socio-economic status	0.011	Significant

Legend: Significant at $P < 0.05$, VI= Verbal Interpretation

Due to the proximity of the ages, there is insufficient information to conclusively demonstrate any significant differences in the results of respondents between the ages of 18-24, 25-44, and 45-64 ($p = 0.453$). As a result, notable variations in responses within the age group were not discovered; rather, they were seen when contrasted against much older age groups. According to the results, there is also no significant difference in the awareness level of the respondents when grouped according to sex ($p = 0.606$), which implies that both female and male respondents have the same level of awareness. According to the study by Khatun et al. (2017), even though women are less likely than men to be readily available in terms of services and awareness, both genders have high intentions of using telehealth.

Lastly, the table presents a significant difference in the awareness of the respondents when respondents' socioeconomic status is considered ($p = 0.011$). Diverse socioeconomic status and its implications, such as inferior educational success, poverty, and poor health, ultimately have an impact on access to e-health. This is supported by Brawell (2021), who says that the data raises the concern that patients from lower socioeconomic areas may face more challenges when attempting to access non-urgent surgical care via telehealth, possibly due to a lack of availability of key technologies like reliable high-speed internet or devices with audio-visual conferencing capabilities.

Table 6

Post Hoc Analysis of the Difference in the Level of Awareness of Socio-Economic Status using Dwass Steel Critchlow Fligner Pairwise Comparisons

		W	P-Value	Remark
81, 832 pesos and above	Less than 11,960 pesos	-4.545	0.011	Significant

The table presents the post hoc analysis of the difference in the level of awareness using the Dwass-Steel-Critchlow-Fligner pairwise comparisons, which is a two-sided, nonparametric procedure that provides family-wise error rate protection (NCSS Statistical Software, n.d.). The level of awareness

between respondents earning 81,832 pesos and above and those earning less than 11,960 pesos is significantly different from each other ($W = -4.545$, $p = 0.011$). This implies that those who have high socio-economic status have a higher level of awareness of telehealth compared to individuals with lower socio-economic status. This finding is similar to the study of Nadkarni and Hasler (2020), which revealed that socioeconomic factors, such as internet connection and possession of electronic gadgets and telephones, have a significant impact on patient access to telehealth. Furthermore, unequal access to resources is inherent in an individual's social status and can have a negative impact on an individual's life opportunities.

Promotion Program

Based on the results of the study, the researchers created an original brochure that contains the results of the study regarding the respondents' level of knowledge of telehealth. The researchers found out that the majority of the respondents have a very high level of knowledge regarding telehealth. However, in the statement "electronic medical records of patients' registration can be maintained through all telehealth," 90.9% of the respondents got the wrong answer, which means that their level of knowledge is very low. In addition, the statement "management of patients, including surgical procedures through telehealth," is based on the result that the respondent has an average level of knowledge. Therefore, one of the basic promotion programs to address these issues is to create brochures giving information that not all telehealth programs can maintain electronic medical records of patients' registration. Included are quotes that support the content of what telehealth aims to accomplish. According to Ajello (2021), the benefits and limitations of telehealth must be explained in the organization's brochure. Brochures can be utilized to provide information regarding patients' management of drugs, direct full consultation, professional referrals,

patient examination, and patient investigation. A website that offers clear content that is easy to read, visually appealing, and fast retrievable, with intuitive instructions, and requires the least number of clicks is also appealing (Ajello, 2021). Photographs on the brochures and websites showing actual patients or physicians utilizing the system will capture the viewer's attention and increase interest.

The overall level of the respondents' awareness is moderate. In particular, awareness of the local government's promotion of telehealth had the lowest mean, 3.74. This means that the local government units must promote telehealth since citizens can now conduct teleconsultations through hotlines, websites, and mobile applications developed by numerous organizations and companies. The Department of Health (DOH), Medgate, KonsultaMD, Medifi, HealthNow, AIDE, DOCPH, Yo-Vivo Health, and Lifeline are examples of these. Some doctors even have their own Facebook and Viber accounts and use those services to conduct online consultations (Cordero, 2022). Displaying posters on barangay center bulletin boards and posting infographics on the barangay's official Facebook page may also be done (Dean et al., 2019).

Awareness of telehealth includes knowledge that it is a program supported by the national government, facilitates health education, is accessible by anyone regardless of age, gender, nationality, and location, is convenient to use, and reduces the delay of health care consultation. Timely articles, newsletters, press releases, and other publications can be key in promoting telehealth because doctors, case managers, and potential clients are reached by newspapers and other forms of mass media (Ajello, 2021). Low socioeconomic status also affects the knowledge and awareness of the respondents to telehealth. According to Jezewski et al. (2022), telehealth can be used by someone with internet access through a smartphone. Income and the capacity to pay for

telehealth-compatible devices are important social determinants. Because smartphones, desktops, and laptops can be expensive, individuals with lower socioeconomic status are sometimes hindered from accessing telehealth.

The brochure was disseminated to the selected local barangays in Cavite. Then, a copy of the study in IMRAD format was shared with the Knowledge Management and Information Technology Service of the Department of Health of the Philippines. It may be noted that while telehealth services are growing in popularity in high-income nations, their use in low-income nations still needs improvement. This issue must be resolved if telehealth is to reduce health disparities and enhance the provision of preventive services in the future (Jezewski et al., 2022). Promotions, lowering the total cost of treatment, enhancing the general standard of care, and enhancing population and community health outcomes should be among the priorities of healthcare organizations.

Conclusion and Recommendation

There is a high level of knowledge and moderate awareness about telehealth among the Filipinos residing in the province of Cavite, particularly in the municipalities of Silang and Imus. A high level of knowledge strongly correlates with an awareness of telehealth. The study found that there is no significant difference when the age and sex of the respondents are considered. However, there is a significant difference when the socio-economic status of the respondents is taken into account. The use of mass media is the basis of promotional programs for TeleHealth.

The study's findings suggest that for the awareness level of the respondents to increase, the local government must uplift their promotional programs based on their target population and comply with the standards and guidelines on the implementation of the LGU Telemedicine Operation Team. Given the value and trends of telehealth, further investigation should address the

needs of the population earning less than 11,000 pesos, such as the need for free and stable internet connection, government-owned communication devices such as landlines, mobile phones, laptops, or desktop computers, and financing mechanisms in coordination with the Department of Health. It is imperative that student nurses, professional nurses, and other medical providers understand their roles within the e-health area and become advocates for telehealth programs by providing basic training on telehealth, its advantages and disadvantages, and how to access it and its benefits.

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Beyond Labels: A Neuropsychological Case Study of a 12-year-old Patient with Down Syndrome and Intellectual Disability in the Philippines

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Most children with Down syndrome have some level of intellectual disability. However, limited studies explore the unique characteristics and needs of individuals with this condition in the Philippines or neighboring countries. This case study seeks to investigate the cognitive, social, emotional, physical, and behavioral characteristics of a patient diagnosed with Down syndrome and intellectual disability. Also, it desires to highlight the limitations in academic functioning and adaptive behaviors, which can affect the patient's overall well-being. The patient is a 12-year-old female who was referred by her biological mother to undergo neuropsychological assessment procedures. Clinical interviews with the patient, mother, and teachers were completed. Behavioral observations were conducted. Reliable and valid psychometric measures were administered. The findings revealed significant impairments in abstract reasoning, basic academic skills, hand-eye coordination, visual memory, socio-emotional skills, and adaptive behaviors. A pattern of global impairment in cognitive, social, emotional, and behavioral aspects was shown. Effective interventions focusing on their strengths were recommended to help them reach their full potential and live a more meaningful life. Future research should also investigate the neurobiological mechanisms, quality of life, and comprehensive cognitive and physical profiles of people with this condition. Researchers are also encouraged to investigate other stressors and the resources that are available to help them thrive.

Keywords: *academic achievement, adaptive functioning, intellectual disability, neuropsychological assessment*

Most children with Down syndrome have some level of intellectual disability. The condition has the potential to impact not only the individual's physical growth, but it may also cause mild to moderate developmental problems. Additionally, it may elevate the likelihood of certain health complications and potentially influence the neuropsychological capabilities of the affected individual. However, limited studies explore individuals with this condition's unique characteristics and needs in the Philippines and neighboring countries. Down syndrome (DS) is a chromosomal disorder affecting people worldwide, regardless of location, culture, or socioeconomic status (Asim et al., 2015). Despite being characterized by specific genetic abnormalities, such as an excess copy of chromosome 21, the clinical manifestations of Down syndrome can vary significantly among individuals (Akhtar & Bokhari, 2023). In the Philippines, as in many other nations, individuals with Down syndrome face societal challenges and are occasionally marginalized, predominantly due to a lack of understanding and limited access to specialized care and support (de Castro-Hamoy et al., 2022). Statistics showed that one in every 800 babies born in the Philippines has Down syndrome (Gita-Carlos, 2023).

Previous studies have emphasized the importance of understanding DS. For instance, an exploratory qualitative study concluded the importance of noninvasive prenatal testing (NIPT) and early detection for parents to be emotionally, mentally, spiritually, and financially prepared (de Castro-Hamoy et al., 2022). A study has brought attention to the neuropsychological impairments observed in individuals with Down syndrome (DS) within educational settings. These findings have also identified prospective areas that could be targeted for the development of novel interventions (Daunhauer et al., 2020). The experiences of mothers whose children were diagnosed with Down syndrome were also explored, and it was found that, despite certain difficulties, it was a blessing in

disguise. (Gita-Carlos, 2023). During the COVID-19 pandemic, a study also explored how teachers tailor remote special education for children with Down syndrome (Cahapay, 2022). DS patients often have unique neuropsychological profiles that arise during key developmental phases across the lifespan, including developmental delay, cognitive strengths and deficits, behavior, and mental health difficulties, according to a study (Pulsifer, 2021).

These studies highlight the importance of early detection, tailored education, family support, and unique neuropsychological characteristics in relation to Down syndrome. However, it may be necessary to conduct a comprehensive assessment in order to gain a more in-depth understanding of a neuropsychological profile and to fill any existing gaps in knowledge about DS.

There is still a considerable gap between our present knowledge and comprehension of the many components that are associated with Down syndrome. For example, due to significant research gaps regarding different aspects of Down syndrome, the National Down Syndrome Society (NDSS) and the LuMind IDSC Foundation collaborated with scientific and medical specialists to submit recommendations for the NIH research strategy, such as focusing on cognitive development and co-existing physical and neurodevelopmental disorders (Hendrix et al., 2021). Another study pointed out that people with Down syndrome are often treated poorly, and their situation remains fully misunderstood (Modi & Desai, 2023). Down syndrome is usually associated with intellectual disability and multiple aspects of cognitive impairment. In a meta-analysis, it was highlighted that there is a need for a comprehensive evaluation of individual intellectual skills, which is essential for all individuals with neurodevelopmental disorders to develop personalized care programs (Hamadelseed et al., 2023). Because of Down syndrome's association with intellectual disability and cognitive deficits, it necessitates a paradigm shift in the way we approach providing care.

However, there aren't many case studies that investigate the specific difficulties faced by people with Down syndrome and explore how a strong and thorough neuropsychological assessment might be used to evaluate them.

This case study aims to (a) shed light on the unique experiences, abilities, and challenges faced by this individual diagnosed with Down syndrome and intellectual disability; (b) highlight the comprehensive neuropsychological assessment conducted; and (c) show insights on the neuropsychological profile of the 12-year-old patient.

Methodology

This study employs a single-case design for its investigation. A written informed consent from her biological mother was sought for the case study presentation. All procedures and documentation pertaining to the collection of consent were carried out in a manner that was compliant with the requirements set out by our institutional review board. Patient C was referred for a comprehensive neuropsychological evaluation by her biological mother and grade two (2) teacher to assess his current cognitive functioning, assist with treatment recommendations, and educate family members. Patient C was also evaluated for the possibility of referring her to a special educational placement or attending a session of applied behavioral analysis.

Results and Discussion

Unique Experiences, Abilities, and Challenges

Case History

Patient C is a twelve-year-old second-grade elementary student at a government school. The background information showed that she has difficulty writing, comprehending what she reads, and completing the activities that are assigned to her. She was described as reserved and sensitive and had difficulty with day-to-day tasks. Patient C can be easily distracted and demonstrates a lack of focus when participating in activities at school.

Additionally, she was struggling to understand abstract or complex concepts. Concepts that necessitate sophisticated reasoning or critical thinking skills can be especially difficult for her. Thus, her academic performance suffers.

History of Prenatal, Perinatal, and Early Development

The biological mother of Patient C stated that she went through a natural birth delivery process, but the umbilical cord was wrapped around her child's neck. Following a diagnosis of urinary tract infection (UTI), she was given a course of antibiotic treatment during her pregnancy. She also mentioned that Patient C already had distinct facial features when she was born. Patient C's formative years were marked by the development of unusual physical characteristics, including a flattened facial profile, almond-shaped eyes, small ears, a flat nasal bridge, and a short neck. In addition to this, as Patient C grew up, she struggled with the development of her speech. Her capacity to express words was noticeably restricted, and the only phrase that she could pronounce correctly was "mama and papa."

History of Cognitive, Academic, and Language Functioning

Patient C is currently having considerable difficulty with speech, spelling, counting, math, and reading comprehension. She started to go to school late due to her intellectual capacity. Her mother noted that her intellectual limitations substantially impacted her adaptive social and practical skills. Patient C continues to encounter difficulties in her academic pursuits despite the efforts of her teachers, who have made adjustments and considerations to help her keep up. Her mother expressed concern about Patient C's tendency to frequently sleep during class and leave her duties unfinished. According to her teachers, she struggles in every subject and has not made sufficient progress through the second-grade curriculum. Educators are becoming

increasingly concerned about the possibility that she will require special education services to help her learn effectively despite her condition.

History of Social, Emotional, and Behavioral Functioning

Patient C has consistently encountered difficulties interacting with her peers; despite this, she has developed a group of friends at school, especially with younger children. She is more comfortable interacting with five-year-olds. She is typically obedient, following regulations both at home and in school. Her mother commented, however, that she is prone to episodes of jealousy and sensitivity. In addition, Patient C's mother characterized her as a talkative child who exhibits outbursts when her desires are not met.

History of Adaptive Functioning

According to Patient C's mother, her daughter began to demonstrate some degree of independence in terms of her ability to care for herself around the age of 10. In spite of this growth, she is still dependent on her loved ones for core everyday activities such as eating, using the restroom, tying her shoes, and managing her menstrual cycle. Her mother is still very involved, and she makes sure that Patient C is ready for the day by driving her to school every day and making sure she has everything she needs. The mother of Patient C is aware of the possible dangers, even though she is unable to complete even the most basic of tasks. Patient C demonstrates a keen capacity for observation, keeping a close watch on the actions of others and attempting to model her own conduct after what she has observed others do.

Strengths and Interests

Patient C's mother is a well-behaved and helpful child, but she has a hard time making close friends. She likes to dance and sing at home, especially while watching videos on Facebook and apps like TikTok. She sometimes plays by herself with her

toys, but she mostly likes to hang out with the cats and dogs in her house. Even though she finds it difficult to keep up with her peers, she makes an active effort to find other children with whom to play. Despite these challenges, her perseverance shines through in her interactions with others and in the activities she participates in.

Comprehensive Neuropsychological Assessment

Neuropsychological Test Findings

Given the severity and extent of deficits in behavioral functioning, executive functioning, visual-motor functioning, learning and memory, and expressive language, Patient C's neuropsychological profile was consistent with a neurodevelopmental disorder. Having Down syndrome makes her at risk of such a disorder. Considering the multiple data sources and quantitative and qualitative assessment methods, Patient C met the criteria for 319 (F79) Intellectual Developmental Disorder (IDD) as moderate in the Diagnostic and Statistical Manual for Mental Disorders Fifth Edition Text Revision (DSM 5-TR). Both intellectual and adaptive functioning deficits in conceptual, social, and practical domains were identified. Overall, she has a sub-average intellect, affecting all major areas of functioning, and appears to have difficulty adapting to her environment. Her abstraction ability and problem-solving skills are considerably below average on the Raven's 2. As indicated by the minimal status examination and corroborated by the behavioral observation, executive functioning (e.g., attention, memory, language, visuospatial abilities, orientation to person, place, and time) is moderately impaired. She also scored below average on reading, writing, broad language, and mathematics clusters of standardized tests of academic achievement (see table 1).

Collateral informants noted that Patient C was largely reliant on others for all instrumental activities of daily living and physical self-maintenance. Up until the age of 10, the client's mother assisted her

Beyond Labels: A Neuropsychological Case Study of a 12-year-old Patient with Down Syndrome and Intellectual Disability in the Philippines with hygiene and daily activities. She is still unable to tie her shoelaces. Regarding her appetite, she eats at a slow pace and prefers chicken most of the time. The teacher also reported that Patient C needs assistance in most school tasks and was noted to have a hard time pronouncing words. Social and emotional deficits were noted in the profile. Specifically, low intellectual maturity, withdrawal tendencies, impulsiveness, and dependency needs were identified by the Goodenough Draw-A-Person test (see table 2).

Results from the Revised Child Anxiety and Depression Scale (RCADS) revealed depression at the borderline clinical threshold and anxiety at the low severity level (see table 1). Critical items identified in the 25-item version of RCADS were: "I have trouble sleeping," "I have problems with my appetite," "I have to do something over and over again," "I am afraid of being in crowded places," "I worry that something bad will happen to me," "I feel sad or empty, and "I think about death."

Table 1

Comprehensive Objective Neuropsychological Assessment Results Organized by Domain

Domain	Raw Score	Composite Score	Standard Score	Percentile Rank	Verbal Interpretation
Mental Status Examination					
Mini-Mental Status Exam	11				Moderate cognitive impairment. May require 24-hour supervision.
Adaptive Functioning					
WHODAS 2.0			2.1 ^a		Moderate Difficulty
Intellectual Functioning					
Abstract Reasoning (Raven's 2)			68 ^a	2%	Extremely Low
General Reasoning (TOGRA)			48 ^a		Significantly Below Average
Academic Functioning (Academic Achievement Battery)					
Letter/Word Writing	4	≤ 50 ^a			Significantly Below Average
Spelling	1	≤ 50 ^a			Significantly Below Average
Reading Comprehension Passages		≤ 50 ^a			Significantly Below Average
Mathematical Calculation		≤ 50 ^a			Significantly Below Average
Composite Standard Score		≤ 50 ^a			Significantly Below Average
Visual-Motor Skills (Bender-II – Copy Phase)			61 ^a	0.47%	Very Low/Mildly Delayed
Short-term Working Memory (Bender-II Recall Phase)			63 ^a	0.68%	Very Low/Mildly Delayed
Socio-Emotional Functioning (RCADS)					
Total Depression	9		66 ^a		Medium Severity
Total Anxiety	10		55 ^a		Low Severity

^a Norms from publisher

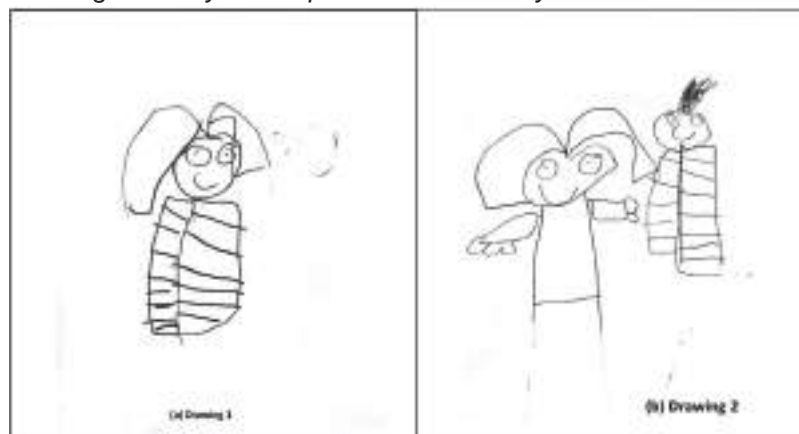
Table 2*Interpretation of Qualitative Socio-Emotional and Behavioral Measures*

Other Domains	Qualitative Interpretation
Socio-Emotional Functioning	
Good enough Draw-A-Person Test	She has a tendency towards withdrawal and inhibition in her interactions with the external world. Low intellectual maturity, impulsive urges, dependency, and a lack of autonomy were noted.
Behavioral Functioning	
Behavioral Observation	The client has difficulty writing her name. She attempts to comply with instructions but has significant difficulty doing so. Despite her inability to comprehend the questions, she responded promptly to the tests given to her. There were periods when her concentration was intact, but when she reached the middle of the test, she began to lose concentration. When she is struggling with a question being asked, she begins to joke with the test examiner to help her relax.

Patient C was diagnosed with Down syndrome (DS) and has shown notable deficits in neuropsychological functioning. Down syndrome (DS) is a prevalent genetic abnormality commonly associated with intellectual Disability, which arises from the presence of chromosome 21 manifested with intellectual, motor developmental impairment and other physical health concerns (Antonarakis et al., 2020; Verstegen & Kusters, 2020). The overall findings of this single case study of Patient C revealed significant neuropsychological impairment in the areas of abstract reasoning, basic academic skills, hand-eye coordination, visual memory, socio-emotional skills, and adaptive behaviors. A pattern of global impairment in cognitive, social, emotional, and behavioral aspects was shown in the profile of Patient C, consistent with other studies (Fucà et al., 2023; Gandy et al., 2020; Hamadelseed et al., 2023; Næss et al., 2017). In an experimental study, it was determined that Down syndrome reduces a person's cognitive ability, with a particular impact on the person's visual-motor abilities. As revealed by the Bender II test results and the draw-a-person test, a visual-motor deficiency and intellectual immaturity deficit are evident (see figure 1). Previous research examining specific executive functioning deficits in children supported the results of the tests and evaluation process (Carames et al., 2022; Tarigan & Fadillah, 2022).

Figure 1

Drawing of a 12-year-old patient with down syndrome in an 8.5" x 11" short bond paper



Insights on the Neuropsychological Profile

The comprehensive assessment, which included both qualitative and quantitative methodologies, revealed that Patient C, who has Down syndrome, has below-average intellectual abilities that affect all aspects of his everyday life. Her issues with attention, memory, language, and visuospatial functioning, as well as executive functioning deficiencies, made it much harder for her to adjust to her surroundings. Her academic challenges, which were evident in her below-average performance in language, reading, writing, and math, highlighted how deeply her disease affected her ability to learn. Collateral informants gave insightful accounts of Patient C's day-to-day activities, highlighting her reliance on others for instrumental and self-maintenance duties. Her profile indicated emotional and social deficiencies, such as impulsivity, low intellectual maturity, withdrawal tendencies, and dependency needs.

Her psychological well-being gains a significant impact due to the co-occurrence of low-severity anxiety and borderline clinical depression, as indicated by the RCADS. Key assessment items emphasized difficulties with eating, sleeping, recurrent behaviors, social anxiety, fear of crowded places, depressive and empty feelings, and thoughts of death.

Conclusions and Recommendations

Effective interventions focusing on her strengths are necessary for her to thrive. This study highlighted that Patient C's experience was like the global experience of individuals diagnosed with Down syndrome, wherein intellectual disability is common. Patient C was strongly recommended to be enrolled in a special education program so that she could have her academics supervised by a professional who is experienced in working with children who have special needs. Additionally, it is recommended that the student's parents set reasonable expectations for their daughter's

cognitive abilities and implement effective intervention strategies at home to support their daughter in keeping up with her schoolwork and achieving her academic goals. In addition, it is essential to strike and keep a healthy balance between achieving academic goals and attending to social, emotional, and self-esteem concerns. This balance must be achieved and preserved at all costs.

The comprehensive neuropsychological assessment conducted was useful in understanding the cognitive, emotional, and behavioral functioning of Patient C. The neuropsychological assessment of Patient C offers a thorough understanding of her neurodevelopmental difficulties, highlighting the necessity of specialized interventions and assistance to meet her academic, emotional, cognitive, and adaptive needs. Promoting her general well-being and improving her quality of life require this all-encompassing strategy.

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Influence of Stress to the Temporomandibular Joint Disorder Risk Among Medical Students in a Private University in Silang, Cavite

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Students admit to being stressed by their academic and clinical requirements during medical school. Stress manifests itself not only psychologically but also physically. The study aims to determine if medical students are at risk of temporomandibular joint disorders (TMDs) and if such incidences are influenced by stress. The study uses descriptive and cross-sectional designs. The scope is limited to medical schools around Silang, Cavite area. A total of 142 medical students responded to the study, 50 male and 92 female, who were recruited through convenience sampling and who answered online questionnaires via Google Forms. Results showed that the respondents had moderate levels of stress. There was no significant difference in the stress level when respondents were grouped by gender. Still, a significant difference was found among year levels where year levels 4 and 3 and 4 and 2 showed moderate stress levels. Medical students had a mild risk of having TMDs. The risk for developing TMD does not differ between sexes but between year levels where year levels 1 and 3 have significant differences. The results of these studies have important implications for the dental needs and risks of medical students.

Keywords: *temporomandibular joint disorders, stress, medical students, dental, medicine*

Temporomandibular joint disorders (TMDs) are by far one of the most neglected ailments among people today. Symptoms of this disease have been evident, yet people prefer to ignore it until it gets worse, and they need medical attention or surgical intervention. According to the National Institute of Dental and Craniofacial Research, TMDs are much higher in younger persons, particularly between 18 and 24 years old. Studies have also shown that gender plays a role in the incidence of TMDs.

Previous research observed that women are more prone to develop TMJ pains, TMJ sounds, bruxism, burning mouth symptoms, sensitive teeth, difficulty in opening the jaw, and masticatory problems have been found in Men.

Among all the symptoms of TMDs, bruxism is the most common and has the most significant risk of developing TMDs. Bruxism is defined as the conscious or unconscious habit of grinding teeth. In the earlier years of craniofacial research, morphological factors like occlusal discrepancies and the orofacial region anatomy have been considered the only causative factors for bruxism. However, it has been found that psychological and pathophysiological elements also contribute to forming the habit.

Bruxism has been related to being a part of the sleep arousal response of the central nervous system. The habit of grinding one's teeth has been linked to problems with the nervous system's central dopaminergic system. Psychological factors like stress, anxiety, and personality have been attributed to bruxism as well.

In the study conducted by Dr. Donald Morse (1982), "different types of bruxism were identified, such as nocturnal and diurnal bruxism, with their corresponding etiology. Among the three types, stress has been shown to affect nocturnal and diurnal bruxing, but acute bruxism is the least harmful because it is situational and transient.

Nocturnal bruxism is the act of clenching or grinding of teeth while sleeping, and Diurnal bruxism is the silent, jaw-clenching type and is by far the one

reported to be stress initiated and stress maintained, and further studies have been identified to support the claim. The signs of nocturnal bruxism, which include loud clicking noises on the TMJ, fatigue in the jaw muscles, and pain upon opening the mouth, are typically at their peak right after waking and gradually diminish, whereas the signs of a grinding habit, which primarily occurs while awake, tend to worsen throughout the day progressively and may not be present right away. (Morse 1982)

A study of bruxism about stress and anxiety among working-age subjects using a survey has also shown the significant relationship between stress and bruxism, particularly Nocturnal Bruxism. Among the 874 respondents, 82.3% have more frequent bruxism and were reported to have increased anxiety and stress levels due to occupational stress and irregular changes in their daily activities. (Morse 1982 et. al)

Medical students have been statistically proven to be exposed to stressful environments, such as inside the classroom and laboratory, and their practical hospital experiences during their internship and clerkship requirements. In recent studies conducted in Karachi, Pakistan, medical students experience substantially more stress than students in other fields. In their data, 61.4% of medical students reported experiencing stress, 12.9% reported having depressive symptoms, and 2.7% reported having attempted suicide. Thus, because stress corresponds to the onset of bruxism, and bruxism is accounted for the incidence of TMDs, this information serves as the theoretical support of this study as it focuses on the influence of stress on the incidence of TMDs among medical students. (Wahid, 2014)

The study aims to determine the stress level of medical students and the incidence of medical students' risk for TMD. Moreover, it aims to determine whether there is a significant relationship between stress and risks of having TMD, if there is a significant difference in the level of stress of medical students when grouped by year level and

sex, and if there is a significant difference in the incidence of medical students at risk for TMDs when grouped according to year level and sex.

Methodology

Research Design

The research is cross-sectional and descriptive. This research aims to evaluate and determine the stress levels of medical students and see whether they might affect the existence of temporomandibular joint disorders. The researchers perform quantitative research to analyze the objective theories by examining the influence of stress on the incidence of medical students at risk of temporomandibular joint disorders. The result of the study is analyzed through statistical procedures. Descriptive and inferential statistics are considered to answer the statements of the problem.

Population and Sampling Technique

The researchers in this study selected medical students from a private university in Silang, Cavite, as their target group. Two sampling techniques were used to gather data. First, convenience sampling was used among the population. Subsequently, a stratified sampling technique was utilized among the initially selected population to categorize the data by year level and gender. The data was further divided into subgroups. Under the year level would be first, second, and third years and medical interns. Sex refers to biological sex, such as male and female. Each category or stratum has a minimum of 15 and a maximum of 40 respondents.

Medical students are chosen to be in the study group because they are known to be in the university's most stressful areas of academic studies.

Instrumentation

The instrumentation utilized in this study is Questionnaire forms divided into two parts. The survey questions of the first part of the questionnaire were acquired from Dr. Robert Kellner's Stress

Symptom Rating test, a self-rating scale of distress used in Psychological Medicine. The 2nd part of this questionnaire was obtained from the article by Silveira et al., (2007) on the prevalence of patients harboring temporomandibular disorders.

Part I – pertains to questions related to assessing the existence of stress symptoms. The questionnaire comprises 24 items, and each question is answerable by Never, Sometimes, and Always, with corresponding scores assigned. The stress symptom score is determined by following these directions:

Every "Never" response receives a score of "0".

Every "Sometimes" response receives a score of "1".

Every "Always" response receives a score of "2".

Higher test scores indicate a more excellent stress rating. The sum of the values from the individual stress symptom rating test scores can vary from 0 to 48.

Table1

Stress Scores and Interpretation

Score	Interpretation
0 – 12	Low Stress
13 – 24	Moderate Stress
25 – 36	High Stress
37 – 48	Severe Stress

Part II – This section of the questionnaire contains questions about the assessment of temporomandibular joint disorders present among the study group. There are 14 items, and each question is answerable by Yes, Sometimes, and No, with corresponding scores assigned.

The questionnaire's interpretation as to TMD risk is for :

Each "yes" response receives a score of "2".

Each "sometimes" response receives a score of "1".

Each "no" response receives a score of "0".

[table continues on the next page]

The sample was categorized in terms of TMD risk thanks to the addition of the obtained values, and as of right now, it is referred to as a TMD index.

Table 2

TMD Index

Score	Interpretation
0 - 7	No Risk for TMD
8 - 14	Mild Risk for TMD
15 - 21	Moderate Risk for TMD
22 - 28	Severe Risk for TMD

The Stress Symptom Rating Test and Temporomandibular Joint Disorder Signs and Symptom Questionnaires are tested using Cronbach's Alpha to determine and evaluate their reliability, strength, and consistency. A Cronbach's alpha of .70 or higher is considered good, .80 or higher is excellent, and .90 or higher is best.

Table 3

Reliability Statistics on Item Questionnaires for Stress and TMD

Variable	Cronbach's Alpha	N of Items
Stress Symptoms Rating	.923	24
Temporomandibular Joint Disorders Manifestations	.878	14

Data Analysis

SPSS was used to analyze the data. The respondent's information was distributed according to frequency and proportion. The respondents' stress level and TMD index were then calculated using the mean and standard deviation. The strength of the link or relationship between the stress scores and the TMD index was then determined using Spearman's rho.

The Mann-Whitney U test is then employed to see whether there is a difference in stress and TMD index between the sexes. The differences in stress and TMD indicators across year levels were compared using the Kruskal-Wallis H test. The Dunn - Bonferroni test was used to determine which pair of categories of year level had significant differences in stress scores and TMD indices.

Results and Discussion

Stress Level among Medical Students

The information below shows the results relating to the research question, "What is the stress level among medical students?". The distribution of responses is presented in Table 4. As shown, at least 70% of participants reported experiencing poor quality of sleep or insomnia, forgetting lessons discussed in lectures, feeling tired most of the time, feeling scared to do clinical work, feeling nervous before exams, and being unable to concentrate on lessons with the response of sometimes to always. At least 50% of the participants also experienced feeling dizzy or faint, feeling guilty, feeling weakness in some parts of the body, feeling pressure or tightness in the head, feeling restless after a long sleep, worrying without any particular reason, and having thoughts that cannot push out of their minds. At least 50% of the participants have never experienced feeling dizzy or faint, having a poor appetite, having an unusual increase in heart rate, being easily irritated at school, being unhappy or depressed about medical school, or experiencing pains, aches, and rheumatism. At least 60% of the respondents also never experienced angina or dyspnea, panic attacks, loss of interest in school, feeling inferior to other medical students, feeling numbness in some part of the body, and feeling looked down on.

Table 4*Distribution of Responses on Stress Symptoms Rating Test (N=142)*

Stress Symptoms	Frequency of Experience		
	Never	Sometimes	Always
1.	77	18	4
2.	73	22	6
3.	65	29	6
4.	61	27	12
5.	61	35	4
6.	60	30	11
7.	58	36	6
8.	58	34	8
9.	57	36	7
10.	56	38	6
11.	55	38	7
12.	50	48	2
13.	49	42	8
14.	46	51	4
15.	41	49	10
16.	38	48	14
17.	36	51	13
18.	33	54	13
19.	30	61	9
20.	29	59	12
21.	28	54	18
22.	27	62	11
23.	14	56	30
24.	9	80	11

The scores, mean, and standard deviation are presented in Table 5. Table 5 shows the percentage and frequency corresponding to the participant's stress level. Around 54% of participants experienced a moderate level of stress based on the sum of their scores in the stress symptoms rating test with a mean stress score of $M=15.2$ and a standard deviation of $SD=8.9$, which translates to a moderate level of stress and answers the question "What is the stress level among medical students?"

Table 5*Participants' Stress Level (N=142)*

Stress Symptom Rating Test		
Levels	Counts	% of Total
Low Stress (0 – 12)	63	44.4
Moderate Stress (13 – 24)	54	38.0

[table continues on the next page]

High Stress (25 – 36)	22	15.5
Severe Stress (37 – 48)	3	2.1
Mean Stress Score: $M = 15.2$ ($SD = 8.9$)		

According to research conducted in 2013 by Hildi Haldorsen. Danish medical students experienced moderate levels of stress, which were, however, closely related to depressed symptoms. A survey of randomly chosen medical students from all years at the Qazvin University of Medical Sciences and Health Services was undertaken for a different study; according to the findings, more than half of the students said they were under moderate stress.

In a 2008 study by Hamza Mohammad Abdulghani, King Saud University's College of Medicine received 600 respondents; 494 responded, for an 83% response rate. Around 56% of all respondents said they experienced medium to severe levels of stress.

Incidence of Medical Students at risk for TMD

The information below shows the results relating to the research question, "What is the incidence of Medical Students at risk for Temporomandibular Joint Disorder." Table 6 displays the response distribution.

Table 6

Distribution of Responses on Temporomandibular Joint Disorders Manifestations (N=142)

TMD Manifestations	Frequency of Experience		
	No	Sometimes	Yes
1.	70	25	5
2.	69	26	5
3.	68	25	8
4.	67	26	7
5.	61	32	7
6.	59	2	39
7.	54	1	44
8.	46	30	23
9.	44	30	26
10.	42	35	24
11.	39	42	19
12.	35	52	13
13.	34	45	21
14.	33	50	17

Table 7 shows that around 40% of participants had misaligned teeth (39%) and impacted third molars (44%). The majority (>50%) have not experienced difficulty in moving the mandible sideways (70%), pain around the auricular area (69%), difficulty in opening the mouth (68%), pain in the jaw area upon waking up (67%), discomfort during mastication (61%), misaligned teeth (59%), and impacted third molars (54%). The majority (>50%) have experienced clicking, popping, or grinding sounds around the TMJ area, grinding

teeth when asleep, clenching of teeth consciously or not, jaw muscles getting tired, using only one side of the mouth when chewing, frequent headaches, and neck and shoulder pains. Table 7 displays the results, mean, and standard deviation.

Table 7

Participants Risk of TMD (N=142)

Levels	TMD Index	Counts	% of Total
No risk of TMD	0 – 7	65	45.8
Mild risk of TMD	8 – 14	43	30.3
Moderate risk of TMD	15 – 21	31	21.8
Severe risk of TMD	22 – 28	3	2.1
Mean TMD Index: $M = 9.37$ ($SD = 6.45$)			

Table 7 shows the frequency and percentage, translating to the participants' TMD index. Around 24% of participants have the risk of experiencing moderate to severe TMD index, with 30.3% having the risk of experiencing mild TMD index, while the remaining 45.8% have no risk of TMD. The mean TMD index is $M = 9.37$, and the standard deviation is (6.45), translating to a mild TMD index and answering the question, "What is the incidence of Medical Students at risk for Temporomandibular Joint Disorder?"

The University of Faisalabad conducted an analogous study in four medical specialties: dentistry, medicine, pharmacy, and physical therapy. The students were given a self-reported questionnaire. After completing the forms, they were graded by the established standard method. The data was then imported into SPSS, and the statistical test Chi-squared was applied. The study included 137 students who answered the questionnaires in total. No TMD was seen in 11 (7.9%) students, mild TMD in 62 (44.3%), moderate TMD in 62 (44.3%), and severe TMD in 5 (3.6%) children. It was found that compared to students in other disciplines, medical students were more likely to have severe TMD (Wahid et al., 2014).

Relationship Between Stress and Being at Risk of Having TMD

The table below shows the results relating to the research question, "Is there a significant relationship between stress and being at risk of having TMD." To determine how strongly the association between stress scores and the TMD index correlates, Spearman's rho, a non-parametric test, is performed. The Spearman's rho value, probability value, and verbal interpretation are presented in Table 5.

Table 5 shows the strength of the association between the correlation of stress scores and the TMD index. It shows that an increase in stress is associated with a higher risk of TMD, with stress scores having a significantly low positive linear correlation with the TMD Index ($r = 0.19$, $p = .023$). Since the P-value is 0.023 and less than 0.05, the researcher's hypothesis that "There is no significant relationship between stress and medical students being at risk for TMDs" has been rejected. While the claim that "There is no significant relationship between stress and medical students being at risk for TMDs" has been refuted, there is a connection between stress and the likelihood of developing TMD. Similarly, a study was carried out among 100 dentistry graduates to assess TMJ issues. The study involves questionnaires and a clinical evaluation of the TMJ system. According to the findings, stress has a significant etiologic role in the onset and maintenance of TMDs in dental graduates (Sankuratri et al. 2021).

Table 8

Correlation of Stress Score and TMD Index

	Spearman's rho	p-value	Interpretation
Stress Score – TMD Index	0.19	0.023	Significant

Furthermore, Kmeid et al. (2020) did a study named Temporomandibular Joint Disorder Incidence in the Lebanese Population and Its

Relationship with Stress, anxiety, and depression. There were 459 students enrolled throughout all districts, and 37 of the patients at the Eye and Ear Hospital's otolaryngology clinic are from Lebanon. According to the findings, patients in the sample drawn from the clinic scored more severely than the general population on measures of stress, anxiety, depression, and temporomandibular dysfunction. The study concluded that temporomandibular joint disease, which is still substantially underdiagnosed in the general population, seems to be significantly related to stress, along with anxiety and depression.

Ten articles published between October 1, 2015, and March 6, 2020, were included in a literature review that sought to summarize the most recent research on temporomandibular joint abnormalities and the consequences of stress. According to the review's findings, stress is one of the psychological elements connected to the pathophysiology of TMD (Wilkowicz et al., 2021).

Differences in the Levels of Stress if the Respondents are Grouped by Gender and Year Level

The tables below show the result relating to the research question, "Is there a significant difference in the levels of stress if the respondents are grouped by gender and year level?". A non-parametric Mann-Whitney U test assesses how two independent samples differ. It is employed to contrast the stress scores between males and females. Table 6 displays frequency, mean, Mann-Whitney U value, probability value, and verbal interpretation. A non-parametric Kruskal-Wallis H test compares two or more distinct samples with the same or different sample sizes. It compares the stress scores across different year levels (1 to 4). Table 7 displays the frequency, mean, chi-square, p-value, and verbal explanation. To determine which pairs of categories of year levels have significant differences in their stress scores, a post hoc analysis using the Dunn-Bonferonni test was conducted.

Table 9 shows that the stress levels, if the respondents are grouped by gender, have a p-value of .589. Females rank higher on stress (mean rank = 72.9) than males (mean rank = 69.0), but the difference is not statistically significant. Since the p-value is more than 0.05, it means the researcher's null hypothesis is true or accepted; therefore, it is not significant. Thus, based on Table 9, no matter what gender the respondents have, there is no significant difference in their levels of stress ($U=2173.5$). Therefore, the researchers have failed to reject the hypothesis, stating, "There is no significant difference in stress levels if the respondents are grouped by gender."

Table 9

Differences in Stress Levels Between Genders

Variable	Gender	Rank		Statistics		
		N	Mean Rank	Mann-Whitney U	p-Value	Interpretation
Stress Scores				2173.500	.589	Not Significant
	Male	50	68.97			
	Female	92	72.88			

On the other hand, Harutyunyan et al. (2020) researched how undergraduate students in Armenia assessed their stress levels differently based on gender. Face-to-face interviews and a standardized questionnaire were employed in the study. There were 111 participants, with a little more than half (59.5%) female. The results of the study showed that female participants experienced considerable levels of stress and were quite anxious. On the other hand, few males experienced significant stress.

Table 10 shows that the levels of stress if the respondents are grouped by year level has a p-value of .000. Since the p-value is less than 0.05, it means the researcher's null hypothesis stating that "There is no significant difference in the levels of stress if the respondents are grouped by year level" is false or rejected therefore, there is a significant difference across year levels in their stress scores ($\chi^2(3) = 18.4, p < .001$).

Table 10*Differences in Stress Levels Across Year Levels*

Variable	Year Level	Rank		Statistics			
		N	Mean Rank	Chi-Square	df	p-Value	Interpretation
Stress Scores				18.444	3	.000	Significant
	1	27	65.33				
	2	29	92.43				
	3	53	76.86				
	4	33	49.55				

Table 11 shows which pairs of categories of year levels have significant differences. Pairwise comparisons between categories of year levels showed a significant difference only between levels 4 and 3 ($p=.016$) and between levels 4 and 2 ($p<0.001$) since their p-value is less than 0.05. Level 4 (mean rank = 49.6) participants reported lower stress scores than level 2 (mean rank = 92.4) and level 3 (mean rank = 76.9), as presented in Table 11.

Table 11*Pairwise comparisons of Stress Scores across year levels*

Sample 1-Sample 2	Test Statistics	Std Error	p-value	Interpretation
1 - 2	-27.1	11	0.082	Not Significant
1 - 3	-11.5	9.7	1.000	Not Significant
4 - 1	15.8	10.7	0.833	Not Significant
4 - 3	27.3	9.1	0.016	Significant
4 - 2	42.9	10.5	0.000	Significant
3 - 2	15.6	9.5	0.606	Not Significant

The answer to the statement of the problem "Is there a significant difference in the level of stress of medical students when grouped by gender and year level?" is NO when grouped by gender, and YES when grouped by year level, but only applicable between 4th year -3rd year and 4th year - 2nd year.

A survey of 600 enrolled students in years 1, 2, 3, 4, and 5 at King Saud University's College of Medicine, the goal was to find out how everyday stress is among undergraduate medical students as well as to check for any links between stress, the academic year, grades, and health problems. According to the study's findings, students experienced significant psychosocial discomfort during their first three years of study (Abdulghani, 2008).

A recent study by Abdulghani et al. (2020), overall stress peaked in the third medical year due to the transition from pre-clinical to clinical training, and it was much more significant in female medical students than male students.

Another investigation involved 441 medical students at Qassim University which aimed to look into first-year medical students' stress levels and coping mechanisms and identify the contributing elements. The study found that first-year students, followed by second and third-year students, were the ones who felt the highest stress during their academic blocks. Surprisingly, the 2nd and 1st year students displayed the lowest levels of adaptive coping, while the 3rd year students displayed the highest levels. In that study, female students performed better under stress. (Rasheed et al., 2020).

Differences in the Incidence of Medical Students at Risk for TMDs When Grouped by Year Level and Gender

The tables below show the result relating to the research question, "Is there a significant difference in the incidence of medical students at risk for TMDs if the respondents are grouped by gender and year level?". A non-parametric Mann-Whitney U test assesses how two independent samples differ. It is utilized to contrast the TMD indices between men and women. Table 9 displays frequency, mean, Mann-Whitney U value, probability value, and verbal interpretation. A non-parametric Kruskal-Wallis H test compares two or more distinct samples with the same or different sample sizes. The TMD indicators are compared between year levels using this method (1 to 4). Table 10 displays the frequency, mean, chi-square, p-value, and verbal explanation. To determine which pairs of categories of year levels have significant differences in the TMD index, a post hoc analysis using the Dunn-Bonferonni test was conducted. The result of the test is presented in Table 12.

Table 12

Differences in TMD Indexes Between Genders

Variable	Gender	Rank		Statistics		
		N	Mean Rank	Mann-Whitney U	p-Value	Interpretation
TMD Index				1944.000	.128	Not Significant
	Male	50	78.62			
	Female	92	67.63			

Table 12 shows that the TMD indices, if the respondents are grouped by gender, have a p-value of .128. Males rank higher on stress (mean rank = 78.62) than females (mean rank = 67.63), but the difference is not statistically significant. Since the p-value is more than 0.05, it means the researcher's null hypothesis is true or accepted; therefore, it is not significant. Thus, based on Table 7, no matter what gender the respondents have, there is no significant difference in their TMD indices ($U=1944$).

Therefore, the researchers have failed to reject the hypothesis, stating, "There is no significant difference in the incidence of medical students at risk for TMDs if the respondents are grouped by gender."

A 2017 study with a similar outcome was conducted by Al Moaleem et al. The study's primary goal is to examine the prevalence and severity of temporomandibular joint disorders (TMDs) among first-year medical students. One hundred eighty-six medical college students were randomly chosen for the study. The majority of participants reported having mild TMD, with only a few cases demonstrating significant TMD. According to the study's conclusions, there was no noticeable difference in the mean scores between the sexes.

Another study was done with 310 students, 205 females, and 105 males. The study aims to find out how common temporomandibular joint disorder (TMD) is among college students. The prevalence and severity of TMD were analyzed using self-reported questionnaires. The symptoms were converted into a severity

classification based on the quantity and frequency of positive replies. According to the study's conclusions, there was no statistically significant relationship between gender and the severity of TMD. Although having TMD, students were unaware of their conditions (Modi et al., 2012).

Table 13

Differences in TMD Indices Across Year Levels

Variable	Year Level	Rank		Statistics			
		N	Mean Rank	Chi-Square	df	p-Value	Interpretation
Stress Scores				10.612	3	.014	Significant
	1	27	53.76				
	2	29	63.95				
	3	53	83.51				
	4	33	73.36				

Table 13 shows that the TMD indices, if the respondents are grouped by year level, have a p-value of .014. Since the p-value is less than 0.05, which means the researcher's null hypothesis stating that "There is no significant difference in the incidence of medical students at risk for TMDs if the respondents are grouped by year level" is false or rejected; therefore, there is a significant difference across year levels in their TMD indices ($\chi^2(3) = 10.6$).

Table 14

Pairwise Comparison of TMD Indices Across Year Levels

Sample 1-Sample 2	Test Statistics	Std Error	p-value	Interpretation
1 - 2	-10.19	11.00	1.000	Not Significant
1 - 3	-29.75	9.70	0.013	Significant
1 - 4	-19.6	10.66	0.396	Not Significant
2 - 3	-19.56	9.49	0.236	Not Significant
2 - 4	-9.42	10.46	1.000	Not Significant
4 - 3	10.15	9.11	1.000	Not Significant

Table 14 shows which pairs of categories of year levels have significant differences. Pairwise comparisons between categories of year levels showed a significant difference between levels 1 and 3 only ($p=.013$) since their p-value is less than 0.05. Level 1 (mean rank = 53.8) participants reported lower TMD indices than level 3 (mean rank = 83.5), as shown in Table 13.

The answer to the statement of the problem "Is there a significant difference in the incidence of medical students at risk for TMD when grouped by gender and year level?" is NO when grouped by gender, and YES if grouped by year level but only applicable between 1st year and 3rd year.

In research on students who reported TMD pain or had at least one positive TMD symptom, students were invited to the dental office for a comprehensive TMJ evaluation. 119 out of the 240 students who completed the TMD pain screener acknowledged experiencing at least one TMJ symptom. Sixty-four percent

(n=60) of the 93 dentistry students who underwent clinical assessment had temporomandibular joint problems. According to the study, anxiety and bruxism histories were both strongly associated with TMDs and were also significantly greater in females with higher academic achievement (Homeida L. et al., 2022).

Conclusion and Recommendation

The respondents have shown *moderate* levels of stress. Stress levels of medical students that are categorized by gender show *no significant difference*. However, if categorized by year level, the stress level presents *significant differences* but only to year levels 4 and 3 and 4 and 2.

Medical students have a mild risk of having temporomandibular joint disorders. When the respondents were categorized by gender and with males having a higher TMD index than females, the data demonstrates no statistically significant difference between the genders. On the other hand, if respondents are categorized by year level, their TMD indices show *significant differences* but only to year levels 1 and 3. The relationship between stress and being at risk of TMD is significant among medical students surveyed.

For future studies, it is recommended that intervention programs for medical students with TMD or who are at risk of having TMD be conducted. Moreover, future researchers may conduct a more in-depth study on stress among medical students in general. Medical students' participation in stress management programs is recommended, and their TMJ conditions may be checked. Further research on the prevalence of TMDs among medical students may also be pursued. Lastly, future researchers may conduct a similar study on a larger population.

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Utilization of Primary Health Care Services Among Under 5 Years Old: A Basis for Promotional Programs

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This paper describes the utilization of barangay health programs and healthcare accessibility in the five facets of affordability, availability, accessibility (geographic), accommodation, and acceptability for households with children under five years old in a barangay. Children under five years old are a vulnerable population, and care should be given to assessing healthcare accessibility issues among this population. Using a combination of purposive and snowball sampling, questionnaires were distributed to 101 respondents in Barangay Puting Kahoy, Silang, Cavite, to assess the level of accessibility of primary healthcare services for children under five years old. The community residents utilized four programs. The immunization program was utilized by 99 of the respondents (98.0%); the growth and weight programs were utilized by 81 respondents (80.0%); the deworming program was utilized by 69 respondents (68.3%); the mother & child protection program was utilized by 17 respondents (16.8%). The aspect of acceptability was *high* (4.2079); affordability was *high* (4.1152); availability was *high* (4.0885); accommodation was *high* (4.0512); accessibility (geographic) was also *high* (3.7752). This research resulted in the development of six programs to enhance primary healthcare services for children under five. The programs were named *Reaching Every Child to Achieve Community Health (REACH)*, *Geo-Flagging*, *Let's Get Connected!*, *Grow With Me Card*, *Ba-Bye, Bulate!*, and *Wakasan: Karahasan sa Kababaihan at Kabataan*.

Keywords: *primary health care, under-five children, health programs, accessibility*

In 1978, the Declaration on Primary Health Care was signed by representatives from 134 countries at the International Conference on Primary Health Care held in Almaty (formerly Alma-Ata) in Kazach Soviet Socialist Republic (presently Kazakhstan). They found the global health situation to be unjust. They believed that primary healthcare was the solution to closing the gap between healthcare access between underdeveloped and developed countries and the healthcare access between social classes within countries themselves (Maglaya, 2009). The Philippines applied the Community Health Worker model to deliver primary health care by launching the Barangay Health Worker program in 1981 (Mallari et al., 2020). Although the Philippines has embraced this approach and improvements have been seen, with the mortality of children under five years old decreasing by almost three-fold, the Philippines is still behind in many health outcomes compared to other countries in the same income range. According to the Universal Health Coverage (UHC) Service Coverage Index, which measures access to essential services for maternal and child health, infectious diseases, and non-communicable diseases, the Philippines scores poorly (with a score of 60 out of 100), with a lack of health facilities and staff as well as inadequate financial risk protection remaining the main obstacles to access (DOH, 2020).

According to Penchansky (1981), accessibility is the factor that renders health services useful. Without accessibility, the best health programs and services would not be utilized. Primary healthcare accessibility in the Philippines is affected by multiple factors related to geographic, social, economic, and other factors. This then has an impact on the health status of the citizens. Nearly half of the one million under-5 fatalities that occur each year in less developed countries are caused by only five diseases: diarrhea, malaria, measles, and dengue; hemorrhagic fever, and malnutrition are typically the underlying causes of these illnesses. Effective and affordable interventions to address these common

conditions exist. However, they have not yet reached the populations most in need: the young and the poor (Integrated Management for Childhood Illness, 2020). Although the population of children under five may seem insignificant, the level of attentiveness to which communities give vulnerable populations can determine their strength and the future health of their people. It is the right of every person to receive the services provided by the government. This is why this study intends to create promotional programs that address the accessibility of healthcare for families with children under the age of 5.

Specifically, this study will investigate what programs for children under five offered by the Barangay healthcare center are being utilized by the population. *Reaching Every Child to Achieve Community Health (REACH)*, *Geo-Flagging*, *Let's Get Connected!*, *Grow With Me Card*, *Ba-Bye, Bulate!*, and *Wakasan: Karahasan sa Kababaihan at Kabataan*. What is the level of accessibility for primary health care services in terms of affordability, availability, accessibility (geographic), accommodation, and acceptability? Based on the result of the study, what promotional programs were recommended?

Methodology

This chapter discusses the methods used in the study, including the research design, population and sampling techniques, instrumentation, data analysis, ethical considerations, data gathering procedures, and analysis of data.

Research Design

Descriptive survey design collects large amounts of data from diverse people. The survey design presents phenomena regarding conditions, practices, beliefs, relationships, or trends. It gathers information about prevailing conditions or situations for description and interpretation. This research design is essentially used for quantitative research but uses qualitative data to help answer the research questions (Salaria, 2012).

Population and Sampling Technique

The population of this study is children under the age of 5 in Puting Kahoy, Silang, Cavite. For the sampling size, 100 respondents were required, and the primary caregivers of the target population were the respondents. The researchers used a purposive sampling technique in which respondents were chosen by determining if the participants were eligible according to the criteria and those who could offer information that would be most helpful to answer the research objectives. From there, the researchers used the snowball sampling technique, where the research participants were asked to assist the researchers by recruiting potential subjects to answer the survey (Nikolopoulou, 2022).

The criteria for respondents are only the mothers, fathers, and grandparents who are the primary caregivers or the ones taking care of the well-being of the children under 5. The stepmom, stepdad, aunties, uncles, and siblings are not allowed to participate in the survey.

This research study assessed the primary health care services for children under five years old in Puting Kahoy, Silang, Cavite, during the second semester of the school year 2022 to 2023. The aspects that the researchers investigated were the quality of the participants' health, possible health problems within this place, and demographic information that may help understand their socioeconomic status. The researchers personally collected data through answers given in the survey forms, and by interviewing eligible respondents to the survey form. This study included parents or guardians of children under 5 (4 years and 11 months old). Respondents resided in Puting Kahoy and are Filipino citizens.

Instrumentation

The instrument is designed to be completed in 5-10 minutes. The questionnaire collected the specific age of the child (0-11 months, one-year-old, two years old, three years old, four years old) as well as the primary caregiver's age range

of 15-24-year-old (adolescent), 25-54 years old (adult), 55-64 years old (middle adult), and 65 years and over. The sex of the child/children and the sex of the caregiver were also solicited, as well as their socioeconomic status. The rest of the survey was sectioned into statements related to each of the 5 A's (Affordability, Availability, Accessibility (geographic), Accommodation, and Acceptability). The respondents had to choose their answers in a 5-point Likert scale, ranging from strongly agree to strongly disagree, and the scores are interpreted using the following: 4.50-5.00 (very high), 3.50-4.49 (high), 2.50-3.49 (average), 1.50-2.49 (low), and 1.00-1.49 (very low).

Data Gathering Procedures

A pilot study was conducted in the neighboring barangay Hoyo. There was a target of 30 respondents. A total of 25 respondents were interviewed due to time constraints, but only 22 were determined as valid according to the criteria that were set.

The main study was conducted in Puting Kahoy by going from house to house. Respondents were chosen as they fit the criteria of having a child under 5. Informed consent was obtained before letting them answer the survey questions. This was to assure them that the survey results were confidential and only used for research purposes. The researchers personally asked the survey questions, making it easier to clarify items and ensuring that each question was answered. The survey was also sent online via Google Forms at the respondent's convenience. The researchers ensured that communication was open for any follow-up questions or clarifications from the respondents. The researchers also took advantage of events where the target population would be present, such as during immunization days for the under 5 in the barangay hall and daycare centers.

Analysis of Data

The instrument for this research study was validated using the Cronbach's alpha reliability

test. The five facets of accessibility to health care services were analyzed by their mean, numerical average of the results, and standard deviation.

The statistical tests that were also used in the analysis of data were frequency and percentage. Frequency was used to see how many respondents were accessing the services of the barangay health center. Percentage was used to determine the percentage of the sampling compared to the bigger population.

Ethical Considerations

The researchers recognize the importance of protecting the participants of this study by following relevant ethical guidelines. Methods were employed by the researchers such as giving informed consent and voluntary participation, where it was stressed that participants have the right to refuse participation. They also had the right to consent to the survey and withhold their answers at the end of the interview if they wished the researchers would not use it in the study. Ethical approval and access to participants' approval were also sought and granted to the researchers by the school's research ethics committee. The researchers observed what was necessary to protect the participants' privacy.

Results and Discussion

The data collected were compiled, examined, presented, and construed in this chapter to comprehensively answer each of the research questions posed by this research.

Programs Utilized in Puting Kahoy

Table 1

Programs Utilized by Respondents

Program	Frequency	Percentage
Immunization	99	98.0
Deworming	69	68.3
Growth and Weight	81	80.0
Mother & Child Protection	17	16.8

Four programs are directed at the under-5 population: the immunization program, the growth and weight chart, the deworming and nutrition program, and the mother and child protection program. The researchers assessed which programs were utilized by the respondents to determine any programs that may be under-utilized and propose program enhancements or new programs that will benefit the community.

Immunization. Table 1 shows that in Puting Kahoy, 99 respondents (98.0%) have availed themselves of immunization services for children under 5 in the barangay health center. Most respondents had availed of immunizations from the barangay health center for their child under 5, revealing that this program was well-promoted.

Growth and Weight. The researchers observed that the next most utilized program was recording the children's growth and weight, with 81 respondents (80.0%) having their child monitored for their physical development. Many respondents have experienced the growth monitoring of their child's development, so it is implied that primary caregivers are knowledgeable about this program. Regardless, the community can be further helped with a personal growth card for monitoring at home.

Deworming. Thirdly, 69 respondents (68.3%) took advantage of deworming services in the community. The data gathered showed that this is one of the least utilized programs in the barangay. Therefore, this program can be enhanced by using posters that promote health education. The posters would contain information that educates patients on the benefits of regular deworming, thereby encouraging the utilization of this program and destigmatizing the idea that deworming is a procedure to be afraid of (Pareño, 2018).

Mother and Child Protection. Lastly, the least utilized program in Puting Kahoy was the Mother & Child Protection program, with 17 respondents (16.8%) who had experienced this program. Being the least utilized or least familiar program, the researchers believe that further education of

the community about violence among mothers and children is beneficial. Therefore, a seminar series to educate residents on their rights according to RA 9262, the anti-VAWC law, will aid the community in giving insight into the available services for their needs.

Accessibility to Primary Health Care Services Among Under 5

This section outlines the level of accessibility of healthcare services provided by the barangay healthcare center to the residents of Puting Kahoy with under-five children in terms of the five facets of accessibility: Affordability, Availability, Accessibility (geographic), Accommodation, and Acceptability.

Table 2

Affordability

Statements	Mean	Std. Deviation	Verbal Interpretation
1. Vaccinations are of no cost to barangay residents with children under 5.	4.53	.672	Very high
2. Prescribed medications for my under five child are very affordable.	4.47	.729	High
3. There are free program/s in the barangay for those under 5.	4.44	.713	High
4. The healthcare provider's fee has no cost.	4.39	.894	High
5. I avail of free vaccinations for my under 5 child.	4.38	1.076	High
6. There are vitamins for my under 5 child.	4.37	.956	High
7. Travel expenses to the healthcare facility are low cost.	4.33	.814	High
8. Healthcare for my under 5 child is within my family's budget.	4.27	.799	High
9. I have no travel expenses to the healthcare facility.	3.96	1.174	High
10. The overall healthcare expenses for my under 5 child are cheap.	3.94	1.066	High

Legend: Very low = 1.00-1.49 Low = 1.50-2.49 Average = 2.50-3.49 High = 3.50-4.49 Very high = 4.50-5.00 (N = 101)

Affordability. Table 2 presents the respondents' view of the community's affordability level. This section of the survey covered areas of affordability about the cost of medical stock available in the clinic, programs in the barangay, healthcare provider's fee, travel expenses to the healthcare facility, and the mode of payment in these facilities, whether it be by donation or free of charge. Respondents *strongly agreed* that vaccinations are of no cost for children under 5, with a mean of 4.53, indicating that they are very inexpensive to them. However, many respondents disagreed ($M = 2.21$, $SD = 1.203$) that the health center collects donations. During the survey interview, the researchers observed the respondents feeling little obligation to donate. This further implies that the respondents find it affordable to acquire the services offered in the health care facility, like vaccinations, but donations may be given if they choose to. Overall, respondents agreed ($M = 4.1152$, $SD = .52411$) with the affordability of the healthcare facilities in the community considering the cost for medications, vitamins, and travel. This is supported by the fundamentals of the Barangay Health Center, where all medicines are free, and any services acquired should be free. The mean score of all items indicates that the level of accessibility for the aspect of affordability is *high* at 4.1152 ($SD = .52411$).

Table 3*Availability*

Statements	Mean	Std. Deviation	Verbal Interpretation
1. The vaccinations are available	4.41	.777	High
2. There are vitamins available for those under 5.	4.32	.761	High
3. The healthcare personnel are available for patient inquiries.	4.30	.558	High
4. The facility opens and closes at the scheduled time	4.29	.683	High
5. There is an updating of the growth monitoring card every visit	4.26	.902	High
6. The healthcare facility provides equipment/supplies for handwashing.	4.25	.853	High
7. Healthcare personnel are available for health education services.	4.24	.764	High
8. The healthcare workers are available during the posted office hours.	4.24	.680	High
9. There are enough healthcare personnel attending during the scheduled program.	4.18	.754	High
10. There is a designated healthcare worker for the under 5.	4.16	.809	High
11. The prescribed medications for my under 5 are available.	4.13	.833	High
12. The equipment and supplies needed for the service is available.	4.08	.808	High
13. The doctor is available during the scheduled consultation day.	3.92	.902	High
14. The healthcare workers offer home-to-home vaccination for under 5.	3.67	1.379	High
15. The healthcare workers visit to offer deworming services.	3.54	1.425	High
16. The healthcare workers visit our home and monitor the growth and development of under 5.	3.45	1.446	Average
Overall Mean	4.0885	.56997	High

Legend: Very low = 1.00-1.49 Low = 1.50-2.49 Average = 2.50-3.49 High = 3.50-4.49 Very high = 4.50-5.00 (N = 101)

Availability. Table 3 indicates that most of the respondents agree that vaccinations are available ($M = 4.41$, $SD = .777$), meaning that there are supplies available when patients visit. However, most respondents neither agree nor disagree ($M = 3.45$, $SD = 1.446$) that healthcare workers visit homes to monitor the growth and development of those under 5, implying that respondents view their home-to-home visits only sometimes. This is supported by the Certification and Recognition Program, a Sentrong Sigla Movement handout. This handout outlines that level 1 quality standards for barangay health stations consist of general conditions and amenities like handwashing stations, and these clinics should be able to observe clinic hours. It further lists programs on immunizations are held regularly as possible, indicating that supplies should be available in healthcare facilities. Though supplies, like vaccinations, are available in the health center, primary caregivers reported that they do not get visited by healthcare personnel. However, the personnel are available for consultation if they visit the health center. The overall mean of these items indicates that the level of accessibility for the aspect of availability is high at 4.0885 ($SD = .56997$).

Table 4*Accessibility (geographic)*

Statements	Mean	Std. Deviation	Verbal Interpretation
1. The healthcare facility is easy to find	4.38	.614	High
2. Travel time to the healthcare facility is manageable	4.32	.631	High
3. The healthcare facility has a good waiting area.	4.30	.656	High
4. The location of the healthcare facility is convenient to reach by public transportation	4.12	.739	High
5. The healthcare facility is within walking distance from my residence.	3.89	1.207	High
6. Traffic is not a problem to go to the healthcare facility.	3.80	1.086	High
7. I can request ambulance transport to the healthcare facility.	3.78	1.026	High
8. Going to a healthcare facility is challenging.	3.30	1.171	Average
9. There are designated areas where we can park.	3.18	1.220	Average
10. Traffic lengthens the travel time to the healthcare facility.	2.69	1.198	Average
Overall Mean	3.775	.52790	High

Legend: Very low = 1.00-1.49 Low = 1.50-2.49 Average = 2.50-3.49 High = 3.50-4.49 Very high = 4.50-5.00 (N = 101)

Accessibility (Geographic). Table 4 shows that the respondents **agree** that the healthcare facility is easy to find ($M = 4.38$, $SD = .614$) since it is central to the barangay. On the other hand, some *neither agree nor disagree* when asked if road traffic lengthens the travel time to the health care facility ($M = 2.69$, $SD = 1.198$), suggesting that some may live closer to the barangay health center and only walking distance. In contrast, other respondents may have to use public transportation or their vehicles to reach the health center. Transportation is an important factor in considering the availability of health care services because if the distance to the facilities is manageable, it will be easier for the residents to avail of them. This is especially important for low-income families and those living in rural areas (Hunt, 2005). While the healthcare facility is easy to find, some residents may differ in how traffic lengthens their travel time to the healthcare facility.

The overall mean of all the items indicates that although geographic accessibility is the lowest level, the healthcare facility still has a *high* level of geographic accessibility for the under 5 in Puting Kahoy ($M = 3.7752$, $SD = .52790$).

Table 5*Accommodation*

Statements	Mean	Std. Deviation	Verbal Interpretation
1. Healthcare personnel show genuine attentiveness to my concerns.	4.33	.568	High
2. The healthcare workers have the competence skills catering to the under-5	4.31	.579	High
3. The manner of accommodation by the healthcare personnel attending client appointments is commendable.	4.30	.625	High
4. There is an order in the processing system of clients in the queue.	4.29	.698	High
5. Crowd control protocols are in place	4.24	.709	High
6. Walk-in clients are well accommodated.	4.21	.852	High
7. The scheduled hours of the program are convenient for my family	4.21	.637	High

[table continues on the next page]

8. Appointments can be made with the facility on a face-to-face basis.	4.19	.796	High
9. The waiting time for consultation is efficient.	4.18	.740	High
10. The temperature in the waiting area is comfortable.	3.97	1.034	High
11. Healthcare-related inquiries can be accessed by calling the facility.	3.27	1.295	Average
12. I can make appointments over the phone.	3.14	1.289	Average
Overall Mean	4.0512	.50634	High

Legend: Very low = 1.00-1.49 Low = 1.50-2.49 Average = 2.50-3.49 High = 3.50-4.49 Very high = 4.50-5.00 (N = 101)

Accommodation. Table 5 reveals that most respondents agree that the healthcare personnel showed genuine attentiveness to their concerns ($M = 4.33$, $SD = .568$), indicating that respondents are highly satisfied. On the other hand, some respondents neither agree nor disagree that the clients can make appointments over the phone ($M = 3.14$, $SD = 1.289$), which means they are neither satisfied nor dissatisfied (average). This demonstrates that the personnel treat their clients fairly with no favoritism. However, it resulted that access through the phone is not practiced. All healthcare workers are expected to show attentiveness. By being attentive, the caregiver will notice when there are emotional or physical changes in the person he or she is caring for. He is also expected to be compassionate, patient, and trustworthy. With only one to two referrals received weekly, primarily via SMS and via email, telemedicine services in the Philippines continue to be underutilized. However, there are still a lot of unknowns regarding consumer satisfaction with and expectations of telemedicine, as well as how users will incorporate this new technology into their regular lives. It is crucial to understand how to manage the expectations of the rural doctors who would utilize the service and what can be done to encourage the usage of telemedicine across the nation (Pasco, 2016). The overall mean of all items indicates that the level of accessibility for accommodation is high ($M = 4.0512$, $SD = .50634$).

Table 6
Acceptability

Statements	Mean	Std. Deviation	Verbal Interpretation
1. There is fair treatment of residents in the queue for consultation.	4.33	.531	High
2. There is an evident maintenance of the cleanliness of the healthcare facility	4.32	.615	High
3. There is fair treatment from the healthcare workers considering socioeconomic status	4.31	.612	High
4. The healthcare workers are effective in terms of people management	4.30	.558	High
5. The healthcare workers are competent in the care of the under-5	4.29	.535	High
6. The healthcare workers are efficient in terms of time management	4.24	.650	High
7. The ratio of personnel to under-clients/patients is acceptable.	4.18	.727	High
8. There is no discrimination from the healthcare workers considering religious beliefs.	4.15	.669	High
9. The healthcare personnel are sensitive to my religion.	3.77	.958	High
Overall Mean	4.2079	.49082	High

Legend: Very low = 1.00-1.49 Low = 1.50-2.49 Average = 2.50-3.49 High = 3.50-4.49 Very high = 4.50-5.00 (N = 101)

Acceptability. Table 6 indicates that the majority of the respondents agree that there is fair treatment of residents in the queue for consultation ($M = 4.33$, $SD = .531$), which means that the level of acceptability is high. Some respondents agree that the healthcare personnel are sensitive to their religion ($M=3.77$, $SD=.958$), which indicates that the experience is neutral regarding their accessibility to healthcare. This demonstrates that the staff at the primary healthcare facility treats queue consultations in a good and equitable manner and does not base their treatment on a person's religion.

The majority of the population in Silang is Christian, including Roman Catholics, Protestants, and individuals from other Christian denominations. Most people who identify as Christians are Roman Catholics. This suggests that the result of healthcare workers not being sensitive to religion is due to the homogeneous religious experiences and views of the people in this community. Therefore, this statement has been described with largely neutral responses. This result means the respondents cannot decide whether the statement/s affects them. The overall mean of this aspect indicates that the accessibility level of acceptability is *high* ($M = 4.2079$, $SD = .49082$).

Overall Accessibility of Primary Health Care Services

Table 7 indicates that the overall level of accessibility to primary health care services in Puting Kahoy is high ($M= 4.0504$, $SD=.44754$). These statistics describe a commendable effort by the barangay and barangay health workers to facilitate accessible primary health care to the under-5 population.

Table 7

Overall Accessibility of Primary Health Care Services

N	Mean	Std. Deviation	Verbal Interpretation
101	4.0504	.44754	High

Proposed Promotional Programs

The following sections contain the six proposed promotional programs that address the gaps in accessibility. The researchers identified these gaps upon analysis of the above data.

REACH. This program is the utilization of the concept of telehealth. The name is an acronym that stands for Reaching Every Child to Achieve Community Health. This would use phone lines, email, and even a social media platform like Facebook. On the online platform, program posters, promotional health posts, resources, and general updates can be found on the Facebook page for the convenience of families with children under 5.

This program addresses the problem of geographic accessibility since the main problem is difficulty accessing during high-traffic hours. This will aid families in accessing information right when needed without worrying about road traffic taking up time. It would also address the accommodation problem if the phone line is utilized for convenience. In addition, this will even address the aspect of affordability since patients do not have to go to the facility directly and feel obligated to give donations.

Geo-Flagging. This program uses the barangay map to locate or flag the households with under-five children. This would help allocate resources and manpower to distribute services and the ability to follow up with patients. This addresses the aspect of availability in which growth monitoring and deworming services are underutilized. Additionally, this would address the aspect of geographic accessibility if the barangay health workers can visit the patients themselves for regular services.

Let's Get Connected! This program is the incorporation of a calendar of events that would be posted inside the facility, as well as published on the social media platform. The calendar of events would include the scheduled programs and services for children under-five established in the barangay. This addresses the aspect of geographic accessibility because it informs the primary caregivers of events for children under 5, allowing

them to plan for services they wish to avail, as opposed to being informed without adequate time to make plans that traffic would affect.

Grow With Me Card. The barangay currently has a growth monitoring chart in the center. Because this is considered important, the researchers found it valuable for primary caregivers to record their child's growth. Therefore, it was proposed that a simple monitoring card be made available both in the facility and on the social media platform. This would include a reference chart for primary caregivers to observe the development progress within the expected range of their age group. This addresses the availability aspect in which growth monitoring was not regularly utilized.

Ba-Bye, Bulate! This recommendation is an enhancement to the existing deworming program offered by the barangay, and according to the study's results, it was underutilized. The data gathered showed that this is one of the least utilized programs in the barangay. Therefore, this program can be enhanced by using posters that promote health education. The posters would contain information that educates patients on the benefits of regular deworming, thereby encouraging the utilization of this program and destigmatizing the idea that deworming is a procedure to be afraid of (Pareño, 2018).

Wakasan: Karahasan sa Kababaihan at Kabataan. This program is a seminar series to educate on abuse among women and children. Being the least utilized or least familiar program, the researchers believe that further education of the community about violence among mothers and children is beneficial. Therefore, a seminar series to educate residents on their rights according to RA 9262, the anti-VAWC law, will aid the community in giving insight into the available services for their needs.

This study has shown that accessibility in all five aspects is high for primary health care services in Puting Kahoy. The residents of the barangay are content with how affordable, available, accessible, accommodating, and accepting the barangay

health workers and primary health care services are. Furthermore, the researchers conclude that programs for children under 5 in Puting Kahoy, Silang, and Cavite, have been well-established. However, some facets of accessibility need improvement. Additionally, when programs were well promoted and dates were set in place; more were engaged, improving accessibility to these services. Participation in the barangay was highly valued and can make the most significant difference in raising awareness of the importance of having access to health care. Enhancement and encouragement of these programs will mitigate any problems concerning the accessibility to health care services.

After assessing the accessibility of primary health care services in Puting Kahoy, Silang, Cavite, the researchers noted the barangay's success in implementing these programs and guaranteeing that children under five receive basic health care. However, the researchers recommend various health promotion programs to improve care further. A recommendation for Puting Kahoy is to establish a telehealth system where patients can contact the healthcare center for inquiries and concerns and the ability to book appointments without coming to the clinic. This is because geographic accessibility was the lowest level of accessibility shown in the results of our study. In addition to addressing accessibility, an online platform may be provided to keep residents updated with the available services for children under 5 through a Facebook page titled: "Brgy. Puting Kahoy Health Page for Under 5 Programs." A calendar may also be created that indicates the programs (immunizations, deworming and nutrition, growth chart, and mother and child protection) already established in the barangay. Thus, primary caregivers may know how to avail themselves of those services. Furthermore, the researchers recommend the geo-mapping concept where locations where families with children under 5 are color-coded on the Puting Kahoy map to make it easier for healthcare personnel to distinguish areas they need to cover for home visits for those

children. This may aid in swift follow-up and give an approximate consensus of children in that age range in the barangay. To promote children's health and enhance recognized programs in the barangay, the researchers suggest a growth monitoring card that primary caregivers can keep documenting their child's early development from infancy until five years old. This promotion was encouraged after observing that the barangay hall only had the growth standards of a child (male and female) in the Philippines posted on the wall. It would be helpful for parents to visualize their own child's growth by also comparing it to the standard. Finally, to further advocate for the programs already in the barangay, the researchers will promote the importance and advantages of deworming and nutrition and the mother and child programs through visual aids.

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Implementation of a Lifestyle Modification Program for Hypertensive Senior Citizens in a Community-Based Setting

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Hypertension is a global public health issue that can lead to serious life-threatening complications of vital organs such as the brain, eye, heart, and kidney, resulting in death or severe patient disability. Senior citizens account for most of the hypertension-related illnesses and fatalities. However, hypertension represents one of the most prevalent and potentially modifiable of the potential targets for improving health among the elderly. The lifestyle modification program aimed to promote healthy practices among hypertensive senior citizens. A pre-test and post-test design was utilized to determine its effect on 60 participants. The six-week program consisted of 11 sessions with lectures, breakout sessions, group activities, counseling, and exercise. A paired t-test analysis was used to analyze the change in knowledge, attitude, and practice levels. Participants showed high knowledge, a neutral attitude, and good practices during pre-intervention, which improved to very high knowledge. The mean for attitude and practice improved; however, these remained in the neutral attitude and good practice categories post-intervention. The comparison between the mean scores of pre-intervention and post-intervention results suggests that the differences are statistically significant for knowledge ($MD = 3.02$, $p = 0.001$), attitude ($MD = 0.27$, $p = 0.001$), and practice ($MD = 0.31$, $p = 0.001$). Therefore, the lifestyle intervention program successfully promotes healthy lifestyles among hypertensive seniors. A follow-up study is needed to monitor their health.

Keywords: attitude, hypertension, lifestyle modification program, senior citizens

Hypertension, or high blood pressure, is a global public health issue. It can lead to severe complications of vital organs such as the brain, eye, heart, and kidney, disability, and death. Hypertension is a silent, invisible killer (World Health Organization [WHO], 2019). The majority of hypertension-related illnesses and deaths are in the elderly population. On the other hand, hypertension represents one of the risks and is possibly modifiable among the potential targets for improving health among this population group (Buford, 2017).

Most people with hypertension are unaware of the problem because it may have no warning signs or symptoms. When symptoms do occur, they can include early morning headaches, nosebleeds, irregular heart rhythms, vision alteration, and droning in the ears. Stern hypertension can cause fatigue, nausea, vomiting, confusion, anxiety, chest pain, and muscle shudder. It is conceived to be one of the main jeopardy factors for peripheral vascular, cerebrovascular, and cardiovascular diseases (CVD), which include stroke, coronary disease, peripheral artery disease, renal disease, and heart failure. Hypertension has been known as the leading risk factor for impermanence and is ranked third as a cause of impairment-adjusted life years. Obesity, sedentary behaviors, tobacco use, harmful use of alcohol, and salt intake can be contributing factors to having hypertension.

The National Center for Health Statistics (2007) states that as our population ages, the importance of cardiovascular disease (CVD) as the primary cause of death in adults becomes increasingly apparent. According to the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7), hypertension occurs in more than two-thirds of individuals after age 65 (Chobanian, 2003). Data from the Framingham Heart Study in men and women free of hypertension at 55 years of age suggest that the unexpended lifetime endangerment for alteration of hypertension through 80 years is 93% and 91%, respectively

(Levy, 1996). In other words, more than 90% of individuals who are free of hypertension at 55 years of age will acquire it during their remaining lifespan.

Many underdeveloped countries are seeing growing numbers of people who suffer from heart attacks and strokes due to undiagnosed and uncontrolled risk factors for hypertension. Globally, the generality of hypertension diverges across regions and country income groups. An assessment of current trends shows that the number of adults with hypertension increased from 594 million in 1975 to 1.13 billion in 2015, with an increment in low- and middle-income countries (WHO, 2019). This increase is owed to a rise in hypertension-endangerment factors in those populations.

Regionally, Africa stands out as the continent with the highest preponderance: 27 percent of adults aged 25 and older for both sexes combined suffer from hypertension. The lowest prevalence of hypertension was in the region of the Americas, at 18% for both sexes. In this region, men were more prevalent than women (39% for men and 32% for women). In all WHO regions, men have a slightly higher prevalence of raised blood pressure than women. In 2015, one in four men and one in five women had high blood pressure. Throughout the income groups of countries, inflated blood pressure was systematically high in the low, lower-middle, and upper-middle countries. The prevalence was lower in high-income countries. As supported by the national survey released by the Department of Health in 2017, the total number of hypertensive Filipinos is now more than 12 million, with more than half of them unmindful of their stipulations. That is one out of four Filipinos (Orillo, 2018).

The Top 10 Causes of Mortality in Unisan, Quezon, in the year 2020 are myocardial infarction, cerebral infarction, COPD, heart failure, respiratory TB, Streptococcus infection, acute peptic ulcer, colon cancer, anemia, and chronic renal failure with a total depth of 68. As of January 2021, a total of

46 deaths were caused by ischemic heart disease, other forms of heart disease, pneumonia, cancer, and metabolic disorders. In Unisan, Quezon, 1,753 senior citizens have maintenance medications. However, most of them are still complaining that their vital signs, especially their blood pressure, are still high even though they are under the program of the government, where medications for hypertension and diabetes are fully supplied and monitored every month. It clearly shows that cardiovascular illness is the leading cause of death in Unisan, Quezon, even with the efforts of the government.

High blood pressure in elderly patients represents a management perplexity for cardiovascular specialists and other practitioners (Nikolaos et al., 2012). Thus, a program that can help hypertensive senior citizens improve their way of life by preventing complications and further aggravation of their current condition due to hypertension should be implemented. This population group should recognize the value of a healthy lifestyle as it is necessary to prevent complications due to hypertension, which include stroke, coronary disease, peripheral artery disease, renal disease, heart failure, grave disability, and, worse, death.

This lifestyle intervention research aimed to promote healthy lifestyles among hypertensive seniors. The study answered the following questions:

1. What are the levels of knowledge, attitude, and practice of the senior citizens before and after the lifestyle intervention?
2. Are there significant differences in the participants' knowledge, attitude, and practice before and after the lifestyle intervention?

Methodology

Research Design

This study employed a quasi-experimental, pre-test, and post-test design. This was used to evaluate the outcome of the program. The lifestyle intervention was based on the results of the needs assessment and identified health problems in the chosen community.

Population and Sampling Techniques

Convenience sampling was utilized to gather participants for the field study. Sixty residents of a barangay in Quezon participated in the program. In the survey, individuals aged 60 and above with a family history of hypertension who are hypertensive, are currently taking anti-hypertensive medication, and are available and willing to answer the survey forms were included in the study. After this, the participants who consented to participate in Phase 2 were employed in the program implementation.

Socio-Demographic Profile

Sixty senior citizens were able to complete all program sessions from start to finish. The summary of program attendees per session is presented in Figure 1.

Figure 1 shows many attendees in Sessions 1 and 2, but attendance dropped during Sessions 3 and 4, primarily due to scheduling conflicts and availability. Participants often cited date and time unavailability due to family-related matters and job disputes. This is aligned with the systematic approach of Katelyn et al. (2018), which identified the reasons for nonattendance at health programs as conflicting work schedules, lack of transportation, anxiety with group settings, and competing priorities. It may also be due to failed attendance since many are either late to the sessions or leave early after one session. Figures 1–5 show the demographic profile of the participants.

Figure 1

Number of Program Participants Per Session

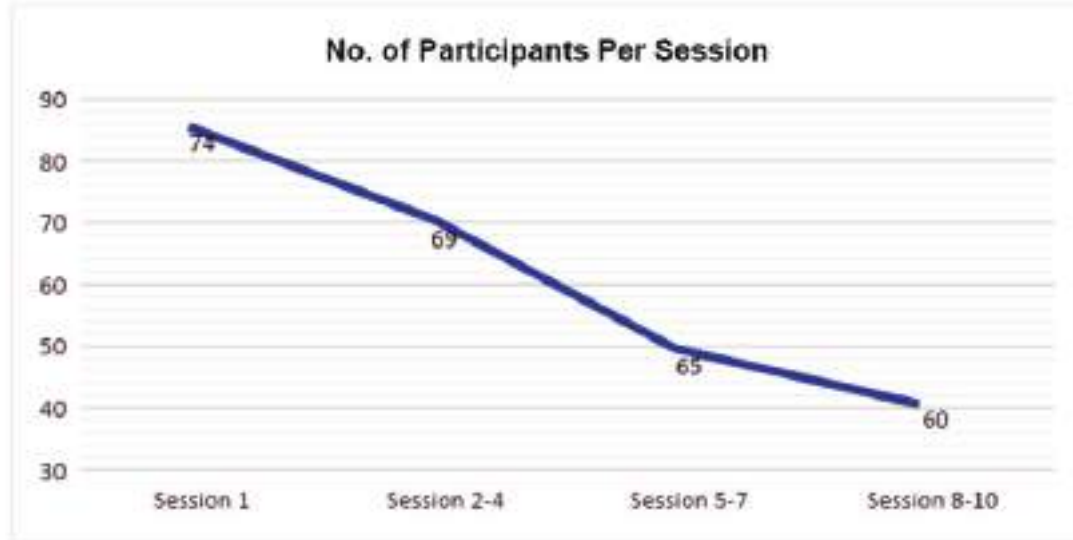
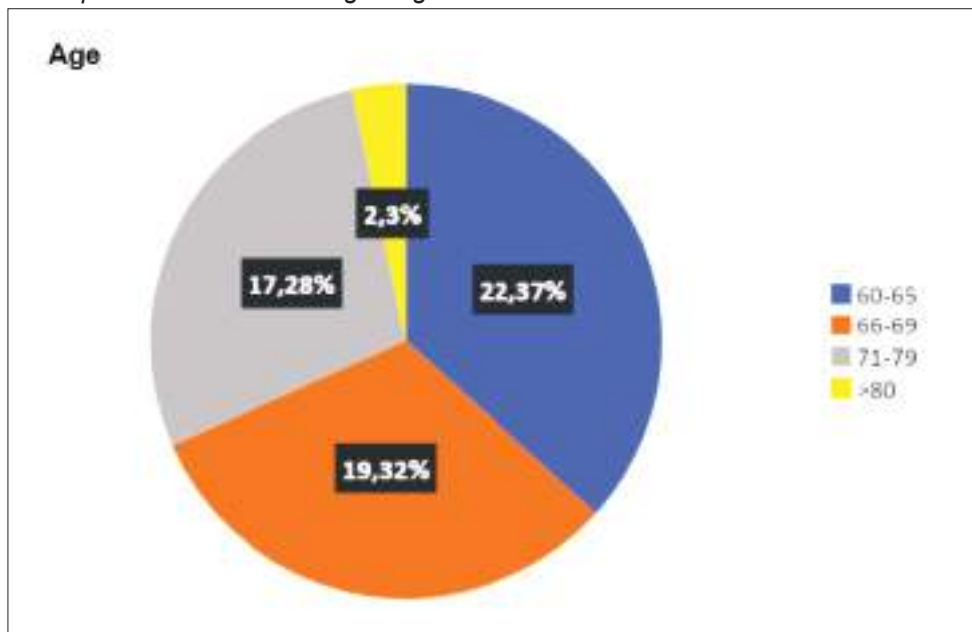


Figure 2

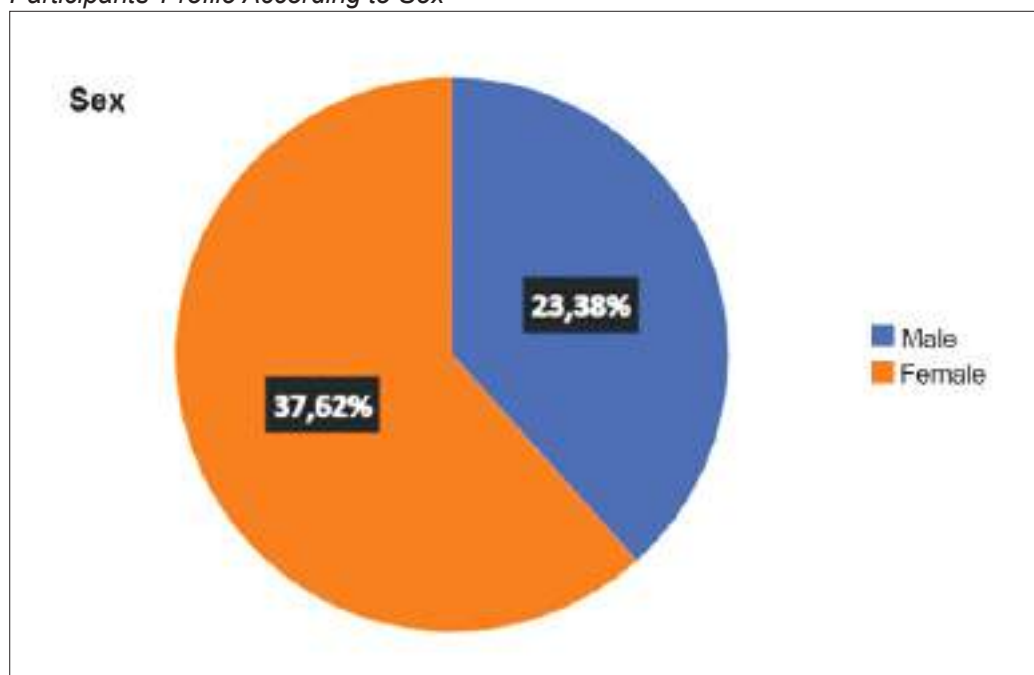
Participants' Profile According to Age



Twenty-two (22 or 36.7%) participants were 60-65 years old. Nineteen (19 or 31.7%) were between 66 and 69. Seventeen (17 or 28.3%) participants were 71-79 years old, and two (2 or 3.3%) participants were 80 and above.

Figure 3

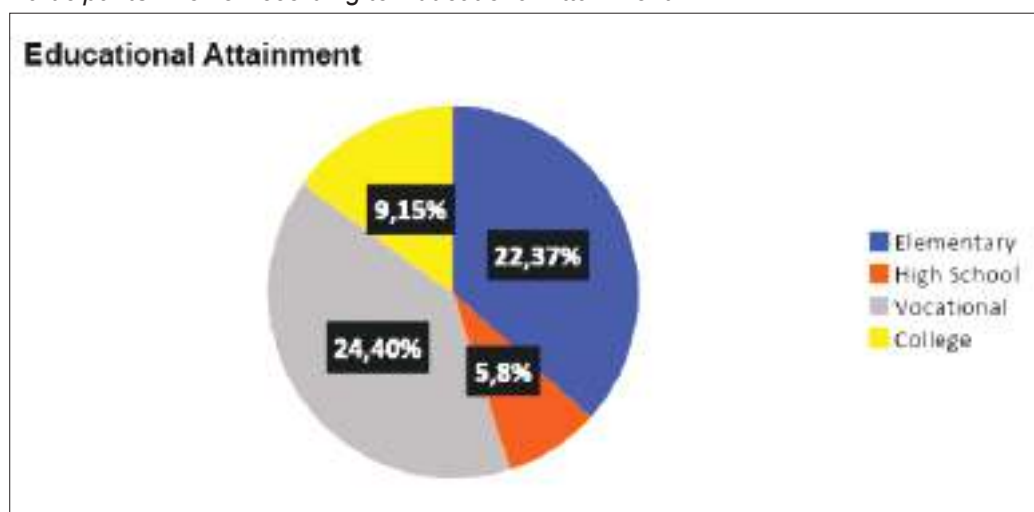
Participants' Profile According to Sex



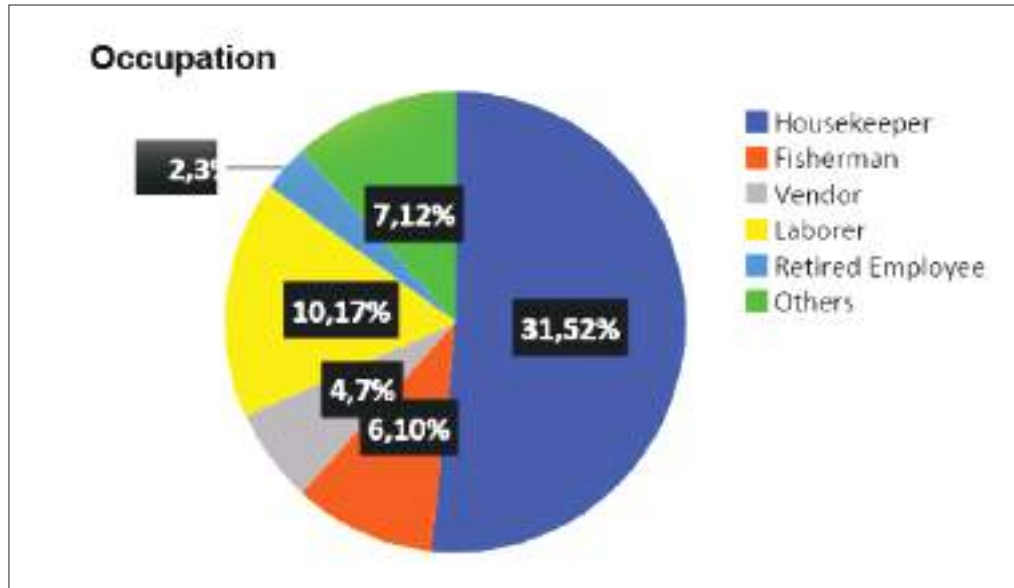
Thirty-seven (37 or 61.7%) were female, while twenty-three (23 or 38.3%) participants were male among the sixty participants.

Figure 4

Participants' Profile According to Educational Attainment



Twenty-four (24 or 40%) participants were at the vocational level. Twenty-two (22 or 36.7%) are at the elementary level, and nine (9 or 15%) are at the college level. Only five (5 or 8.3%) are at the high school level.

Figure 5*Participants' Profile According to Occupation*

Instrumentation

The self-constructed, validated questionnaire consists of three sections. First is knowledge, which contains ten questions that can be answered with a yes or no. Every correct answer was granted a "1" point and a "0" point for every wrong answer. The range of possible total scores is (0–10). The attitude section consists of eight (8) questions. The scale is rated as 1: 'Never,' 2: 'Sometimes,' and 3: 'Always.' The range of possible total scores is (1–4). The last part measures the level of practice, which consists of 10 questions on a 5-point Likert scale. The scale is rated as 5: 'everyday,' 4: '2x a week,' 3: 'weekly,' 2: 'monthly,' and 1: 'Never.' A manual sphygmomanometer measured the blood pressure. The presence of systolic blood pressure ≥ 130 mm of Hg and diastolic blood pressure ≥ 80 mm of Hg was considered to have high blood pressure. The American Heart Association guidelines for the classification of blood pressure are: normal (<120/80), elevated (120-129/80), stage 1 (130-139/80-89), stage 2 (140 or higher/90 or higher), and hypertensive crisis (higher than 180 or higher than 120; Flack & Adekola, 2020).

Data Analysis

Statistical Package for Social Science (SPSS) version 23.0 was used to analyze the gathered data. Frequency distribution and percentages were used. The T-test was used to determine the significant difference between the means of the statistical data of the pre- and post-test results. A p-value of less than or equal to 0.05 was considered significant.

Ethical Considerations

Gabay sa Malusog na Pamumuhay was approved by the AUP Ethics Board. The purpose, intent, background, procedures, duration, and conditions of participation in the study were clearly explained to all participants. The lead researcher also clarified that participation in the research study is voluntary before obtaining informed consent. Confidentiality and anonymity of the participants were top priorities, and the data results were summarized and presented in aggregate to minimize potential risks of re-identification. They were also informed that their participation was voluntary. The researcher also ascertains the discreteness and anonymity of the participants by ensuring that the result of the data does not identify individuals.

Results and Discussion

Housekeeper is composed of 31 (51.7%) participants, while laborer has ten (10 or 16.7%), other occupation has seven (7 or 11.7%), fisherman has six (6 or 10%), vendor has four (4 or 6.4%), and retired employee has two (2 or 3.3%) participants.

Levels of Knowledge

Before attending the program Gabay sa Malusog na Pamumuhay, the pre-test knowledge score of the participants showed that they had high knowledge, with a mean score of 6.83 ± 1.74 . After the program, participants' mean score increased to 10.74 ± 9.85 , which translates to their very high knowledge. Table 1 shows the scores of pre-tests and post-test knowledge per item.

Table 1

Pre-Test and Post-Test Knowledge Per Item (N = 60)

	Pre-Test Mean	Post-Test Mean
1 Hypertension is a communicable disease.	.88	1.00
2 Hypertension can cause strokes.	.96	1.00
3 Cholesterol is found in fruits and vegetables.	.13	1.00
4 Obesity is one of the contributing factors to hypertension.	.83	1.00
5 A BP reading of 120/80 is considered "normal" BP.	.95	1.00
6 Hypertension is also known as low blood pressure.	.68	1.00
7 Hypertension can lead to permanent disability.	.83	1.00
8 A BP reading of 130/85 is okay for a 50-year-old person.	.35	.95
9 Hypertension is hereditary.	.88	.95
10 Cholesterol contributes to having high blood pressure.	.33	.95
Mean	6.83	9.85
Verbal Interpretation	High Knowledge	Very High Knowledge

Legend: 7.5–10–Very High Knowledge; 5–7.49–High Knowledge; 2.5–4.49–Low Knowledge; 0–2.49–Very Low Knowledge.

Hypertension is a disease that increases the risk of diseases in multiple systems. Failure to control hypertension causes patients to end up with unavoidable complications, including death. Noncompliance with treatment is the main factor in developing such devastating complications, whereas knowledge of patients about their disease is a key factor in better compliance. A lifestyle intervention program is a non-pharmacological intervention that positively increases the elderly population's knowledge of identifying risks and managing hypertension (Prabawati & Lorica, 2022). According to Kim (2007), ample knowledge about hypertension in patients has been associated with greater medication adherence and better blood pressure control. As observed in Table 14, the participants answered seven out of ten questions correctly by over half. The post-intervention knowledge scores showed an increasing trend, with more than half of the participants answering all questions correctly. Increased BP is one of the preventable origin of premature deaths. However, most people do not regulate their blood pressure optimally. Knowledge about increased BP contributes a lot to controlling and preventing the complications that might result (Paper, 2014). The inadequate inclination of their disease condition in hypertensive patients makes it difficult to control hypertension adequately; in

addition, it is one of the leading factors not corresponding to their treatment appropriately (Magadza, 2009). Knowledge about hypertension in hypertensive patients is positively connected with a good adherence level, which in turn assists in controlling blood pressure (Akoko et al., 2017).

Levels of Attitude

Earlier in the program, the mean attitude scores of the participants were 2.06, which translates to the participants having a neutral attitude. After the activity, the mean attitude scores were 2.33, which also translates to them having a neutral attitude. Two out of eight attitudes were reflected as negative attitudes: smoking gives me a satisfying feeling ($M = 1.36$), and I feel scared when someone measures my blood pressure ($M = 1.70$).

Table 2

Pre-Test and Post-Test Attitude Per Item (N = 60)

	Pre-Test Mean	Post-Test Mean
2. I enjoy physical activities.	2.08	1.00
1. I feel happy when eating at fast food restaurants.	2.25	1.00
3. I believe in the benefits of physical activity.	2.25	1.00
5. I like eating fried foods.	2.20	1.00
4. I like eating vegetables	2.41	1.00
6. Fruits make me strong.	2.25	1.00
8. I feel scared when someone measures my blood pressure.	1.70	1.00
7. Smoking gives me a satisfying feeling.	1.36	.95
Mean	2.06	9.85
Verbal Interpretation	Neutral	Very High Knowledge

Legend: 2.5-3: Positive Attitude; 1.5-2.49: Neutral Attitude; 11-1.49: Negative Attitude

Short-term programs may not be sufficient to bring about significant changes in attitude; this is related to the findings of Haq et al. (2012), where evidence proposes that a greater level of awareness positively affects attitudes toward disease prevention. Also, another study similar to the findings was the study conducted by Kurnia et al. in 2020, wherein after the implementation of a three-week health education program, middle and older adult patients with uncontrolled hypertension ($n = 41$) showed improvement in their attitude towards medication management, treatment adherence, lifestyle, and a healthy diet.

A community-based follow-up study shows that health beliefs and attitudes are significantly associated with lifestyle and impact lifestyle change. Participants who underestimate the risks and have an insusceptible attitude toward health promotion have unhealthier lifestyles, including higher cardiovascular risk factors than others (Mantyselka, 2019). Table 2 further presents the percentage scores of pre-tests and post-test attitudes per item.

Practice

Before the program, the mean score for the pre-test was 3.05, showing good practice among the study participants. Subsequently, in the program, there was an increment in the mean scores during the post-test to 3.36, indicating good practice among the study participants. Table 3 shows the pre-test and post-test practice per item.

Table 3

Pre-Test and Post-Test Practice Per Item (N = 60)

	Item	Pre-Test Mean	Post-Test Mean
1	I keep my blood pressure monitored.	2.75	4.08
2	I exercise.	2.26	4.10
3	I chose to walk.	1.55	3.88
4	I drink alcohol.	3.98	3.80
5	I eat at fast-food restaurants.	3.66	2.86
6	I use tobacco products (cigarettes, smokeless tobacco, cigars, and pipes).	4.40	3.36
7	I watch television.	3.41	3.41
8	I take my medication.	2.75	2.75
9	I inhale the smoke of tobacco products from other users.	2.71	2.70
10	I eat foods that are high in fat, such as fried foods and fatty cuts of meat.	2.98	2.63
Mean		3.05	3.36
Verbal Interpretation		Good Practice	Good Practice

The result of the study is similar to the study of Mejia et al. (2019), wherein health education and lifestyle programs effectively controlled hypertension among older adults by improving medication adherence, exercise engagement, stress management, and diet regimen practices. Also, according to the study of Maciejewski et al. (2014), written documents have incontestably shown that self-care practice is indispensable for blood pressure control and the diminution of hypertension complications of cardiovascular and renal diseases. It concerns medication consumption, ingestion of low-sodium and low-fat diets, exercise, constraining alcohol consumption, not smoking, weight loss, self-monitoring blood pressure, regular healthcare visits, and reducing stress, as Han (2014) described. Even so, hypertensive patients often do not enforce the suggested self-care practices and suffer from uncontrolled blood pressure. Table 5 presents the significant differences in KAP before and after the intervention.

Differences on Knowledge, Attitude, and Practice (KAP) Before and After Lifestyle Intervention

Another objective of the study is to evaluate the pre-test and post-test levels of knowledge, attitude, and practice (KAP) on healthy lifestyle status before the program. Table 4 presents the pre-test and post-test levels of KAP, and Table 5 shows the statistical differences.

Table 4*Levels of KAP at Pre- and Post-Intervention*

KAP	Mean	SD	Interpretation
Knowledge Pre-intervention	6.83	1.74	High Knowledge
Knowledge Post-intervention	9.85	0.36	Very High Knowledge
Attitude Pre-intervention	2.06	16.51	Neutral Attitude
Attitude Post-intervention	2.33	1.57	Neutral Attitude
Practice Pre-intervention	3.05	3.93	Good Practice
Practice Post-intervention	3.36	3.80	Good Practice

Legend: 7.5–10–Very High Knowledge; 5–7.49–High Knowledge; 2.5–4.49–Low Knowledge; 0–2.49–Very Low Knowledge.

2.5–3: Positive Attitude; 1.5–2.49: Neutral Attitude; 1–1.49: Negative Attitude; 4.5–5: Excellent Practice; 3.5–4.49: Very Good Practice;

2.5–3.49: Good Practice; 1.5–2.49: Average Practice; 1–1.49: Poor Practice

Table 5*KAP Paired Samples Statistics and Paired Differences*

	Mean Difference	Std. Error Mean	T	P	Interpretation
Knowledge	3.02	.23	13.64	.001	Significant
Attitude	0.27	.23	8.99	.001	Significant
Practices	0.31	.23	13.1	.001	Significant

The results reveal that the participant's knowledge, attitude, and practices during the pre-test and post-test have a significant difference with a p-value of <0.001 . A paired sample t-test showed that the participant's level of knowledge in terms of healthy lifestyle status decreased from the pre-test ($M = 6.83$, $SD = .36$) to the post-test ($M = 9.85$, $SD = .36$, $t = 13.64$, $p < 0.001$, $d = 1.76$). While the participants' level of attitude during the pre-test ($M = 2.06$, $SD = 1.48$) to the post-test ($M = 2.33$, $SD = 1.57$, $t = 8.99$, $p < 0.001$, $d = 1.15$). The participant's level of practice in terms of healthy lifestyle status during the pre-test ($M = 3.05$, $SD = 3.96$) to post-test ($M = 3.36$, $SD = 3.8$, $t = 13.1$, $p < 0.001$, $d = 8.84$).

The result of this study is the same as that of the study of Ozoemena et al. (2019), wherein community-based health education interventions targeted at older adults significantly affects the knowledge, improved prevention, and self-care practices of hypertension at the population level. Also, according to the study by Chimberangwa (2019), 25% of participants on medication did not know their blood pressure control status.

Knowledge of hypertension was poor, with 64.8% of participants stating that stress was its leading cause, 85.9% saying that palpitations were a symptom of hypertension, and 59.8% of participants adding salt to the table. The more education participants received, the more likely they were to be knowledgeable about hypertension. This supports the result of the study.

Conclusion and Recommendation

Considering the study's outcome, it could be concluded that generally, participants in Gabay sa Malusog na Pamumuhay showed a positive effect on KAP after the six-week lifestyle modification program. Results show that the program reflected a change in the KAP level of participants before and after the intervention. The participants showed an increase in knowledge of hypertension, and it is statistically significant. The means for attitude and practice improved after the program and are statistically significant. However, the attitude is still neutral, and the practice is still at a good level after the program. Therefore, the lifestyle intervention

program “Gabay sa Malusog na Pamumuhay” successfully promotes healthy lifestyles among hypertensive seniors.

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Screen Time, Food Security, and Stress Level Among Working College Students

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Working college students in Southeast Asia are challenged in the aspects of hours spent on screen, food insecurity, and stress level while studying amidst the Coronavirus Disease-2019 pandemic. This study aimed to determine the relationship between screen time spent on gadgets, food insecurity, and the stress level they were experiencing. The descriptive-correlational design was utilized, and a total of 227 working college students from different colleges and universities in the Philippines and Indonesia participated through online questionnaires. The results revealed a moderate level of screen time ($M = 1.76$) on both weekdays and weekends. Food insecurity status showed a mild level of food insecurity ($M = 2.31$), which is associated with the cutting of meals, repetitive meals, and skipping meals within the day. On the other hand, stress levels fell within the low range ($M = 2.12$). This study confirmed that food security is important to reduce the stress level of working college students because of the significant relationship found between food insecurity and stress level ($r = .391$, $p = .000$). Screen time and stress level have no significant relationship ($p = .946$). Further study is recommended for the creation and implementation of programs concerning food insecurity.

Keywords: COVID-19 pandemic, food security, screen time, stress, working college students

Working students face many challenges. They must balance work, school, extracurricular activities, and their personal lives. This balancing act goes hand-in-hand with maintaining a manageable level of stress (Săvescu et al., 2017). In addition, the social and economic challenges in the wake of the the COVID-19 pandemic affected all classes of people. These disturbances in the natural flow of life have been shown to trigger anxiety, insomnia, irritability, reduced productivity, and other stress reactions in affected individuals (Vinkers et al., 2020). College students are susceptible to experiencing high levels of stress that lead to depression, substance abuse, and disordered eating (Browning et al., 2020; Montano & Acebes, 2020). A study done at a university revealed that 40.7% of students experienced moderate to severe stress, 60.3% had moderate to severe anxiety, and 53.1% experienced moderate to severe depression. Students who do not have access to sufficient financial resources have few options for paying the costs that are not covered by grants. They opt to get additional jobs, take loans, or both. Regardless of the consequences of being working students, they carry these burdens, which place them among the underserved groups of the community. As time is spent in jobs, their availability for educational activities lessens when compared with regular non-working students (Perna & Odle, 2020). Another study concluded that stress levels were higher among working college students compared to non-working students. About 50% of working students faced stress symptoms such as loss of appetite or overeating, difficulties in focusing and taking decisions, or anxiety while attending to their responsibilities (Săvescu et al., 2017). Nonetheless, stress could be multifactorial; hence, further studies were needed to identify its causes among working college students.

Screen time is linked to different emotional and stress responses. It depends on the manner in which people use the device, but those who spend time on social entertainment and video games

were described as being more overtaxed (Mahani & Smyrnova, 2019). Moreover, in an overview of cellphone usage, it was noted that excessive use of mobile phones could alter people's sleeping patterns, which had a positive connection with depression. In a broader sense, it could indirectly affect both the physical and mental health of a person (Shoukat, 2019). However, studies about its relationship to anxiety, loneliness, and other mental factors associated with stress besides depression conveyed negative dispositions. Researchers also argued that the previously released supporting data that correlates stress and screen time was too inconclusive (Khouja et al., 2019; Wang & Brodrick, 2019). This suggested a need for more studies concerning such topics.

A survey result classified almost one quarter (22.7%) of students as "gadget-addicted." It can be due to the increased use of gadgets for academics, social interactions, work, and other purposes during the COVID-19 pandemic that extended the screen time of students. These also affected factors like sleep and eating patterns that directly impact stress (Randjelovic et al., 2021; Saxena et al., 2021). The Philippines and Indonesia, which placed first and third, respectively, on the list of most internet users, intended to spend 8 to 10 hours on social media per day. However, there is a shift in screen usage from leisure to academic purposes. Online classes, which became the safest substitute for physical attendance as schools and universities closed during the pandemic, would require students to spend 8 hours per day in front of their screens (Bell, 2019; Cable News Network, 2020; Ramos, 2020). Some reported that it resulted in greater perceived stress among college students during the pandemic (Huckins et al., 2020; Keel et al., 2020; Mahani et al., 2019; Viscaino et al., 2020).

Food insecurity is prevalent among half the number of college students (Tatter, 2018). In an analysis of data from Kansas State University, 44.3% of the students experienced a shortage of monetary allowance for buying foods and were

unable to purchase a balanced meal, cut meals, or skip them (Miller et al., 2019). These factors affect students' physical, psychological, and academic degeneration, resulting in poor physical and mental health and a decrease in completion, persistence, or credit attainment rates (American Association of Colleges and Universities News, 2019).

Food insecurity on college campuses relates to and disproportionately impacts low-income students, like most working students. To pay for basic needs that are not covered by financial aid, they are likely to follow a strict budget. Consequently, it could lead them further into food insecurity (Lemus, 2018). This is associated with poor health status; therefore, its connections to stress levels should be examined (Raskind et al., 2019).

To date, limited studies have explored the association between screen time, food insecurity, and stress level among this certain group. Yet, food insecurity is at the forefront of the agenda of the Association of Southeast Asian Nations (Vichitlekarn, n.d.). Thus, this study was conducted among college working students. It aimed to determine the relationship between screen time spent on gadgets, food insecurity, and the stress that these working college students were experiencing during the pandemic.

The study sought to determine the relationship of screen time, food insecurity, and stress levels among selected working college students in the Philippines and Indonesia amid the COVID-19 crisis.

More specifically, it answered the research questions:

1. What is the extent of screen time among working college students?
2. What is the extent of food insecurity among working college students?
3. What is the extent of stress levels among working college students?
4. Is there any significant relationship between screen time and stress levels among working college students?
5. Is there any significant relationship between food insecurity and stress levels among working college students?
6. Is there any significant relationship between screen time and stress levels among working college students after controlling for confounders?
7. Is there any significant relationship between food insecurity and stress levels among working college students after controlling for confounders?

Methodology

Research Design

The researchers used descriptive-correlation as the research design. The purpose of a correlational design is to measure a relationship between two or more variables of interest without the researcher controlling either of them. It can be a positive correlation, negative correlation, or zero correlation between separate variables (McCombes, 2019). It also identified that the research was conducted after the phenomenon of interest has occurred naturally (Simon & Goes, 2011).

Another purpose of correlational design was to allow present knowledge to predict future events (Stangor & Walinga, 2014). United Kingdom-based DJS Research Ltd. (2019) discussed that correlation analysis is a statistical assessment method used to study the strength of a relationship between two measured variables when possible. The correlational design was utilized because the study described and examined the uncontrolled relationships of screen time, food insecurity, and stress levels of working college students during the COVID-19 pandemic. It was applicable since the findings were based on survey data for a certain population.

Population and Sampling Techniques

The target population in this study consisted of working college students in five Adventist schools in the Philippines and Indonesia. The sample size of 227 respondents from these two countries was

obtained through convenience sampling. The respondents were 52.4% male and 47.6% female, between the ages of 18 and 21 years old, from different grade levels, and were working within and outside the vicinity of schools.

Instrumentation

An online self-reported questionnaire was administered to the respondents. The survey questionnaire was validated by experts in nutrition and dietetics, psychology, and research. Items for demographic profile and screen time were self-constructed. Selected questions from the USDA Household Food Security Survey Module (US HFSSM) and Household Food Insecurity Access Scale (HFIAS) ver. 3 were combined as the basis for assessing food insecurity, with modifications to simplify the statements. The Modified Perceived Stress Scale (PSS) was utilized to measure the stress level.

Data Analysis

Statistical Package for Social Science (SPSS) version 23.0 was used to analyze the gathered data. For confounders (sex, year level, geographic area, unit load, residence, and allowance), frequency distribution and percentage were used. Then, the descriptive analysis measured the extents of screen time, food insecurity, and stress level. Logistic regression analysis showed the strength of the relationship between these variables before and after controlling the confounders. A p-value of less than or equal to 0.05 was considered significant.

Ethical Considerations

The study was approved by the Ethics Review Board of the Adventist University of the Philippines. The respondents' identities and socio-demographic profiles were kept confidential by not requiring emails in the submission of the Google Form surveys. Also, a consent form approved by the ERB was attached to the questionnaire to affirm their trust and confidence. This suggested that the methods applied aimed to impose no harm but rather nurture a better understanding of factors that could have affected their stress level.

Results and Discussion

This section contained an examination of the final collected data from respondents after applying descriptive and logistic regression analysis. It further discussed the comparison of present data with prior research outputs to fill the previous literature gap. This includes discussion on whether there are relationships among the independent and dependent variables that test every hypothesis.

Extent of Screen Time Among Working College Students

Table 1 shows the result of screen time among working college students in one day during weekdays and one day during weekends. It dealt with the research question, "What is the extent of screen time among working college students?" with the values presented in mean, standard deviation, scaled response, and their corresponding verbal interpretation.

Table 1
Extent of Screen Time

Reasons for Use of Screen Devices	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
1 day during weekday				
academic	2.25	.74	4-6 h/day	Moderate
work	1.90	.81	4-6 h/day	Moderate
leisure	1.54	.71	4-6 h/day	Moderate
religious	1.39	.65	0-3h/day	Low

[table continues on the next page]

1 day during weekend				
work	1.86	.76	4-6 h/day	Moderate
religious	1.74	.80	4-6 h/day	Moderate
academic	1.70	.79	4-6 h/day	Moderate
leisure	1.67	.73	4-6 h/day	Moderate
Overall Screen Time	1.76	.39	4-6 h/day	Moderate

Legend: Low (0-3 h/day) 1.00-1.50; Moderate (4-6 h/day) 1.51-2.50; High (7-24 h/day) 2.51 -3.00

The result indicated that working college students have *moderate* screen time ($M = 1.76$) on either a weekday or weekend. In the two categories, working college students spend more time on screen for academic reasons ($M = 2.25$) and work ($M = 1.86$). It amounted to four to six hours of using devices, like mobile phones, desktop computers, and laptops, every day. This hinted at the ability of working college students to manage themselves to avoid high screen time. These results did not agree with Bell (2019) and Ramos (2020), who said that Indonesians and Filipinos spend about 8 hours on the internet and devices every day. Also, the results did not support the study by Doolittle (2020) that links exposure to screens with poor academic performance. One reason could be the big shift from leisure to academic purposes on students' screen activities since online classes replaced physical classes amidst the surge of COVID-19 (Keel et al., 2020; CNN, 2020).

Extent of Food Insecurity Among Working College Students

Table 2 presents the status of food insecurity among working students, as reflected in mean and standard deviation. The scaled response and interpretation helped answer the research question, "What is the extent of food insecurity among working college students?"

Table 2

Extent of Food Insecurity

	Mean	SD	Scaled Response	Verbal Interpretation
1. My food pattern is repetitive.	2.77	.86	Rarely	Moderately Food Insecure
2. I cut the amount of food intake to save some for later meals.	2.44	.94	Rarely	Mildly Food Insecure
3. I am worried about whether my food supply will last.	2.39	.91	Rarely	Mildly Food Insecure
4. I forced myself to eat foods that I don't like.	2.37	.93	Rarely	Mildly Food Insecure
5. I couldn't afford to eat meals with vegetables, fruits, rice, and meat.	2.23	.93	Rarely	Mildly Food Insecure
6. I went to sleep at night hungry.	2.22	.90	Rarely	Mildly Food Insecure
7. I was hungry but had nothing to eat.	2.14	.87	Rarely	Mildly Food Insecure
8. I did not eat for the whole day.	1.91	.83	Rarely	Mildly Food Insecure
Overall Food Insecurity	2.31	.59	Rarely	Mildly Food Insecure

Legend: Food Secure (Never) 1.00 – 1.50; Mildly Food Insecure (Rarely) 1.51 – 2.50; Moderately Food Insecure (Sometimes) 2.51 – 3.50; Severely Food Insecure (Often) 3.51 – 4.00

The results showed a mean of 2.31, which translated into mild food insecurity. According to the respondents, they rarely experience repetitive food patterns, such as cutting foods to save for later meals, completing a day without eating, or other indicators of food insecurity.

These results contrast with AAC&U (2019) and Zein et al. (2019), which point out college students as a vulnerable group of people to food insecurity. In addition, those who are enrolled and are working are more susceptible to the limited food supply. This challenge is a sign of the transition of independence from parental support among college students, especially those who are working. It also supported the data of FNRI and Sleet in 2020, showing the persistence of food insecurity within the two Southeast Asian countries.

Extent of Stress Level Among Working College Students

Table 3 shows the stress level and addresses the research question, "What is the extent of stress among working college students?" As with the previous tables, there were mean, standard deviation, response scale, and interpretation given on the table.

Table 3

Extent of Perceived Stress Level

	Mean	Std. Deviation	Scaled Response	Interpretation
1. How often have you felt nervous and "stressed"?	2.25	1.01	Rarely	Low
2. How often have you felt that you were unable to control the important things in your life?	2.22	1.00	Rarely	Low
3. How often have you felt that you could not cope with all the things that you had to do?	2.13	1.01	Rarely	Low
4. How often have you felt difficulties were piling up so high that you could not overcome them?	2.11	1.08	Rarely	Low
5. How often have you been upset because of something that happened unexpectedly?	2.05	.96	Rarely	Low
6. How often have you been angered because of things that were outside of your control?	1.97	1.07	Rarely	Low
Overall Perceived Stress Level	2.12	.82	Rarely	Low

Legend: Very low (Never) 1.00 – 1.50; Low (Rarely) 1.51 – 2.50; Moderate (Sometimes) 2.51 – 3.50; High (Often) 3.51 – 4.50; Very high (Always) 4.51 – 5.00

The result specified that the working college students were under low perceived stress, with a mean of 2.12 ($SD = .82$). Along with these, they *rarely* felt a sense of nervousness and being unable to control the important things in their lives. They *rarely* recognized that things were piling up to a point where they were too overwhelming to handle. These results did not support the findings of Al Ateeq et al. (2020), which indicated a moderate to a high level of stress among college students, and the study of Jain and

Verma (2016), which revealed that college students get exposed to a considerable amount of stress necessitating a set of successful and constantly changing coping strategies. Since stress could be based on personal perspective and ability to overcome difficult situations, the *low* stress level of working college students could have been attained from low internal and external pressures exerted in their environment. Nonetheless, it should be well managed for improved life satisfaction (Kim, 1029) and secured quality of life (Health Assured, 2019).

Relationship Between Screen Time and Stress Level

Table 4 shows the relationship between screen time and stress levels among working college students. There was no significant relationship between screen time and stress levels. ($r = -0.12$, $p = .855$).

Table 4

Relationship Between Screen Time and Stress Level

	Stress Level		
	r	p-value	Interpretation
Screen Time	-.012	.855	Not significant

Legend: Significant = $p\text{-value} \leq 0.05$; Not significant = $p\text{-value} > 0.05$

The result of this study does not support the research of Keel et al. (2020), which indicates a greater extent of screen time results in greater perceived stress among college students. The effect of screen time on one's stress level depends on how an individual utilizes the screen time and its purpose. Therefore, the respondents are able and understand how to use the technology effectively, utilizing screen time wisely. For that reason, the hypothesis, which states that there is no significant relationship between screen time and stress level, is accepted.

Though there were increasing chances of stress, the result disagreed with the statement of one neurologist saying, "When cell phone use becomes an addiction, the behavior becomes stressful," (Shoukat, 2019). It also disagreed with

the study of Surat et al. (2021) about the positive relationship between gadgets and stress among young Malaysians.

Relationship Between Food Insecurity and Stress Level

Table 5 presents the result for the research question, "Is there any significant relationship between food insecurity and stress level among working college students?" It summarizes that there was a significant relationship between food insecurity and stress level ($r = .391^{**}$, $p = .000$).

Table 5

Relationship Between Food Insecurity and Stress Level

	Stress Level		
	r	p-value	Interpretation
Screen Time	-.012	.855	Not significant

Legend: Significant = $p\text{-value} \leq 0.05$; Not significant = $p\text{-value} > 0.05$

The result agrees with the research of Raskind, Haardofer, and Berg (2019), which indicates that food insecurity has been repeatedly associated with stress, anxiety, and depression, and it is hypothesized that these factors contribute to mental health status. The psychological and emotional stress related to experiences of food insecurity often occurs depending on the individual's situation. This might develop among the working college students because they are establishing independence from their families, learning to manage multiple responsibilities, including school, work, finance, and managing their food availability to attain food security. Therefore, the hypothesis, which states that there is no significant relationship between food insecurity and stress level, is rejected.

The results agreed with the research of Raskind, Haardofer, and Berg (2019), which indicates that food insecurity has been associated with levels of stress, anxiety, and depression. High levels of these factors contribute to poor mental as well as physical health (FCRN, 2018). Although interventions are

provided to reduce food insecurity among working college students, the stigma attached to free food assistance in school sometimes presents a hindrance to access to food supplies (Sabi et al., 2018), thus adding to their food insecurity. It also agreed with the high-income-less-stress notion concerning college students at risk of food insecurity (Alexander et al., 2021) because stress has a significant relationship with food insecurity. Hence, the hypothesis, “There is no significant relationship between food insecurity and stress level,” was rejected.

Relationship of Screen Time and Stress Level with Controlled Confounders

Table 6 shows the comparison of screen time and stress level when confounders were controlled. It revealed results in two separate days—1 day during weekday and 1 day during weekend—answering the research question, “Is there any significant relationship between screen time and stress level among working college students after controlling for confounders?”

Table 6

Relationship Between Screen time and Stress Level after Confounders were Controlled

Variables	B	S.E.	df.	p-value	Interpretation
Screen Time (1 day during weekday)	.037	.310	1	.904	Not Significant
Screen Time (1 day during weekend)	.080	.299	1	.788	Not Significant
Sex	.626	.302	1	.039	
Geographic Area	.057	.356	1	.873	
Year Level	.057	.138	1	.681	
Unit Load	-.120	.362	1	.739	
Residence	.121	.348	1	.728	
Estimated Weekly Allowance	.137	.222	1	.536	

Legend: Significant = p-value ≤ 0.05; Not significant = p-value > 0.05

Again, the result showed that the relationship between screen time and stress level was not significant during weekdays or weekends, even with controlled confounders (p-value = .904 and .788, respectively). The data simply supported the study by Karyotaki et al. (2020) about the multifactorial nature of stress. Even with differences in activities and stressors between males and females (Fountain et al., 2011; Gefen & Fish, 2012), screen time still did not exert a strong connection with stress. That may explain why, despite the threats of stress from the online class, which assumingly required long screen time, controlling the geographic area did not easily amplify the stress level among working college students (The Jakarta Post, 2020; Sibucan, 2020) or the year level, unit load, residence, and estimated weekly allowance of the respondents. In other words, other factors distinct from screen time might have a relationship with stress levels. Thus, the null hypothesis stating, “There is no significant relationship between screen time and stress level among working college students after the confounders sex, geographic area, year level, unit load, residence, and estimated weekly allowance were controlled,” was once again accepted.

Relationship of Food Insecurity and Stress Level with Controlled Confounders

Table 7 presents the result of a comparison between food insecurity and stress level, considering the confounders. The research question confronted here was, “Is there any significant relationship between food insecurity and stress level among working college students after controlling for confounders?”

Table 7*Comparison Between Food insecurity and Stress Levels after Confounders Were Controlled*

Variable	B	S.E.	df.	p-value	Interpretation
Food insecurity	.881	.258	1	.001	Significant
Sex	.746	.316	1	.018	
Geographic Area	.218	.353	1	.537	
Year Level	.063	.142	1	.658	
Unit Load	-.370	.372	1	.321	
Residence	.239	.358	1	.504	
Estimated Weekly Allowance	.136	.228	1	.533	

Legend: Significant = $p\text{-value} \leq 0.05$; Not significant = $p\text{-value} > 0.05$

There is a significant relationship between food insecurity and stress level even after confounders were controlled, with a p-value of 0.001 (95% CI = 1.456-4.003). It implied that these elements found in the environment enhance the link between the independent variable (food insecurity) and the dependent variable (stress level). Although controlling them does not present the actual strength of the relationship, the result somehow confirmed the Social model. Perhaps the components of food insecurity, food availability, food access, food utilization, and stability (FCRN, 2018) were affected by constituents found among these confounders. Consequently, the null hypothesis stating, "There is no significant relationship between food insecurity and stress level among working college students after the confounders sex, geographic area, year level, unit load, residence, and estimated weekly allowance were controlled," was rejected.

Conclusion and Recommendations

There were several important findings in this study, the first of which is that working college students suffer from low perceived stress levels. Second, the respondents only spend a moderate amount of time (4-6 hours) on cellphones, computers, and other devices despite living in social media hotspots in Southeast Asia. Their screen time has no significant relationship with their stress level. Hence, it's not a priority when

planning to improve the stress status of students. Lastly, they are experiencing mild food insecurity. The relationship between food insecurity and stress level is significant, whether the confounders were controlled statistically or not.

Considering the research results, recommendations are in place on how the data could be improved and utilized for future studies to address the stress level among working college students. For instance, further study is recommended for the creation and implementation of programs concerning food security. The study may be duplicated in the post-pandemic era, considering other factors not included in this study.

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Educational Journey from Nursing to Medical School: A Medical Practitioner's Vantage Point

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The transitions along the nursing-medical education continuum have stimulated the interest of many nurses and nursing students, notwithstanding the challenges. This study aimed to explore the medical practitioners' educational experiences as they journeyed from nursing to medical school and highlight the salient features of nursing education for pursuing a degree in medicine. The data was collected using a phenomenological approach, utilizing semi-structured in-depth interviews. The study included twelve medical practitioners aged from 29 to 36 years old. All participants were licensed nurses and doctors, with six having worked as nurses before attending medical school. Through thematic analysis, four primary themes emerged in this study: the distinction between nursing and the medical school journey, the hallmark of nursing as a pre-medical course, the compassionate agent of healing, and the practical lessons learned. Findings revealed that nursing and medicine are two divergent paths, with medical school being more challenging. Nursing education helped medical practitioners succeed in medical school due to the firsthand and extensive clinical experience, the existence of fundamental science subjects offered as an academic headstart, the therapeutic patient interaction, and the professional virtues learned. Nursing education influenced medical practitioners to become compassionate agents of healing as they blended care and cure in their medical practice and built better interpersonal dynamics with nurses and other healthcare team members. The practical lesson participants learned and wanted to convey to those who desire to advance in their career from nursing to medicine is to strengthen the suggested basic science courses, build on the recommended values and behaviors, and take nursing as a pre-medical course seriously. The researcher developed a nursing-medical education continuum model that will guide nursing students in their journey when they choose to become compassionate agents of healing-medical practitioners.

Keywords: *educational journey, nursing education, medical school*

Education is an essential component and vehicle, a better way of achieving success in life to making dreams come true. Getting an education is not simple, and most students face difficulties during their educational journey. Although working toward a degree is challenging and rigorous, the ultimate result is often pleasant and rewarding. Students look forward to the future with excitement, uncertainty, and hope for a rewarding career in their chosen profession. This experience is especially true for nursing students. Student nurses make progress by being highly invested in their education, passionate, and driven (Hudson & Carrasco, 2019). However, the complexity of their education may be overwhelming. Despite the challenges along the way, some nursing students continued their journey on an even more difficult road to medical school.

The transitions along the nursing-medical education continuum have stimulated the interest of many nurses and nursing students. Nursing is becoming increasingly popular as a premedical course. In a cross-sectional study on future physicians' health-related quality of life at medical school in the Philippines, 55.6 percent of the 527 medical students studied nursing as their premedical course (Domantay, 2014). While there is no statistical data on the number of medical students exploring nursing as a premed course in the Philippines, the study above found that the number of students choosing nursing as a premed course is high.

There could be various reasons someone would take up nursing as a premed course. Mapa (2018) said nursing is an excellent premed education choice because it allows students to obtain more hands-on experience even throughout the undergraduate years and will enable them to assess and interact with actual patients because nurses work at the bedside for long periods of time. A physician with a premedical focus in nursing is more likely to have a better patient-physician and nurse-physician interaction than others and will demonstrate that they understand

what a physician performs and how they work because they have observed them in action; thus, it combines the best of both worlds: nursing and medicine. BS nursing graduates will always have an alternative fallback profession if they cannot complete medical school.

On the other hand, Kowarshi (2021) cited a family physician who previously worked as a nurse practitioner and who said that transitioning from nursing to medicine is difficult. Some nurses have always aspired to be medical doctors, but college life and circumstances change everything. Nursing is sometimes the best alternative. After they have worked in the field and have seen the distinctions between nurses and doctors, they want to return to this profession. A decade ago, only a few nurses would leave bedside nursing to attend medical school, but today's nurses, doctors, and medical schools are more welcoming (Gaines, 2021).

Catabijan et al. (2016) looked at the academic performance of the 24 batches of UP College of Medicine (UPCM) students. They discovered that Bachelor of Science (BS) in Psychology graduates had the highest admission ranks and premed General Weighted Averages (PMGWAG), while BS Nursing graduates had the lowest. On the other hand, nursing graduates scored the most on the medicine general weighted average (MGWAG), while BS Psychology graduates scored the lowest. They claimed that there were premed courses that gave certain applicants an advantage in the application process. This advantage, however, did not always translate into improved academic success at UPCM. The result of Catabijan et al.'s (2016) study gives little information about how nursing students navigate the transition into and through medical school. While many are taking up nursing and making it a springboard to medical school, there is a dearth of literature that could shed light on students' educational journey from nursing to medical school. This study aimed to explore the medical practitioner's educational journey from nursing to medical school.

The findings of this study are valuable in understanding one's educational experiences as one progresses from nursing to medicine. Participants described their unique, practical, and personal reasons for their educational journey that served their best interests and, at the same time, recognized the nursing program as a better alternative to pursuing a medical program. Moreover, as more nursing students explore medicine as a career option, the findings of this study presented the challenges of medical school as a reason for extra attention in nursing school to focus on strengthening its advantages as a preparatory course for medicine. The study recommended encouraging nursing and medical programs to seek innovative, collaborative education approaches beyond the current training silos. Furthermore, the result of this study became the basis for a nursing-medical education continuum model.

Methodology

Research Design

Because of the study's primary objective, which is to explore medical practitioners' experiences in their educational journey from nursing to medical school, the research design used was the phenomenological approach. According to Creswell (2007), a phenomenological study "describes the meaning for several individuals of their lived experiences of a concept or a phenomenon" (p. 57). This study will assist the researcher in grasping the value of students' lived experiences, emphasizing how they felt about their educational path from nursing to medical school.

The researcher utilized in-depth interviews to learn about the participant's experiences on the topic and investigate themes for descriptive analysis. In-depth interviews are typically long-duration, face-to-face done to achieve specified goals, according to Showkat & Parveen (2017). An in-depth interview, also known as a one-on-one interview, is a technique for gathering more thorough information or gaining a deeper grasp

of a subject or concept. In an in-depth interview, participants are encouraged and urged to discuss the matter at length.

Participants

The participants were 12 licensed medical practitioners who studied nursing as a premed course. The participants were a mix of nurses who had either worked in the nursing field before attending medical school or not. They graduated from various nursing schools in Western Visayas. The participants graduated with a BSN degree between 2004 and 2017. Hence, they graduated under various nursing curricula from the CMO 30 series of 2001, updated to the CMO 9 series of 2002, and the CMO 5 series of 2008, amended to the CMO 14 curriculum series of 2009.

The researcher selected the participants via a snowball or referral technique. The inclusion criteria were as follows: (1) licensed medical practitioner; (2) licensed registered nurse; (3) took nursing as a premed program; and (4) graduated between 2004 and 2017. After identifying the participants, the researcher contacted the candidate via email, phone call, or Facebook Messenger and sought a suitable appointment.

Instrument

This study employed a semi-structured interview guide consisting of a series of core questions that helped outline the topics to be investigated while allowing both the interviewer and the interviewee to deviate and explore another topic. This interview format gave the participants some direction on what to talk about, which many found helpful. This flexibility allows for discovering or developing information essential to participants that may not have been considered relevant by the researcher earlier.

The researcher inquired about their difficulties in nursing school and their transition into and through medical school. By looking at the distinctive qualities of the nursing course that would make it

a better alternative to a pre-medical course, the researcher also asked the participants how nursing as a pre-medical course helped them achieve success in their journey to medical school. Some of the questions were, "How did your nursing degree/career help you get into medical school?" "How did your nursing degree/career help you adjust to medical school and succeed?" and How did your nursing education prepare you for a future as a physician and assist you? The researcher asked experts to review and validate the interview questions. The researcher conducted two (2) pilot interviews and made modifications to the questions afterwards.

Data Gathering Procedure

The researcher informed the participants about the subject matter and expectations during the interview process and gave informed consent for the participants to sign. During the interview, the researcher greeted the participants and established a proper rapport to gain their trust by introducing the researcher briefly, getting to know the participants more, and making sure the participants were comfortable and free from any distractions with the camera on to see their expressions. The in-depth interviews were done via Zoom. The researcher arranged schedules with the participants at a time that was convenient for them and would allow them to give 100% focus during the interview. Upon confirming the interview schedule, the researcher attached a list of pre-instructions to ensure that the participant was free from any distractions during the interview, had a good internet connection, and had an environment conducive to the discussion. The interview lasted, on average, one hour.

The researcher followed the in-depth interview format based on Showman & Parveen (2017). After the interview, the researcher transcribed the data verbatim, translated it to English for transcripts in vernacular, and returned it to the participants to confirm and validate. Data analysis was done after transcription.

Data Analysis

While conducting a phenomenological research methodology, Greening (2019) presented four necessary steps: bracketing, intuiting, analyzing, and describing. In order to confront the facts in their purest form, the researcher bracketed away the surroundings and any presuppositions involved in this procedure by identifying and putting aside preconceived views and opinions about the investigation of the phenomenon. After bracketing is completed, intuition takes over. The researcher remained focused on the phenomenon's associated meaning as determined by the study. The researcher was fully engaged in the study and phenomenon under investigation.

The analysis comes next when the intuitive process is completed. Coding was done in this phase, which emphasized categorizing and making sense of the phenomenon's significant meanings by persistently working with detailed data to reveal essences and universal themes. The researcher was engaged in the analysis process for as long as possible to provide a complete and accurate account of the participant's experience. The researcher then described the phenomenon as per comprehension and definition.

To establish trustworthiness and examine the rigor of the qualitative study, the researcher used Lincoln and Guba's (1985) stringent qualitative research standards known as credibility, dependability, confirmability, and transferability.

The researcher conducted two pilot interviews to test the interview procedure and establish credibility, believing that the results were accurate, credible, and believable from the participant's perspective. The researcher established sustained engagement during the interview of participants until data saturation.

To establish dependability, the researcher ensured that the findings of this qualitative inquiry could be duplicated. The researcher established the audit trail by keeping a detailed record of the data collection process.

Reflexivity was established to establish confirmability, which increases the likelihood of the findings being confirmed or corroborated by other studies. Throughout the study process, the researcher was aware of and acknowledged his or her role in formulating meanings or giving descriptions.

To establish transferability, there is purposeful sampling to create a nominated sample with inclusion criteria in selecting the participants and providing a detailed description of the participants' experiences from nursing to medical school in an approved interview transcription.

Ethical Considerations

The study was only administered after approval had been sought from the University Research Ethics Review Office (RERO) for its conduct. Although this study poses minimal risk or harm to participants, the researcher exercised extreme caution and was mindful of ethical implications at all stages of the study's execution.

Further, the researcher asked the participants for their permission and had them fill out an informed consent form. The researcher sent an invitation letter and informed consent to the participant's email address. Upon reading the consent and deciding to participate in the study, the participants would sign the consent and return it to the researcher via email. The informed consent stated their voluntary consent to participate in the research study and their freedom to withdraw if they wanted to without needing an explanation.

The informed consent had two parts. The first part contained an information sheet where the researcher introduced herself, explained the purpose of the study, the type of research intervention done, participant selection, voluntary participation, procedures, duration of the interview, risks and benefits, reimbursements, confidentiality,

the right to refuse or withdraw, and whom to contact. The second part contained the certificate of consent, which the participant must sign if he decides to participate in the study, and the statement by the researcher that ensures the researcher reads out the information sheet and makes the participant understand the content of the informed consent. There is also confirmation that the participant was allowed to ask questions about the study. All questions were answered correctly, the participant was not coerced, and the consent was given freely and voluntarily.

To avoid maleficence, the study has little known personal, social, emotional, psychological, or physical risk. Since the researcher will interview via a virtual platform, no health protocol is necessary. The participants may not answer the question if they feel that it is too personal or if talking about them makes them uncomfortable. The researcher ensured that no one suffered from any harm due to their involvement in this research project, including physical, mental, social, and financial harm.

The researcher respected the participant's right to privacy and confidentiality by concealing the names of the participants by assigning them pseudonyms. The researcher created aliases assigned to the participants scrambled from their names. During the interview, the researcher ensured that the participants had the freedom to choose their site and time and always considered their physical and mental conditions.

The researcher gave tokens as remuneration for their participation in the study. The researcher certified no financial interests or affiliations with the participants (such as personal or professional relationships, alliances, knowledge, or beliefs) in this manuscript's subject matter or materials. Proper data storage was observed in a password-protected Google Drive, which will be deleted two years after the study's completion.

Results and Discussion

The Thematic Presentation of the Educational Journey from Nursing School to Medical School of Medical Practitioners

The Distinction Between Nursing and Medical School Journey

From the medical practitioner's point of view, nursing and medicine are two different schools of thought, two different kinds of ballgames, and two different pathways. The Distinction between Nursing and Medical School Journey is the first theme that describes the general picture of the educational experiences of medical practitioners with its categories in Table 2, including varied learning experiences in nursing school, explicit struggles and challenges in medical school, and huge disparity in the academic workload. These describe the participants' recollection accounts of the specific events, situations, and experiences from nursing to medical school. They described nursing and medicine as two distinct journeys. Nursing learning experiences are easygoing with some difficulty, and medicine is more challenging, demanding, and complex. All these experiences are a myriad of beautiful pieces of memories they will continue to reminisce about as they strive to advance their careers as excellent healthcare providers.

Varied Learning Experiences in Nursing School. Nursing school was an uncomplicated and enjoyable experience for some but a tough experience for others. They experienced difficulties along the way, but nursing school was a great learning experience. Although she also met hardships, Carie was hesitant to state that she found nursing school easy and interesting. She recognized nursing as her calling because she enjoyed her time as a nursing student and performed admirably. She said, *"I may sound arrogant when I say this. I think I found the nursing school; I feel wrong to say "easy," I don't know. I did not realize I had an aptitude for healthcare. I did well*

in nursing, and for some reason, it was so easy for me to absorb knowledge, and I found it surprisingly interesting. Nursing was a great experience. I had some hardships, but I found myself interested most of the time. It was because the majority is going into nursing, so I tried my luck, and I was surprised that I did well in nursing school. Maybe because I was interested, and I am a selective learner. If I find something boring, I cannot easily absorb knowledge. But I guess my teachers were good. I realized this could be my calling because I enjoyed it. I had some hardships, but I found myself interested most of the time."

RJ found nursing easy and blissful, too. He said he had standards, so he did not have any academic problems. He said, "For me, nursing school is... I don't want to sound like you know... how do I say this.. it was a bliss for me; I find it easy. But, I have a standard, so I didn't have any academic problems at that time. During nursing, I know I was an exemplary student. I was stellar, and it helped me because there are concepts that are very much related to, especially the basic topics in medicine, so it helped me personally because I am more familiar with the medical language."

Most of the participants enjoyed their nursing school experience, although some experienced difficulty. It means that they were satisfied with the learning environment in nursing school. The result of the study is like the study conducted by Smith et al. (2018), who found that students' impressions of the educational environment, rather than their perceptions of learning, have dominated student satisfaction. Students are satisfied with their learning when they have a valuable learning journey. On the other hand, Walker et al. (2016) discovered that authentic learning, motivation, resilience, support, and collaborative learning were key to nursing students' satisfaction with their nursing learning journey. According to the study, nursing students who felt engaged and encouraged had higher satisfaction levels during their learning journey.

On the contrary, in their study, Rafati et al. (2017), students reported feelings of inadequacy, feeling neglected, inefficient communication, and a general sense of sadness and ambiguity. This study revealed that nursing students face a variety of stressors throughout their first practical encounters. Smith et al. (2018) revealed that student learning satisfaction is individual, fluctuates over time, and can be transient, long-term, mild, or severe.

Explicit Struggles and Challenges Encountered in Medical School. Medical school is a more difficult and demanding experience for all participants. They highlighted the explicit struggles and challenges they encountered during their medical school, including the struggle in a pool of brilliant minds, the struggle in adjusting to new study habits, passing the exams, and a heavier academic workload, and the mental health issues that led to intentions of quitting medical school.

Carie felt insecure, and she struggled even though she was an honor student—the best, the top—yet she was in a situation where all the people in medical school were smart. She said, *“The main challenge was that this is usual if you feel you are an honor student, the best, the top, yet you are in a situation where all of you are smart. Sorry if I am a bit arrogant. It seems that most of the people in medical school are smart. Then, somehow, my insecurities grow, especially if I do not have study habits compared to other students. There is a struggle.”*

Another challenge is the difficulty in adapting to a new study habit. Ron stated that he struggled to develop good study habits when he first started medical school. He said, *“I had difficulty adapting to the new study habit that would fit me when I entered medical school. There is a lot to study in nursing, but not as much compared to medical school. I remembered the subject of embryology in medicine because it is difficult for the embryo to memorize. It is no longer words but usually a combination of letters you need to memorize.”*

Rusty said that his challenge in medicine was finishing studying everything given so little time. It entailed sacrificing time for doing things other than studying because most of it would be geared towards studying in medical school.

Another challenge in the journey to medical school was that most participants experienced mental health issues. They mentioned experiencing anxiety, depression, and burnout that led to their intention to quit medical school. Carie considered working in a pediatric unit in one of the government hospitals very stressful. After a few months of her residency in the pediatric unit, she experienced burnout. It took a toll on her mental health. Although she thought she had it on her that she could do the work, she found herself drowning. It reached that point where she wanted out and could not do it anymore.

Rusty also thought of quitting medical school because of the challenges. He never failed a subject or even an exam or quiz when he was in college. However, when he entered medical school, there were times when he got a low score and got disappointed. He is not used to that because he passed all his exams and quizzes in college. In medical school, when he was in his first year, he could still remember that he had failed one of his long exams in anatomy, and it made him sad because it was his first time failing an exam. The most challenging part is during the first year because it is your adjustment period. So, when he was in his first year, he thought of quitting. However, his desire to complete what he started is pressing him to continue, and there will be a time of no turning back.

The participants of this study faced problems such as struggling in a pool of talented people, adjusting to new study habits, and mental health issues, all of which contributed to too many sacrifices being necessary. Hulmes (2019), in her article, said that medical students, like their peers in other disciplines, may experience stress because of transitioning from home to university, deadlines, exam pressure, and relationship concerns. On

the other hand, medical students face additional demands, such as a severe workload, which increases the risk of burnout and makes it harder to strike a work-life balance. Perfectionism, competitiveness, and great empathy are among the personality traits that are more likely to cause distress. Frequent migration disrupts supportive networks, the influence of adjusting to changing learning styles and environments, and meeting ethical/distressing events, such as death and anguish.

In their study, Picton et al. (2022) investigated why medical school students suffered. According to the survey, students described year one of medical school as a significant transition since they had to adjust to being a university student, a medical student, and a doctor all at the same time. Among their struggles were wrong degree choice, mental health issues, acute crises, at capacity, a slow starter, and family rock. Within this type, some students encountered a single difficulty. Most have a multi-faceted struggle story. The most common conditions were mental health issues and extreme crises.

Huge Disparity in the Academic Workload.

As revealed by the participants, the core difference between nursing school and medical school centered on the weight of the academic workload, specifically on the content, depth, and level of difficulty of study materials and exams, with medicine being tougher. Also, the participants emphasized the difference in the teaching-learning approach.

Carie said, *"Academically, I was shocked that the concepts were more complicated in medical school. It is a different ballgame. If you are lenient and do not have study habits before getting in or are lazy, you will not survive because the workload is heavier than nursing school. I enjoyed medical school, but it is something I do not want to repeat."*

Rusty said that nursing was tough, but medical school was different and more complex. He mentioned that there are lots of subjects and a lot of things to remember. There were 30 to 36 hours

of hospital duty in medical school, which made him think of quitting medical school. Sometimes, he only gets two hours of sleep.

Chassie was also culture-shocked when she experienced studying several chapters for a day when she only read one chapter for a day in nursing. She felt she had heavily invested blood, sweat, and tears, but her grades were still 74. She was sad to relate that it is tough to get a passing grade of 75 in medical school. She said, *"In medical school, there is a huge difference. I was in culture shock. For a day, there were several chapters that you needed to study in medicine, wherein nursing was one chapter only. Maybe because it's compact in medical school. You need to finish one book in one semester. I felt that I invested blood, sweat, and tears, but my grades are still 74. It is tough to get 75 in medical school."*

Looking at the role and patient care, Red mentioned that they are trained to approach a problem differently than doctors. He said that nursing and medicine were two very different schools of thought. He said it is evident if your premed is nursing by how you answer the questions during your first year. Some teachers and some doctors would call them out on that. They would say, You are not a nurse anymore but going to be a doctor. It would help if you thought about this approach. He said, *"Nursing and medicine are two quite different schools of thought. As nurses, we are trained to approach a problem this way and in medicine differently. It is evident if your premed is nursing by how you answer the questions during your first year. Some teachers and some doctors would call us out on that. They would say, You are not a nurse anymore but going to be a doctor. It would help if you thought about this approach."*

According to Walters (2022), nurses and doctors play distinct roles, but they complement each other. Both professions collaborate to provide support and guidance. The fundamental educational backgrounds of nurses and physicians differ significantly: doctors study science and

how the body works, whereas nurses focus on patient care and well-being. Further, she cited Dr. Wendekier, who said that nurses provide individualized, personal care for patients, whereas physicians focus on patient care from the disease model, which emphasizes diagnosis and treatment.

The Hallmark of Nursing as a Pre-medical Course

The hallmark of nursing as a pre-medical course is theme 2, which includes the following categories: firsthand and extensive clinical experience; academic head start; and professional virtues.

Firsthand and Extensive Clinical Experience.

One of the unique and salient features of nursing as a pre-medical course is the firsthand and extensive clinical training and exposure dedicated to patient care. Nurses have experience working in hospitals, have spent much time around patients, and have collaborated with doctors to know what to expect. Furthermore, they were already trained to execute various patient-care procedures and are conversant with medical jargon.

Carie said that the main advantage of a nursing graduate going into medical school is clinical experience. She said that the doctors and nurses understand each other better due to medical terms, patient rapport, and clinical skills. Although they have demonstrations, these cannot be exchanged for the actual experience because they can enhance or sharpen the clinical eye. She said, *"The main advantage of a nursing graduate going into medical school is clinical experience. For example, although MedTech has clinical experience, I think the doctors and nurses understand each other better due to medical terms, patient rapport, and clinical skills. When you go into med school and know specific procedures like NGT insertion and catheter insertion, that is a significant advantage, especially if you go into a clerkship, a one-year clinical rotation. If you have no previous knowledge or experience doing these procedures, you will be at a loss. Although we have demonstrations, demos*

cannot be exchanged for the experience. If you know these things beforehand, you know what to watch out for, know when it starts to deviate, and what to expect. You will sharpen your clinical eye because you know what you are watching for since you have seen it before. You will not be shocked. I think that's another advantage."

Red said nursing was a big help in clinics. He could perform IV, NGT, and Foley catheter insertion. He knew minor operating room procedures because he was taught in nursing. He does everything because he is doing general practice right now, from pediatrics to birthing and minor OR. He managed all, and nursing was a big help to him. He further said, *"During medicine, donning, duffing at the OR, scrubbing, and basic sterile techniques are taught superficially. You are expected to know all of them, including foley catheter insertion and NGT insertion. Some schools will teach, but in our case, it's bypassing only. What they would do is, during your clerkship, there are 6 of you, and the doctors would separate all the nurses in the batch so that at least in each group, there is one nurse who can teach the skills to other doctors."*

The study conducted by Andre et al. (2017) discovered that peer-to-peer mentorship could improve the medical school experience. Mentoring is an integral part of the professional development of medical students. Overall, student perceptions of the curriculum increased each year in various areas, including feeling better prepared, supported, and satisfied with their medical school experience. Mentoring students was also enjoyable and beneficial to their future jobs as physicians. They recommended that a vertical peer mentoring program be implemented to supplement faculty mentoring.

The BSN program includes an intense nursing practicum that will further improve nursing skills and guarantee that entry-level nurses meet the BSN program outcomes. It has 53 RLE units, which equates to 2,346 hours in the CMO 14 series of 2009 and 2,703 clinical experience and instruction hours in the CMO 15 series of 2017.

Many nursing students thought the clinical lab exercises were a useful method to prepare for practice, even if most did not know the process performed at the university was similar to how it is done in clinical practice. Students who had no prior experience were less confident in their ability to learn the process in clinical practice. However, this was corrected throughout the internship. The findings of this study suggest that colleges should consider the students' age to a greater extent when facilitating nursing students' clinical preparations to make the transition to "real life" as smooth and meaningful as feasible for nursing students. (Solvik & Struksnes, 2018)

An Academic Head Start. Nursing, being a premed course, has all the subjects necessary for one to pursue medical school. Thus, an academic head start. Nursing courses such as anatomy and physiology, biochemistry, microbiology, pharmacology, maternal and child, medical-surgical, community health, and psychiatry are important foundational courses for medical school.

Carie said that the basic knowledge of the medical course at the start was a good foundation for her compared to other courses that had no basic knowledge of medical courses. One of the foundation subjects is anatomy and physiology. She elucidated that one cannot understand the abnormal unless one knows the normal. She said, *"If you have the basic knowledge of the medical course at the start, it is a good foundation unlike, for example, the teacher before getting into medical school. Although we also struggle, they have more difficulty, and I think this is the advantage because we have prior clinical experience and medical knowledge before getting into medicine. So it helped. Even if your knowledge is only about vitamins, it will come up. It is a significant advantage in nursing."*

RJ said nurses understood the language of medicine and the basic terminologies; however, the content and depth of medicine are more than what is offered in nursing. Nurses deal more with the client's response to illness than treating the disease

itself. The basic knowledge would help in the first two years of medicine, but the topics are profound afterward. It is beyond what a nursing school can offer.

Chassie said nurses had some knowledge in academics, like anatomy and medical-surgical lessons, and backgrounds in different diseases. However, it was more detailed in medical school, at least you know compared to when it's all new and foreign. She mentioned, *"In terms of adjustment, yes, it was a big help too. I appreciate nursing more at the clinics. Because in academics, it gives you a background. We have pieces of knowledge in academics like anatomy and med-surg lessons, and somehow you will have a background in different diseases and all. Although it was more detailed in medical school, at least you know compared to when it's all new and foreign."*

The required courses considered foundational for medical school have been specified in the CMO 15 series of 2017. Biochemistry, anatomy and physiology, microbiology, and parasitology are among the subjects covered. The BSN is a four-year degree that includes both general and professional education. Professional courses are threaded throughout the program from the first to the fourth year, emphasizing nursing concepts and RLE.

The BSN curriculum aims to develop a professional nurse who can assume entry-level positions in health facilities or community settings. The professional nurse is capable of providing safe, humane, quality, and holistic care to individuals of varying age, gender, health-illness status, healthy or at-risk families, population groups, and communities, either alone or in collaboration with other health care providers, to promote health, prevent illness, restore health, alleviate suffering, and provide end of life care.

The Professional Virtues. Another unique and salient feature of the nursing course is the concoction of positive character traits and values developed in nursing students to blend into nursing professional virtues. A profession's virtues are the

qualities that enable members of that profession to perform well in their professional roles, achieve their professional goals, and meet their professional obstacles. The participants developed the character traits and values of endurance, self-discipline, time management, study habits, prayerfulness, faith in God, empathy, compassion, altruism, and a strong relationship with God.

Crisma said that nurses have endurance in work and stay up late, especially during clinical rotation, because nurses are used to duties, including night-shift duties. The clinical instructors were strict also, so nurses mostly developed discipline, especially during related learning experiences or clinical duties. She said, *"We have more endurance in work and staying up late during the internship. We have night shifts, so you know what to do at night. If AM shift, you know what to do. Other courses do not have that. They have classes throughout their premed until medical school. Then, reaching the 3rd and 4th year, you suddenly have 24 hours of hospital duty. Others have shorter endurance. They quickly get tired. They were able to adjust later. That's what I observed."*

Crystal brought her study habits, self-discipline, and time management to medical school from nursing school. She felt nursing helped her greatly because she believed in innate self-discipline and time management. She said, *"In nursing school, I probably carried my study habits, self-discipline, and time management to medical school. I felt nursing helped me a lot because I believe in innate self-discipline and time management. It's attainable if you want to reach it."*

Ron appreciated the values he learned from his nursing school. These are the value of prayer, faith, and relationship to God. Part of their nursing training is to attend annual church programs for a month where attendance is checked. The clinical instructors also gathered them to pray for their patients and emphasized the value of respect for medical staff during hospital exposure. He related, *"The values I learned. Our school is a Christian*

institution. We attend an annual church program every 8 a.m. and 5 a.m. for one month during nursing school. You need your attendance signed and submitted to your teachers. Thus far, it's also good because it strengthens your faith and relationship with God. Usually, our clinical instructors would have time to gather us around and pray for the patient. They also teach us the value of respect for medical staff during hospital exposure."

Ethical codes exhibit professional values. In reality, ethical codes define nursing practices, professional care standards, and professional norms. Technological advancements and the growth of nursing duties have created ethical dilemmas for nurses. If not managed effectively, such challenges significantly impact inexperienced nurses' capacity to make clinical choices. Promoting professional values has become more important in nursing education as the quantity and complexity of ethical challenges in care settings have grown. Promoting the nursing profession begins with the acquisition and internalization of values. When values are internalized, they become the practice standards that guide behavior. Education can be used to teach, modify, and promote values, either directly or indirectly. (Poorchangizi et al., 2019)

The nursing profession, like other professions, has an ethical rubric that serves as a guideline. In honor of Florence Nightingale, one of the most notable characters who has had a beneficial impact on the nursing profession, Nightingale's promise codifies this character template. Nightingale's commitment has a tremendous psychological influence on nurses, contributing to their professional and ethical standards. It confines them to a set of moral canons critical to keeping nursing professionals in check. (StudyCorgi, 2020)

A Compassionate Agent of Healing

Compassionate Agents of Healing is the third theme delved into in the impact of nursing on their practice as medical practitioners. The participants revealed how their nursing education and career

helped them in their current practice as physicians. The categories include the following: Care and Cure Concoction; Better Interpersonal Dynamics with Healthcare Team

Care and Cure Concoction. The participants believed they had become better physicians because they are compassionate in dealing with their patients using therapeutic communication skills. Being a nurse, the insignia for care, and a physician who helps bring cure when combined is a beautiful blend of a compassionate agent of healing.

Crystal said it is becoming your nature—how you talk to patients, explain their illness, and what management you give them. Nursing taught her that every time she does a particular procedure on a patient, she explains the procedure and introduces herself. When she became a doctor, it became instant to do all these, introduce herself, and establish rapport. She said, *“It’s becoming your nature how you talk to patients, explain their illness, and what management you give them. Before, in nursing, our fundamentals were that every time we do a particular procedure on a patient, we explain the procedure and introduce ourselves. It’s all in nursing. When I became a doctor, it’s all instant to do all these, introduce myself, and establish rapport. It’s like nursing, except that it’s no longer you who works on your orders. You order medications and procedures, but the principle is that you still interact with patients, talk to them, and explain things to them. You are still like a nurse, so I carried this, and I find it easy. Now that I do internal medicine, I do that. It’s a natural already, an instinct.”*

Nero (2017), in his study, aimed to define the concept of nursing in the Philippines from the perspective of Ilocano nurses in order to establish a nursing description based on Filipino nurses’ perceptions of their nursing practice, which will add to the richness of the Philippines’ nursing concept. The findings of the study revealed four (4) major themes: 1) Mangtaraken, or caring; 2) Mangpasantak, or nurturing; 3) Mangipateg, or valuing; and 4) Mangsalimetmet, or preserving.

The studies revealed that nursing is a culture-based profession that is profoundly embedded in the Ilocanos characteristics.

In any hospital setting, teamwork and communication are essential among all healthcare personnel. As nurses develop and foster inter-professional connections over time, they refine these essential talents. These qualities are vital for potential doctors, especially once clinical trials begin. Throughout clinical and practice, nurses have faced bedside care. Nurses who receive bedside care training gain observation skills to help them perform future diagnoses and treatments as doctors. Nurses’ communication and patient care promote a better knowledge of their requirements and the prevention of their illness. Nurses also continually demonstrate compassion, patience, and empathy, which are personal attributes that future doctors must possess. (Palmares, 2018)

According to Molina-Mula & Gallo-Estrada (2020), positive nurse-patient interaction shortens hospital stays while improving both parties’ quality and happiness. On the other hand, the positive connection is conditioned by the patient’s submissive role. With an equal distribution of power, patients can make their own decisions about their health and disease processes with the help of specialists.

Increased nurse-patient interaction can help to lower the annual growth in the number of re-hospitalized patients in hospitals. It enables patients to take adequate care of themselves once they have left the hospital. (Hany & Vatmasari, 2021)

Better Interpersonal Dynamics with Healthcare Team. Nurses employ interpersonal skills daily when communicating and interacting with others, individually and in groups. They span a wide range of skills, particularly communication skills such as effective listening and speaking. In this study, the medical practitioners displayed a minor superiority complex compared to those who were not nurses. Being both a nurse and a physician helped the participants become compassionate team leaders

who have fewer issues with a superiority complex, thus having better interpersonal dynamics with the healthcare team.

RJ said that he understands nurses and his team better now that he is a physician. It can relate to the nurse in the hospital because he believes that doctors and nurses are collaborative. So being a registered nurse himself, he can set his expectations when dealing with nurses in the hospital. He said, *"I tend to understand them. I have a better working relationship with them, and it can help you set your expectations given that I am working in a government institution where you have to prioritize our resources. It's being able to relate with the nurse in the hospital because I believe that we are collaborative in nature. So being a registered nurse myself, I am able to set my expectations when I am dealing with nurses in the hospital. Also, I am more patient in my interaction with the nurse's staff, especially personally. I am in a harmonious relationship with them because I barely have conflicts with the nursing staff. I can only count with my five fingers. I barely have a conflict with them. They will make your life easy in the hospital."*

Nurses who opt to become doctors are frequently better at communicating with their nursing staff since they previously worked as nurses. Some doctors do not recognize all the hard work nurses do or their value in the patient's treatment because they have never walked in their shoes. (Eagle Gate College, 2018)

Communication is a crucial clinical skill that, when executed efficiently, aids in forming a trusting connection between the medical staff and the patient-customer, resulting in a genuine therapeutic alliance. The willingness shown during consultation, politeness, openness, and attention are offered to patients-customers and the medical personnel's skills and the facilities at the doctor's disposal. How medical personnel responds to their wants and demands is a factor that contributes to the medical unit's increased status and growing interest among patients and consumers. (Chichirez & Purcărea, 2018)

The Practical Lessons Learned

Medical practitioners recall practical lessons learned and they want to share these with nurses or nursing students who want to traverse the road to medicine. The Practical Lessons Learned is the fourth theme of this study, which includes the categories Strengthen the suggested basic science courses, Build up the recommended values and behaviors, and Take Nursing as a Pre-medical Course Seriously.

Strengthen the Suggested Basic Science Courses. The participants suggested strengthening and reinforcing the basic science courses to succeed in medical school. These include microbiology, biochemistry, anatomy and physiology, pathology, pharmacology, medical-surgical, maternal and child, health assessment, community, and psychiatry.

Crisma and Crystal said that basic subjects should be strengthened because they can help. It will make things easier in medical school. It is essential to understand the clinical sciences by understanding the basic sciences in internal medicine. Crisma said, *"Basic subjects should be strengthened because they can help. It will make things easier in medical school. In nursing, you have a general understanding. Before, we memorized this concept for passing, but we did not understand it."*

RJ also advised having a stronger foundation in hard-core sciences such as biochemistry, pathology, and microbiology. Ram suggested medical surgery, and Criz said to strengthen microbiology, histology, and pathology subjects, nursing's waterloo. Red recommended taking community health, pharmacology, and psychiatry seriously and strengthening the health assessment because it will cover the first phase of internal medicine. He said, *"Of course, I will recommend nursing as a premed course since medical-surgical and pharmacology help a lot in actual patients. The medical-surgical nursing and pharmacology should be strengthened if you are a nursing student. If the foundation is good, there is a big chance of passing medicine."*

But before that, there is a need to strengthen the foundation in anatomy and physiology. Technically if I sum up, master the anatomy and physiology because it would be easy to understand medical surgical nursing. It would be best if you doubled your effort in studying pharmacology so that when you reach medicine and discuss the in-depth study on pharmacology, it is not foreign because at least you have an idea."

Build Up the Recommended Values and Behavior. Participants also suggested behaviors that nursing students should strengthen to help them succeed in their nursing and medical course. Chassie said that always be patient-centered and develop public relations and social skills. As their teachers told them, in the future, even how brilliant you are, if you do not know how to deal with people, nobody will sit at your clinic. Even if you are simple, yet you know how to empathize and communicate with the patients, they will go to you.

Carie advised that your advantage as a nursing graduate will become small as eventually all of you will plateau, especially if you do not reinforce yourself with diligence, good study habits, and perseverance that will carry you through medical school. She said, *"Your advantage as a nursing graduate will become small as eventually all of you will plateau, especially if you do not reinforce yourself with good study habits. You should be diligent. It would help if you did not bank on your premed course's advantage. Those students from other courses who are also diligent can catch up eventually. Although it takes a little more effort, they will learn if they persist. There is an advantage, but you should not bank your medical school on it because, in the end, your perseverance and diligence will carry you through medical school."*

Crystal and Red advised developing study habits early in nursing school because, in medical school, 80 to 90% of the time will be geared toward hours of studying. The bulk of study materials is enormous compared to nursing. They should develop study habits, time management, and self-

discipline. Those three were the ones that helped them go through the four years of medical school. Further, Crystal added to compete with yourself only but not with others. She said, *"Develop their study habits early in nursing school because in medical school, 80 to 90% of the time, you will be studying for hours. The bulk of study materials is enormous compared to nursing. Now, they should develop study habits, time management, and self-discipline because, for me, those three were the ones that helped me go through the four years of medical school... Compete with yourself only. Don't compete with others. I don't believe in competition. You focus on yourself. Don't mind others. You are better than yourself. Don't mind them. Just focus. If you wish to improve yourself, then study, study, study. That's medical school."*

Rusty verbalized to make sure that you prepare your mind and emotions when you enter medical school because it is not an easy task, it is not an easy journey, and pray and ask God's guidance. He said, *"Make sure when you enter medical school you are really decided to go to medical school because there is no turning back. Once you go to medical school, when you get your feet wet, you soak your whole body. That's what they say. When you enter medical school, you prepare your mind and your emotions because it's not an easy task, it's not an easy journey. Pray and ask God for help."*

Take Nursing as Pre-Medical Course Seriously. The participants strongly endorsed nursing as a premed course with an emphasis on understanding and valuing issues and concepts that may appear insignificant in nursing and taking it seriously. It's a valuable lesson they learned because, when asked why they chose a nursing course, most of them answered it was never because it's a preparatory course. They have taken nursing course lightly and wished they could have taken it more seriously.

Ricky also recommended nursing as a premed course. Nursing, according to him, changed his attitude a lot. He said, *"I want to recommend nursing*

as a premed course. Well, nursing changed my attitude a lot. It's like a game-changer in your life. Nursing could influence your character as well. I was a rascal back then, and after nursing, I became a caring person. Then after medicine, I developed a sense of authority still with a caring character. So yes, I recommend nursing as a premed course. However, take nursing seriously not because you are forced. When you love a particular career or job, it is easy to understand it rather than being forced to study it or memorize it for passing. Passion is different from occupation. Passion surpasses occupation.)"

Riel mentioned that nursing should be taken seriously as a premedical course because, for him, it's a win-win situation. He said, *"For me, yes. It's probably one of the best premed courses. There is a bigger tradeoff in clinical advantage in nursing if they are willing to have a slight academic disadvantage compared to other premed courses. So it's an excellent premed course but you have to be serious about it. If the person will not be able to finish medical school, or the medical career will not be so prosperous, your nursing education will always be your backup career. There was a time that even doctors were taking up nursing to go abroad. So, whatever happens with your medical education or practice, you can always go back to your nursing profession if you need to go abroad or find an alternative. So it's an advantage. It's a win-win situation."*

For most aspiring doctors, nursing as a premed is considered an ideal decision. Nurses must complete extensive training and internships prior to graduation. If, for some reason, they fail to finish medical school, they can always fall back on their nursing career as a backup plan (Berlin, 2018). Although nursing and medicine are two different disciplines, nursing as a pre-medical degree has advantages. Medical students who had undergraduate degrees other than nursing had less clinical experience. As a result of years of clinical rotations and ER assignments in nursing school,

registered nurses who become medical students are already familiar with the hospital and clinical milieu. Nurses are familiar with medical jargon and have technical abilities (such as IV placement and medication conversions) to help them succeed in medical school (Palmares, 2018).

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Learning Preferences Among Nursing Students: A Conjoint Analysis

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The COVID-19 has brought challenges, especially in education. The sudden shift from the traditional classroom to fully online learning brought changes, especially to students. This study determined the learning preferences among Nursing students. The study used quantitative conjoint analysis on 120 respondents from the College of Nursing who met the inclusion criteria. Data are obtained using 18 combinations of cards, which contain five attributes: Teaching Method, Activity Type, Communication with Teacher, Knowledge Assessment, and Learning Platform. These attributes were analyzed using SPSS, including Orthogonal Array Testing (OAT) and Pearson Correlation Coefficient (Pearson r) to determine the learning preferences of the nursing students. Based on the OAT, 18 card combinations were generated with two hold-out cards. Kendall's Tau was used to validate the reliability of the card combinations. The most preferred combination for nursing students is a live lecture for the teaching method with a utility estimate of 2.129, group activity for the activity type with a utility estimate of .228, online for the communication with the teacher with a utility estimate of .065, paper-and-pen for the knowledge assessment with a utility estimate of .453, and a traditional classroom for the learning platform with a utility estimate of .133. The researchers recommend that future research include participants from other degree programs. It is also recommended that the teachers adapt their teaching strategies to suit teaching modes that student learners find more effective.

Keywords: *traditional classroom, learning preferences, conjoint analysis, learning attributes*

The pandemic brought in and is still bringing in challenges, especially in education. One such challenge was the sudden shift from traditional classrooms to fully online learning or virtual classrooms. As the COVID-19 pandemic spread across the countries, schools shut their doors, and classes moved online to slow the spread. This transition impacted teachers and students who had to adjust to the new learning environment (Balram, 2020). The global education system faced severe obstacles when over 1.07 billion students, or roughly 61% of all students worldwide, were affected by nationwide school closures in 111 countries by July 2020 (Yan et al., 2021).

According to Wilson et al. (2018), group work is one of the most extensively used and well-researched teaching methods in the college classroom. Students' achievement, persistence, and attitudes toward science have all been demonstrated to improve when they collaborate in groups to attain common learning goals. Groups allow students to clarify their reasoning to one another and themselves, facilitating the cognitive restructuring that leads to learning. They allow formative evaluation and peer input to help shape that learning. Groups also enable students to include different points of view and improve communication and collaborative skills, which are crucial in scientific collaboration and professional sectors. Further, according to some research on online learning, group collaboration in online classes is advantageous since it allows students to acquire higher-order and critical thinking abilities and construct knowledge and meaning. Other researchers have found that students consider online group work more difficult than group work in face-to-face situations. Distance learners, for example, may lack some of the social contact that occurs in face-to-face situations when working in groups online. This may lead to a lack of familiarity among group members, resulting in poor group dynamics. Online collaborative groups may also experience

a delay in group development, taking longer to form social bonds. Despite the difficulties of online group work, many students in the online course thought that online group work was beneficial. One of the most common reasons mentioned was that online learning gave students the flexibility of not needing to be in a specific physical location to attend class. At the same time, individualized learning allows students to study at their own pace, which has several advantages. There are both advantages and disadvantages. Some students will finish quickly and leave class feeling accomplished or bored. Others may be unable to complete it in class and must plan to finish at home later. Individual learning also necessitates time management for pupils, which some students could struggle with.

As a result, students must adapt to the transition from face-to-face learning to fully online learning, where synchronous video conferences, social media, and asynchronous discussion forums become their primary venues for knowledge construction and peer communication. Thus, this study will determine the factors affecting the learning preferences, and it will determine the learning preferences of the participants in terms of the teaching method, activity type, communication with the teacher, knowledge assessment, and learning platform.

Methodology

Research Design

In this research, conjoint analysis was used to collect and analyze data. Since 1971, conjoint analysis has been applied to various problems in consumer research. Conjoint analysis has been the most popular method for determining consumer preferences for new items about to hit the market. The use of experimental design models in market research is critical. These models use a matrix to mix features and levels, resulting in product conceptions that respondents assess. (Huertas-García et al., 2016)

Conjoint Analysis is also a tool used in marketing, economics, transportation, health, tourism, and other areas to develop and modify products, services, policies, and programs, especially ones that can be described in attributes. The most frequent type of conjoint analysis is choice-based conjoint analysis (CBC), also known as discrete-choice conjoint analysis. Respondents must select their most favored full-profile notion in a choice-based conjoint. This selection is made regularly from sets of 3–5 full-profile concepts. This selection exercise is thought to emulate a real-world purchasing situation, therefore mirroring actual shopping behavior. The trade-offs made while selecting one (or none) of the various options can be used to calculate the importance and preference for the attribute features and levels. The number of features and levels determines the number of features and levels in a choice-based conjoint design. When that number is large, an experimental design prevents respondent fatigue. Qualtrics gives a lot of leeway when using experimental designs in your conjoint survey. The outputs of a Choice-based conjoint analysis provide excellent estimations of the importance of the characteristics, particularly when it comes to pricing. The results can be used to assess the value of each level and the combinations that make up ideal products. Simulators report on the preference and value of a chosen package and the projected choice share (a surrogate for market share).

Population and Sampling Techniques

This study had 1 group of participants- Nursing students from the College of Nursing from Second year to Senior year levels in a university in Puting-Kahoy, Silang, Cavite, enrolled in the academic year 2022-2023. The researchers had 120 participants, of which 22 (18.33%) were male, and 98 (81.66%) were female. The researchers' inclusion criteria include nursing students enrolled in the 2022-2023 academic year.

In gathering the data, convenience sampling was utilized in determining the participants of this study. Convenience sampling, also known as availability sampling, is a non-probability sampling strategy that collects data from people in the community who are readily available to participate in the study. This is a sort of sampling in which the research will be conducted using the first accessible primary data source without further restrictions. In other words, this sampling strategy entails gathering people wherever they can be found, usually wherever it is most convenient. This technique will be applied because of the choice of the ones available when the data gathering from the College of Nursing will be held.

Instrumentation

The researchers identified attributes about virtual learning preferences based on the literature, and each attribute has dimensions and was treated using Orthogonal Array Testing (OAT) through SPSS.

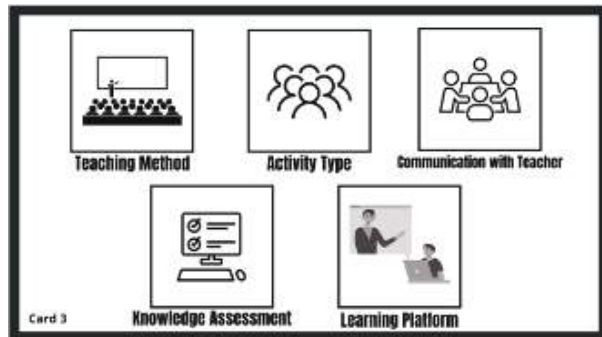
Orthogonal Array Testing (OAT) is a software testing technique that uses orthogonal arrays to create test cases. It is a statistical testing approach that is especially useful when the system to be tested has huge data inputs. Orthogonal array testing helps to maximize test coverage by pairing and combining the inputs and testing the system with a comparatively smaller number of test cases for time-saving. After the treatment, the software produced 18 combinations of conjoint cards, including two holdout cards, which served as a tool during the data gathering. Confidentiality was ensured to the data and the identity of the respondents.

The researchers look for icons representing the attributes and sub-dimensions based on the generated conjoint combination. Then, the participants will sort the 18 combinations of cards with two holdout cards, which serve as distractor cards from the original 18 card combinations, in which the respondents ranged from 1 to 18 based on their preferences. Third, in a card, we begin

sorting and categorizing each attribute. Lastly, using the orthogonal array testing ensures that each card has unique combinations and that no attributes/sub-attributes are repeated.

Figure 1

Sample Card



Data Gathering Procedure

Before the data gathering, a letter of request to conduct the study was sent to the Dean of the College of Nursing. Upon approval, the researchers sent the link to the Google Forms to the respondents for informed consent. After submitting the informed consent, the researchers gave the cards to the respondents and instructed them to sort the cards from most preferred to least preferred. They were asked why they chose their most and least preferred cards. The questionnaire is self-constructed and was made up of vectors that can be found in Canva. These vectors or icons were Google images that described the attributes and their sub-dimensions.

Data Analysis

The attributes identified were encoded in the SPSS (Statistical Package for the Social Sciences) software for the orthogonal plan. In addition, this study used descriptive statistics – frequency and percentage- to determine the respondents' profiles. Pearson Correlation Coefficient (Pearson r) and Kendall's Tau were used to determine the correlation between variables, and utility estimates were used to determine the rank of the card sorts. Pearson's correlation coefficient was used to

determine the attributes' relationship and degree of significance. Pearson r is the statistical test that evaluates the statistical association, or relationship, between two continuous variables. Since it is based on the covariance method, it is regarded as the best method for determining the relationship between variables of interest. It indicates the magnitude of the association or correlation and the direction of the relationship. Kendall's Tau is a nonparametric measure of the correlation strength of the attributes and their sub-dimensions. Maurice Kendall first used it in 1938. Kendall's Tau measures the strength of a link between two ordinal-level variables (Puka, 2011).

The cards were ranked according to the total utility estimates based on the five attributes and their sub-dimensions. Each sub-dimension has its utility estimate value, and the total of the utility estimate value is the estimated value of each card. The conjoint card with the highest utility value is the most preferred but not necessarily the attributes and sub-dimensions presented in the conjoint card. The highest utility estimates of the sub-dimension are the learning preferences of the respondents.

Ethical Considerations

Before the data gathering, the researchers secured the approval of the university's Ethics Review board. Researchers ensured participation was voluntary and potential subjects had all the information they needed to make an informed decision. Participants understood what was asked, and the involved were competent enough to consent (Connell, 2014)

Results and Discussion

Factors Affecting the Learning Preferences of Nursing Students by Utility Estimates and Important Values

Table 1 presents the utility estimates and the important values of the attributes and their sub-attributes on the learning preferences of the respondents.

Table 1*Factors Affecting the Learning Preferences of Nursing Students*

Attributes	Sub Attributes	Utility Estimate	Std. Error	Important Values
Teaching Method	Live Lecture	2.129	.406	36.121
	Recorded Audio	-1.151	.476	
	Recorded Audio and Video Lectures	-.978	.476	
Activity Type	Individual	-.228	.304	13.060
	Group	.228	.304	
Communication with teacher	Online	-.006	.406	21.615
	Face to Face	.065	.476	
	Blended (Online & Face to face)	-.060	.476	
Knowledge assessment	Online	-.453	.304	11.750
	In-Person	.453	.304	
Learning Platform	Virtual Classroom	.133	.406	17.455
	Traditional Classroom	.040	.476	
	Blended Classroom	-.173	.476	
(Constant)		7.936	.351	

Pearson R - .902

Kendall's Tau - .667

Kendall's tau for holdouts - -1.000

Table 1 showed that among the attributes – teaching method, activity type, communication with teacher, knowledge assessment, and learning platform, teaching method was the most preferred attribute of the respondents, which has an important value of 36.12, and live lecture was the most preferred sub-attribute which has the utility estimate of 2.129. The least is knowledge assessment, which has a value of 11.75, and the least sub-attribute is online communication with the teacher, which has a utility estimate of -.006. This implies that the teaching method was the factor that predicted the respondents' choices on learning preferences.

Research by Shqaidef et al. (2020) surveyed students' opinions on using audio and video-recorded lectures. Students believed audio and video-recorded lectures were useful resources for learning, especially when used in conjunction with the lecturer's slides and as a revision tool. (Parson et al., 2009) The most common way to

watch lectures is in person. On the other hand, students value video-recorded lectures as much as or more than live lectures. (Cardall et al., 2008) Students who saw a video-recorded lecture after a live lecture performed better on a multiple-choice question test than students who read the textbook. Despite the growing usage of pre-recorded lectures, little is known about their impact on learning. After comparing video-recorded lectures to live lectures, Ramlogan et al. (2013) determined that using video alone in clinical periodontology training had drawbacks. Abubakar et al. (2021) supports the result of this study. Most students were satisfied with live lectures as a teaching method because they ensure curriculum coverage.

Respondents' preferences on Learning according to responses

Figures 2 and 3 present the respondents' most and least preferred learning preferences.

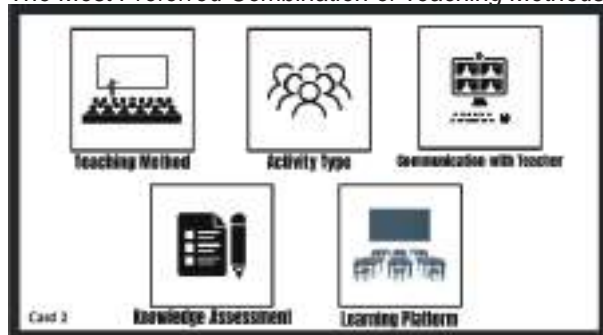
Figure 2*The Most Preferred Combination of Teaching Methods*

Figure 2, or Card 2, shows the most preferred combination of teaching methods by the 2nd year to the 4th year nursing students; the overall most preferred teaching method of the students is live lecture rather than recorded audio and recorded audio and video. For the activity type, the students preferred group work to individual work. For communication with teachers, they preferred online rather than face-to-face and blended. For the knowledge assessment, they preferred to take their knowledge assessment in person/on paper and pen rather than taking it online. Lastly, the students preferred traditional classrooms rather than online and blended classrooms for the learning platform.

To interpret the most preferred combination, the respondents chose live lectures for the teaching method. According to Gysbers et al. (2011), if students continue to attend live lectures while technology expands in broadness and availability, their motivations must be understood and adapted to create a more comprehensive learning experience. However, schools should also vary the emphasis on either live or recorded lectures depending on the maturity of the students and the content being provided to maximize the benefit to students (Ranasinghe & Wright, 2019). The nursing students also preferred their activity types to be group, which was supported by Conrad & Donaldson (2004), wherein group collaboration in online classes is advantageous since it allows students to acquire higher-order and critical thinking abilities, as well as construct knowledge and meaning. Communicating

with the teacher online was the student's choice, which was supported by Ihmeideh et al. (2010). According to them, the online world lacks body language, and engaging with students online involves a little more effort and planning than communicating with students in a traditional environment. Moreover, communication skills are becoming increasingly important for success in today's organizational environment. The nursing students preferred paper-and-pen rather than online assessment for the knowledge assessment. This was an unusual result since, according to Frankl & Schratt-Bitter (2012), online exams/testing methods increase assessment objectivity and lighten correction workloads. This is particularly advantageous in classes with hundreds of students. However, during the data gathering, some respondents commented that they chose paper-and-pen exams over online exams because of many technical issues, such as slow internet connection, gadgets that sometimes malfunction, etc. This is supported by a journal article by Adanır et al. (2020), stating that some risks are generally associated with taking tests online. These risks include the potential for cheating, technological difficulties, the lack of adequate exam time, and the poor quality of the questions. Lastly, for the learning platform, the traditional classroom was the choice of the respondents since, according to Darkwa and Antwi (2021), students perform better in classroom learning than in online learning, and classroom learning was more effective overall.

Figure 3*The Least Preferred Combination Teaching Methods*

Figure 3, or Card 10, on the other hand, shows the least preferred combination of the nursing students from 2nd year to 4th year; the overall least preferred teaching method of the students is recorded audio, individual work for the activity type, online for the communication with the teacher, online for the knowledge assessment and lastly blended classroom for the learning platform.

Preferred Card combination of the Nursing Students

Table 2 presents the nursing students' card sorting preferences and utility estimates. The 18 different card combinations with the two holdout cards were presented to the respondents, each with its unique combination of attributes, which was done using the orthogonal array card sorting. The cards can be ranked based on the value by looking

at the utility estimates. The higher the value is in the utility estimate, the more preferred the respondents have for that card. Based on that idea, Card 2 has the highest utility estimate, which means that card two (2) has a utility estimate of 2.844 and with a combination of live lecture teaching method, group activity type, virtual communication with the teacher, paper-and-pen knowledge assessment, and the traditional classroom for the learning platform is the most picked cards which serve as the most preferred card combination of the respondents. The least preferred card with a utility estimate of -2.011 is card 10, which is a combination of recorded audio for teaching method, individual activity for activity type, virtual communication with teacher, online knowledge assessment, and blended learning platform, which is a mixture of both virtual and traditional classroom.

Table 2

Preferred Combination of Nursing Students Using Utility Estimates

Card 1	Teaching Method	Activity Type	Communication with Teacher	Knowledge Assessment	Learning Preferences	Utility estimates
1	2.129	228	-0.06	-0.453	0.133	1.977
2	2.129	0.228	-0.006	0.453	0.04	2.844
3	2.129	0.228	0.065	-0.453	0.133	2.102
4	2.129	-0.228	0.065	0.453	-0.173	2.246
5	-1.151	0.228	-0.006	-0.453	0.133	-0.343
6 (H)	-1.151	0.228	-0.006	0.453	0.04	-0.463
7	2.129	-0.228	-0.006	-0.453	0.13	1.757
8	-0.978	-0.228	0.065	0.453	0.133	-0.555
9	-0.978	-0.228	-0.006	-0.453	0.04	-1.625
10	-1.151	-0.228	-0.006	-0.453	-0.173	-2.011
11	2.129	0.228	-0.006	0.453	-0.173	2.631
12	-0.978	0.228	-0.006	0.453	0.133	-0.17
13	2.129	-0.228	-0.06	0.453	0.04	2.334
14	2.129	-0.228	-0.006	-0.453	0.133	1.575
15 (H)	-0.978	0.228	0.065	-0.453	0.04	-1.098
16	-1.151	-0.228	-0.06	0.453	0.133	-0.853
17	-1.151	0.228	0.065	-0.453	0.04	-1.271
18	-0.978	0.228	-0.06	-0.453	-0.173	-1.463

Conclusion and Recommendations

During the pandemic, students experienced different learning types as academic institutions underwent a paradigm shift. Most students experienced online modality in all school activities. This made them compare their learning experiences between traditional and online classrooms and consider their learning preferences. Considering the students' learning preferences is worth the attention of academic institutions and instructors. However, no evidence considering the learning styles may lead to better comprehension and retention. From all the data gathered by the researchers, card 2 was the most preferred, and card 10 was the least preferred card from all the 18 cards presented. The most preferred combination of the students was a live lecture for the teaching method, a group format for the activity type, online for the communication with the teacher, paper, and pen assessment for the knowledge assessment, and a traditional classroom for the learning platform. The least preferred combination of nursing students is recorded audio lectures for the teaching method, individual activity type, online communication for the communication teacher, online examination for the knowledge assessment, and blended classroom for the learning platform.

The researchers recommend that future research include students from other degree programs as they may have other learning preferences. It is important that they be acknowledged and that the teachers can also improve or change their teaching strategies depending on the needs of the student learners.

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Health Care Professionals' Difficulties with Electronic Health Records in Developing Countries: A Systematic Review

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Studies in regions of Asia and Africa have been conducted with the intention of closing the gap and having developing countries operate EHRs in the same way that first-world countries do. Its use has grown in recent years, particularly during the COVID-19 pandemic. A weak health information system has been noted as a key challenge in the healthcare system in many developing nations, particularly those in Africa and Asia. The study used articles about health care professionals and electronic health and medical records, health professionals' computer utilization in developing countries, healthcare and EHRs, barriers to EMRs, ethical issues of electronic health records, and developing countries and electronic health record usage as keywords for searching articles to be included in the study. In this analysis, a total of 18 studies with researchers or writers located in the Adventist University of the Philippines' specified online library databases and on Google Scholar were chosen. Users of electronic medical records were perceived to be willing to use the system, with functionality being the critical factor for user willingness. Although there were those who had concerns with computer integration and patient relations, health care professionals who worked in government hospitals had higher literacy rates compared to those working in private hospitals. Several governments from various countries gave support to implement health strategies to penetrate health IT into their systems. Researchers submitted recommendations to put an end to the barriers proving to be ineffective in the implementation of EHRs. Conclusions are drawn for changeable technological, organizational, and external factors. Asian and African developing countries should not be labeled failures in terms of using computerized methods in their health-care systems, as this is ultimately the way of the future.

Keywords: *healthcare and EHRs; barriers to EMRs, ethical issues of electronic health records; developing countries; electronic health record usage*

In today's medical practice, using the electronic health record (EHR) during clinical visits is the norm. Its implementation has increased recently, especially during the COVID-19 pandemic. In many developing nations, notably Africa and Asia, deficient health information systems have been identified as a significant concern for the healthcare system. Electronic health records (EHR) have been demonstrated to be a crucial tool for enhancing patient information access and the standards of care. According to a 2012 World Health Organization (WHO) report, 45% of nations adopted electronic systems to manage patient data (Evans, 2016). However, EHR has not been generally adopted or implemented in developing nations (Odekunle et al., 2017).

A patient's medical history, prescription orders, vital signs, laboratory findings, radiology reports, and doctor and nurse notes are all examples of information that make up an electronic health record (EHR). In healthcare facilities, it automates the process of ordering both exams and medications, resulting in orders that are uniform, legible, and comprehensive (Campanella et al., 2015). Like other medical technology, the EHR is intended to improve patient outcomes by maximizing the effectiveness and caliber of healthcare delivery (Wolfe et al., 2018).

The Institute of Medicine points out that there is a consensus that, when properly planned, implemented, and used, health IT may positively influence changes in how care is provided. When health IT is designed and misused, it can add an extra layer of complexity to the already complex process of delivering healthcare, which can have unintended adverse effects such as dosing errors, failure to identify fatal illnesses, and treatment delays brought on by ineffective human-computer interactions or data loss (Chou, 2012). In industrialized nations, electronic medical records (EMR) are widely used to keep track of patient information, expedite consultations, and monitor the course of therapy. As a result, patient data has

been centrally stored in databases that various agencies and physicians can easily access to assist in healthcare delivery.

EMR adoption and utilization, however, are uncommon and sometimes nonexistent in less developed nations. Since no centralized database maintains and regulates the patient's medical history, clinicians must rely on patients to retain their own manual records (Akwaowo et al., 2022). The cost of purchasing and maintaining EHR software in low- and middle-income countries is the main obstacle to adoption, making the open-source methodology an excellent solution for these underserved areas. The lack of funding, the absence of a healthcare policy, and the scarcity of technical and human resources are additional factors that affect healthcare services in low-resource settings (Syzykova et al., 2017).

In alignment with NUHRA 2017-2022's research themes, global competitiveness and innovation in health will be utilized, specifically with the subtheme information and communication technologies for health. There are still difficulties in using and implementing electronic health records in developing countries, so electronic health solutions still need to be found in this area to record patient information. Sustainable developmental goal number 10, reduced inequalities, will be accentuated throughout this study. This will be remembered because of disparities between clinical users and client receivers of healthcare in developing countries. The research agenda of the Adventist University of the Philippines covers seven various aspects of innovation. This study aims to focus on new and emerging areas of holistic health.

There has not been enough research to tackle issues revolving around this study. This paper aims to objectify realistic methods for implementing electronic health records in the Philippines, a developing country, through the study findings of other researchers. Furthermore, studies in parts of Asia and Africa have been conducted to close the gap and have developing countries function EHRs the way they have been successfully done in first-world countries.

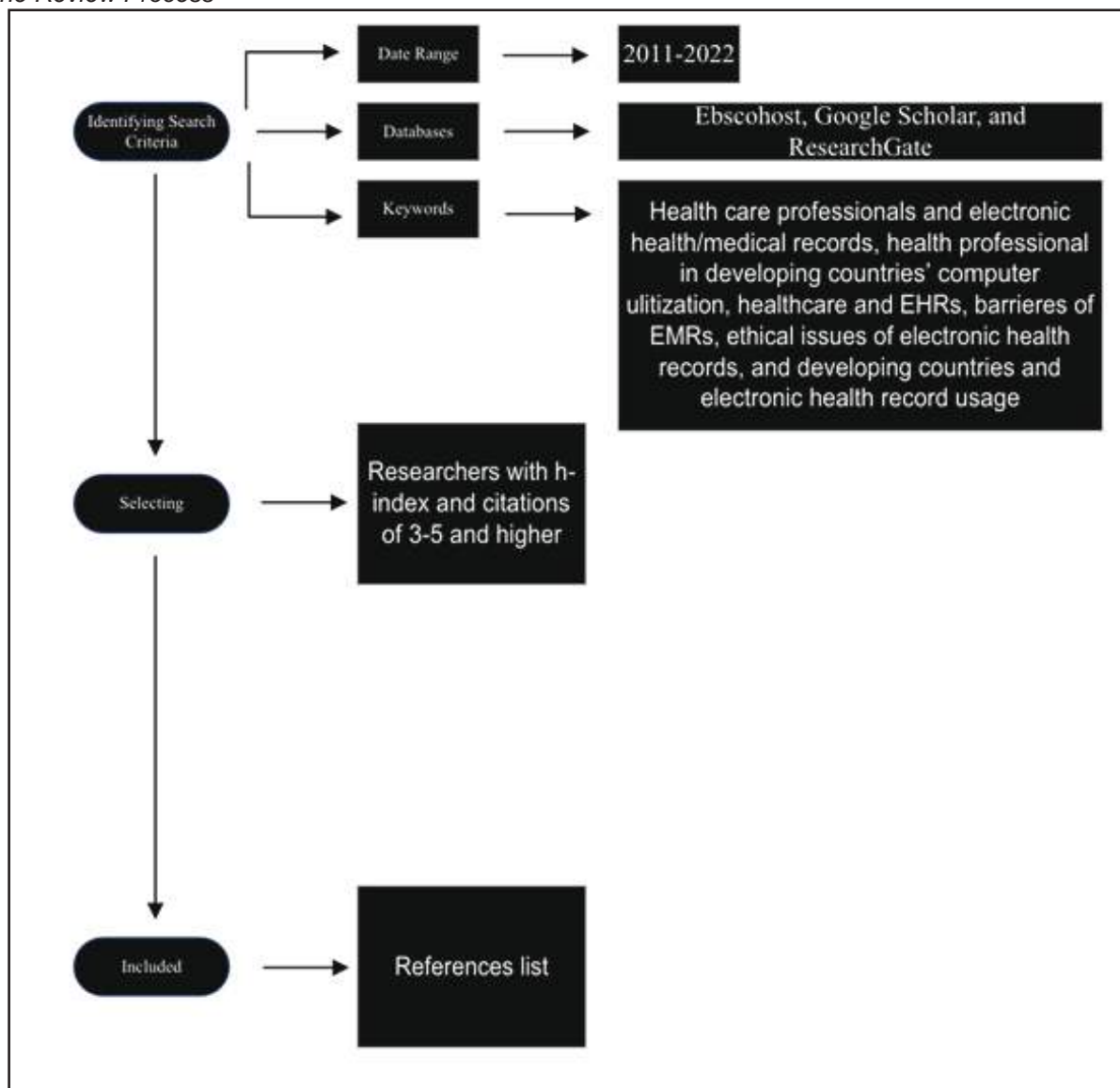
Methodology

The review of related literature was retrieved from various research databases, with dates ranging from 2011 to 2022, to ensure the criteria of the latest studies done for the research. Articles with the keywords “health care professionals” and “electronic health/medical records,” “health professionals in developing countries’ computer utilization,” “healthcare and EHRs,” “barriers of EMRs,” “ethical issues of electronic health records,” and “developing countries and electronic health record usage” were used for the study.

Research with scholars or authors found in online library databases (EBSCOhost), Google Scholar, and ResearchGate was determined in this analysis. This was done by selecting researchers whose h-index and citation reputations were at least 3-5, but preferably higher. This is to secure the verification of information gathered from various information sources. Figure 1 outlines these steps.

Figure 1

The Review Process



Results and Discussion

Health Care Professionals' Attitudes Towards Electronic Health Records

The study by Ngugi et al. (2021) found that users of electronic medical records were willing to use the system due to its benefits. The system's functionality was the most critical factor for the users' willingness (Berihun et al., 2020). Professionals were willing to use a personal computer for training. Salameh et al. (2019) found that accepting EHRs and health information technology encourages nurse users to be inspired and influenced to use them. Salameh's study also found that nurses are positive and accept using electronic health records. Most participants in Ahmed et al.'s (2020) study claimed they intend to use electronic medical records as necessary. One participant shared his thoughts on the following potential uses for EMR:.. He stated, "I am very eager to use EMR because it facilitates my tasks and easily stores and retrieves patient information using keywords. So, I am looking forward to using it (EMRs)" (21–30 years old)."

However, few implied negative intentions to use electronic medical records in the future. Those participants had concerns with computer integration and patient relations. Nevertheless, if the participants had computer literacy, they believed there would be no difficulty on their part to partake in the EMR system in the future. Another study also had unenthusiastic findings. Abdulai and Adam (2020) discovered that health providers are worried about the possible negative impact of EHR usage despite realizing its need due to dissatisfaction with the paper recording system.

Health Care Professionals' Literacy Towards Electronic Health Records

Alwan et al. (2015) found that 29.5% of respondents had good computer literacy. Those working in government hospitals had higher literacy than those working in private hospitals. The study by Berihun et al. had several findings regarding the computer literacy of its health professional

respondents. Though 45.9% of healthcare professionals had proficient knowledge of EMR use, 58.3% of respondents had the skill to operate computers, allowing them to maneuver EMR systems. Kenyans are literate about electronic medical records due to the training that gave them the capacity to do so. In Ghana public hospitals, records are entirely paper-based, providing little to no literacy towards electronic health records (Abdulai & Adam).

Barriers to Electronic Health Records in Developing Countries

Ebardo and Celis (2019) found three barriers to adopting EMRs in their study of Philippine hospitals. Technology barriers are present in HCPs who go through a learning curve with electronic medical records as computer skills are weak. Organizational barriers refer to the internal attributes of health providers that make them resistant to technological advancements. Environmental barriers to adopting EMRs refer to external impediments to organizations switching from paper-based recordings to digitized ones. This barrier is exaggerated due to the absence of EMR training in medical schools.

Dornan (2019) also points out organizational barriers to EHR implementation. These barriers come from inadequately skilled men and a lack of proper planning. Financial resources and insufficient power supply were also found to be causes of drawbacks for India, China, and Myanmar. Challenges in the external context were yet another barrier to the implementation of electronic health records, namely the need for a more comprehensive infrastructure and information technology.

The Ozair et al. (2015) study explains the lack of consideration by clinics and healthcare centers towards clinicians as leaders in EHR implementation. This is because it is the clinician who paves the way for other colleagues to comprehend EHR, how it works, and the results it is expected to give. Because clinical leaders are not given the window to do so, other clinical personnel have inadequate knowledge of the workflow of clinics, and implementation fails.

Project factors, organizational factors, and contextual factors have been discovered by Moucheraud et al. (2017) as the reasons why health information systems are not sustainable. Program- or project-specific factors refer to the needed training, financing, and perceived effectiveness of electronic health systems. Factors relating to the organization include integration, the strengths of the institution, and interactions between donor-client and donor-community. At the same time, contextual factors tackle matters of cultural characteristics and political and economic elements.

Strategies to Improve Electronic Health Record Implementation

Abdulai and Adam (2020), Berihun et al. (2020), Ebardo and Celis (2019), and Ozair et al. (2015) shared that the governments in Ghana, Ethiopia, the Philippines, and India, respectively, receive support from the government to implement a health strategy or implement health IT in their school curriculums as a way to introduce and penetrate health systems formally. In Ghana, all central government hospitals were to adopt the strategy for health care providers. The Ministry of Health in Ethiopia set up an EMR program for people who mainly had low to no literacy in the use of computers. Collegiate schools in the Philippines receive health information technology applications in their curricula but not in higher education. Similarly, hospital systems in both Ethiopia and India were given a set of guidelines by their governments on the standards of electronic health records.

Several studies found that training and teaching recipients of education on electronic health records is the solution for successful usage and implementation of EHRs. Dornan's research proposes that formal instruction should be given to HCPs and the corresponding personnel to prevent and reduce risks to patients using electronic health information systems. Similarly, Alwan et al. see that numerous trainings and consistent training follow-ups must be done so

that electronic health can bloom correctly. This is because skill makes up the necessary knowledge to operate, and basic computer courses are not enough. Both Ebardo and Celis (2019), along with Abdulai and Adam (2020), see the need for health education to integrate informatics and technology into its curricula for present and future healthcare providers.

The six key actions under the World Health Organization's guidelines for electronic health records in developing countries have been enumerated by Campanella et al. (2015), namely, that they "evaluate the current health record system, try to emulate benchmark practices, involve the intended users of the system from the outset of talks, train the users to the EHR system, evaluate the benefits of the implemented system, and update the system when needed." This implementation strategy is perceived as a requisite in the beginning phases of EHR setup so that the expected goals can be achieved to their fullest potential.

Researchers contributed diverse proposals to end the failed and ineffective implementation of EHRs. Suggestions pertain to technological, organizational, and external factors that can be changed. The gap with this issue is not merely the barriers posed. Furthermore, the capabilities of developing countries to adjust to current healthcare and hospital systems are challenging. Wholistic support in the government and healthcare sectors are two that must be reconsidered and reapplied.

Multiple studies concur that there is insufficient research about developing countries' difficulties, growth, and implementation of EHRs. There are barriers to gathering data that lead studies to create proposals for solutions rather than concrete evidence. It may be one of the hardships apparent in such locations.

This study has no conflict of interest with the researcher. Aside from what has already been mentioned, limitations in this study include gathering data from (a) Philippine hospitals and lacking more studies to support the issue.

The results of Pai's (2021) study found that there have been countless advancements in healthcare information technology in India due to the government's support in doing so. The tradition of hospital information systems in India is to keep records on paper. It has been helpful except when pertinent information is needed and records cannot be brought up immediately. Because the burden has been seen and addressed, India flourishes in its health IT.

Various studies in developing countries portray financial resources as a constraint to properly implementing electronic health records in hospital systems. This is a gap whose solution is not as easy to find or solve as those in first-world countries with blooming healthcare systems. Hospitals' inadequacies in upgrading health information technology are directly related to budgetary planning. The lack of computer skills confounds this problem. Gender does not seem to be a factor in readiness for computer literacy, as studies show. Positive attitudes toward learning and utilizing EMRs can be higher for either sex.

There is hope for the countries studied in this paper. Changes in the respective systems may not occur immediately, but small progressions in the right direction will lead to the desired outcome. Asian and African developing countries should not be left out as failures with upgrades in adapting electronic methods in their healthcare systems. It is ultimately the way of future healthcare. EHRs may have cons, but with the proper training and skill set, they can be an asset to clinicians and clients.

There are many recommendations given. With the challenge of getting data from third-world countries, conducting research in smaller areas or regions within a country may be better. Big-scale studies may be deemed incompetent when gathering results from research methods. Future exploration on this topic may focus on one aspect of implementation barriers and dig deeper to excavate usable solutions. National health systems and countries' governments may also participate in

future studies to raise awareness, and changes may be made as necessary through realistic planning. Lastly, follow-up research is recommended from current studies to get an update on the status of electronic health record implementation in the said countries and for additional countries as well.

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Organizational Commitment, Burnout, and Turnover Intentions Among Staff Nurses in Private Sectarian Hospitals During the COVID-19 Pandemic

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Turnover intentions are increasing across the Philippines as around 40% of nurses in private hospitals have resigned since the pandemic's beginning. There is limited literature on why nurses continue to be committed to their work and choose to stay in the hospitals during the pandemic. This study investigated the mediating effect of organizational commitment to burnout and turnover intention among staff nurses in three private hospitals during the COVID-19 Pandemic. In this study, 175 staff nurses participated. Descriptive-evaluative and descriptive-correlational designs were used, as well as structural equation modeling. Pearson product-moment coefficient and path analysis were used to interpret the data. Results reveal that in terms of burnout, staff nurses have a high level of emotional exhaustion, a moderate level of depersonalization, and a low level of personal accomplishment. Despite this, the staff nurses have a neutral turnover intention. Furthermore, the respondents had a somewhat strong affective commitment, a neutral continuance commitment, and a moderately strong normative commitment. A strong positive relationship was found between emotional exhaustion and turnover intentions, and a moderate positive relationship between depersonalization and turnover intentions. This means that the higher the emotional exhaustion and depersonalization of the staff nurses, the higher the chances of turnover or leaving. Furthermore, a low negative significant relationship was found between personal accomplishment and turnover intentions. This means that the lower the personal accomplishment of the staff nurses is, the higher the chances of turnover intention. Based on the results, the researchers recommend support among nurses to reduce the incidence of turnover intentions and, thereby, decrease incidences of burnout and enhance their organizational commitment.

Keywords: *burnout, organizational commitment, turnover intentions, staff nurses, private hospitals*

A significant force in the frontline against COVID-19 consists of nurses. They are vital in the role and function of managing and preventing the spread of this disease. With today's pandemic, they risk their lives taking care of those classified as COVID-19 patients. When it comes to any healthcare system – nurses are the foundation. Without them, the health structure will collapse, and chaos will ensue (Sadang, 2021). Nurses' workload has significantly increased because of continuous growth in the number of positive patients. This results in stress and fatigue (Murat et al., 2021). Filipino nurses have it worse due to being underpaid and undervalued. Even if the government coaxes nurses in the Philippines to establish themselves within the country, the reality presented and rampant exploitation creates a hostile environment that leads to more problems – with mental health problems being very prevalent (Santos, 2020).

Mental well-being is an often overlooked aspect of an individual's health. Even before the COVID-19 pandemic started, there were an approximated 792 million individuals worldwide, or 10.7% of the world's population, who suffered from any form of mental health disorder (Dattani et al., 2021). The pandemic not only affected patients and their families, but it also greatly impacted primary healthcare providers. Being heavily affected means they are at risk for increased stress, anxiety, and burnout (Burton, 2021). Nurses are undoubtedly feeling the strain that comes from the COVID-19 pandemic. They are exhausted in both physical and mental aspects. To be specific, it is evident that nurses within the critical care units are experiencing post-traumatic stress. This is highly alarming and should be considered more if nurses desire to be in a sustainable environment (Pearce, 2021).

A shortage of nurses is a problem that seriously affects the healthcare system worldwide. Nurses from different countries across the globe are constantly worried about the increased risks

to their health as they are exposed to infections, consistently experience a high demand for work as the number of positive critical cases increases, and have an inadequate number of staff nurses to take care of these cases (Burmeister et al., 2019).

In the context of COVID-19, the International Council of Nurses (2022) presented findings that showed a 20% increase in nurses leaving the profession. Furthermore, in the Philippines, findings reveal that about 40% of private hospital nurses have resigned since the beginning of the pandemic (Alibudbud, 2022). These issues and concerns were raised because it was alarming how huge the pandemic affected the nursing profession.

Considering all these, it raises the question – why do nurses stay within the profession if there are so many downsides to staying on the job? A study conducted in Ireland reveals that organizational commitment and low levels of burnout are said to be the factor that affects the decision of nurses to stay in the profession.

With these results, the majority of nurses have a strong intention to stay in the nursing profession. The findings remain applicable in 2020, specifically during the COVID-19 Pandemic, where hiring and retaining skilled nurses in the workforce became a global dilemma and can threaten the healthcare system. The researchers wanted to know whether organizational commitment had a mediating effect on burnout and turnover intentions because, in the context of nursing and COVID-19, there is a need to make sure that the healthcare system does not collapse. These deep-rooted issues can be solved as soon as possible (Bell & Sheridan, 2020).

Existing studies usually discuss issues regarding nurses' strenuous jobs and vulnerability to burnout. On the other end of the spectrum, existing studies also discuss organizational commitment amidst challenging situations. However, there is limited literature about why nurses continue to be committed to their work and choose to stay in the hospitals during the COVID-19 pandemic. Thus, the

study seeks to close the gap between the mediating effect of organizational commitment toward nurses' burnout levels and turnover intentions during the COVID-19 pandemic.

The research addressed health organizations' health goals and agendas, specifically UN SDG 3, Good Health and Well Being; NUHRA, Holistic Approaches to health and wellness - Health Behaviors; and the AUP Research Agenda, New and Emerging areas in wholistic Health.

Statement of the Problem

To determine the mediating effect of organizational commitment to nurse burnout and turnover intentions among staff nurses in private sectarian hospitals during the COVID-19 pandemic.

Specifically, the study aimed to answer the following:

1. What is the level of burnout among nurses in terms of:
 - a. Emotional Exhaustion
 - b. Depersonalization
 - c. Personal Accomplishment
2. How do nurses perceive their turnover intention?
3. What is the level of organizational commitment of nurses in terms of:
 - a. Affective Commitment
 - b. Continuance Commitment
 - c. Normative Commitment
4. Is there a significant relationship between burnout and nurse turnover intention?
5. Is there a significant relationship between nurses' organizational commitment and turnover intentions?

Significance of the Study

The study may be beneficial to the following entities:

Nursing Practice. The study enhances the practice of those in the field by using data to formulate strategies and interventions addressing problems found within respective areas. Acclimation

and presentation of reality are crucial for both newly acquired nurses and more experienced nurses. This leads to an environment conducive to excellent work, enabling adaptation to both workload and stressors of the COVID-19 pandemic. Ideally, opportunities for nurses to adjust substantially will manifest without sacrificing physical and mental health.

Nursing Education. This study will help improve the education of nurses as it allows for a greater understanding of the effect of burnout due to COVID-19 in the nursing profession, how it affects the health and well-being of nurses, and how it can lead to urges to leave the profession. Future students will be more aware of the intensity and heavy workload in the workplace, allowing them to acclimate appropriately and be prepared for whatever they may experience in the line of duty.

Nursing Research. The data and ideas found within the paper may be used as a reference for future studies or in support of validation of related findings that encompass discussed topics and thoughts of the study. This research will also serve as a reference for bodies of related literature and knowledge and as an overview of the mediating effect of nurses' organizational commitment to the relationship of burnout among nurses employed in private sectarian hospitals during the COVID-19 pandemic and their turnover intentions.

Scope and Limitation

The scope of this study aims to understand the mediating effect of organizational commitment on the relationship between burnout and turnover intentions of nurses in the context of COVID-19. The researchers utilized online and physical questionnaires alongside online resources to gather the data relevant to the study. Although the study aimed to encompass the entire Philippines, the data was strictly sourced from private sectarian hospitals located in the three major island groups of the Philippines. To allow for the most relevant

results, a specific time frame was used-- when the first case of COVID-19 was recorded in the Philippines, January 30, 2020, until the end of data gathering and beginning of data treatment, November 22, 2022. Furthermore, the researchers only interviewed nurses who were actively employed during the process of data gathering and were willing to participate within the hospitals, as mentioned earlier, participating in the study.

As with the majority of research, the design of the current study is subject to limitations. This includes not collecting data from nurses outside of the participating private hospitals. Specific criteria have limited the study; some nurses may not want to speak about the events that have occurred to them. Moreover, considering the pandemic being new and recent, the body of knowledge regarding such is limited, making it difficult to conduct further analysis. Furthermore, as specific hospitals within the Philippines are covered, sample size was relatively small, making it difficult to create a generalization for all nurses in the Philippines – a total of about 65,000 active working nurses. There are limitations to the research gathering as the researchers were physically limited to the Luzon area. Other surveys were performed via channels other than originally planned, which may have caused some problems accuracy. Time was also a critical factor that limited the study, as a limited amount of time was given to gather as much information as possible. It also must be noted that the data gathering within this study was conducted through online forms and paper surveys. This was a limitation towards the data received as participants may or may not be fully honest with the answers that they provided, which may cause a slight deviation in the accuracy of the results.

Methodology

Research Design

Descriptive-evaluative research design describes the procedure and overall effect of a system's development and thorough application

(Gu & Warren, 2017). The researchers evaluated the current healthcare system and collected data to compare to standards of the norm which was then used to discover correlations in what has happened during the COVID-19 pandemic. The research design chosen was advantageous as it allowed for a simple and quick way to collect data, allowed data to be collected in a natural environment, and was honest and accurate. However, this research design did suffer from respondents failing and refusing to answer the questionnaires. However, the study's results were not disrupted in any way, as the data was confirmed using the descriptive-correlational research design.

Descriptive-correlational research design expresses the variables and the naturally occurring relationships between all of them (Sousa et al., 2007). The researchers used this specific research design to determine the relationship between the variables. The study's independent variable is the nurses' burnout, the dependent variable is turnover intention, and the mediating variable is organizational commitment. The advantages of this research design are its simplicity and straightforward application to the study. Furthermore, this research design made predicting human behaviors and causal relationships easy. It should be noted that even if it could predict and infer, it did not identify the cause and effect of the studied problem. However, since this was not the study's intention or focus, it did not affect the results (Boyd, 2021).

Population and Sampling Technique

A simple random sampling technique, specifically the fishbowl method, was used to determine which private sectarian hospitals would participate in the study. The names of the private sectarian hospitals were written down on a piece of paper and placed in a fishbowl. After thorough mixing, three names were pulled out, and the three private sectarian hospitals were chosen to participate in the study and identified as Hospital A, hospital B, and Hospital C.

The convenience sampling technique was also applied to select the respondents. If the nurses filled the study's inclusion criteria, they were eligible to take part and were given a copy of the questionnaire to be answered. The convenience sampling was done with assistance from the participating hospital; that is, the hospital helped select nurses by physically aiding the researchers or providing a list of nurses eligible to participate in the study. Convenience sampling was specifically done due to the strict inclusion criteria, limited number of nurses, and time available to conduct the study.

The target population was the registered nurses actively working at their jobs in hospitals during the COVID-19 pandemic. Factors that led to the usage of convenience sampling were (1) the Availability of the respondents and (2) the constraints of the study. The inclusion criteria for which the participants will be eligible for the study include: (1) The participant is a registered nurse working within the private sectarian hospitals included in the study, (2) The participant is a member of the sect of the private hospital, (3) The participant is willing to participate in the study.

There was a total of 175 respondents, 123 of which were females (70%) and 52 males (30%). There were 150 respondents aged between 18 to 40. Of the 175 respondents, 84 had been with the hospital from 4 to 10 years, and 75 who were there for less than 3 years. Only 29 of these nurses worked in COVID areas during the pandemic.

Instrumentation

The researchers used three instruments to collect the data needed for the study. To measure burnout, the Maslach Burnout Inventory (MBI), with a Cronbach alpha of 0.90 for emotional exhaustion, 0.76 for depersonalization, and 0.76 for personal accomplishment (Gold, 1984; Iwanicki & Schwab, 1981), was used. The Turnover Intention Scale (TIS), with a Cronbach alpha of 0.80 (Bothma & Roodt, 2013), was used to measure turnover

intention. To measure organizational commitment, the Three-Component Model Employee Commitment Survey (TCMS), with a Cronbach alpha of 0.73 for Affective commitment, 0.73 for Continuance commitment, and 0.84 for Normative commitment (Kennedy, 2006), was used. Another Cronbach alpha considered was determined by Yamao & Sekiguchi (2015), in which affective commitment was measured at 0.91, continuance commitment Cronbach alpha at 0.76, and normative commitment Cronbach alpha at 0.82. The literature review supports each instrument's reliability and ability to obtain the necessary data.

Results and Discussion

Organizational Commitment

Affective Commitment. The level of organizational commitment of nurses in terms of affective commitment is discussed in this section. Question number 6 states, "This organization has a great deal of personal meaning for me," ranked as the highest item with a mean score of 5.22 (SD = 1.46). Question number 5 states, "I do not feel like "part of the family" at my organization," is the second to the highest with a mean score of 5.18 (SD = 1.52). The item that ranked lowest was question number 2, which states, "I really feel as if this organization's problems are my own," with a mean score of 3.87 (SD = 1.57). Second to the lowest rank was question number 1, which stated, "I would be very happy to spend the rest of my career with this organization," with a mean score of 4.31 (SD = 1.72).

The overall mean score of the nurses' organizational commitment level in terms of affective commitment was 4.73 (SD = 1.07). The findings can be interpreted as somewhat strong normative commitment, which means the respondents slightly agree that their stay in the organization is due to their affective commitment. Based on the result of a study, the level of affective commitment is somewhat high. In which the results lean towards a positive connotation. It implies the

sense of emotion associated with their current hospital organization, and being a part of it was highly valued by the nurses. They feel a sense of belongingness and are pleased to work as nurses (Arslan Yürümezoğlu et al., 2019).

Continuance Commitment. The item that ranked the highest was question 1, which states, "Right now, staying with my organization is a matter of necessity as much as desire," with a mean score of 5.07 (SD = 1.53). The second to the highest was question number 2, which states, "It would be very hard for me to leave my organization right now, even if I wanted to," with a mean score of 4.65 (SD = 1.72). The lowest ranking item was question number 6: "One of the few negative consequences of leaving this organization would be the scarcity of available alternatives," garnered a mean score of 3.69 (SD = 1.68). Second to the lowest was question number 4, which said, "I feel that I have too few options to consider leaving this organization," with a mean score of 3.82 (SD = 1.65). The overall mean score of the nurses' organizational commitment level regarding continuance commitment is 4.30 (SD = 1.03). The results can be interpreted as neutral continuance commitment, in which the nurses are generally undecided in terms of continuance commitment to stay within the organization. According to the result of a study by Sepahvand et al. (2017), the majority of nurses demonstrated a modest level of organizational commitment, with continuance commitment scoring the highest (22.33%) and normative commitment scoring the lowest (19.16%). Moreover, the study suggests that nursing managers should identify relevant variables and encourage increased nurses' organizational commitment levels with relevant interventions.

Normative Commitment. The question that ranks the highest was question no.6, with a mean score of 5.10 (SD = 1.57), which states, "I owe a great deal to my organization." The second highest was question no. 4, with a mean score of 4.88 (SD = 1.55), which states, "This organization deserves my loyalty." The question that ranks the lowest was

question no. 3 with a mean score of 4.12 (SD = 1.87), which states, "I would feel guilty if I left my organization now". The second lowest was question no. 5, with a mean score of 4.27 (SD = 1.67), which states, "I would not leave my organization right now because I have a sense of obligation to the people in it." The overall mean score of the level of organizational commitment of the nurses in terms of normative commitment was 4.51 (SD = 1.28). This can be interpreted as somewhat strong normative commitment, which means the respondents slightly agree that normative commitment was the reason for their retention in the organization. Durukan Köse & Köse (2017) stated in their study that high levels of work satisfaction would boost organizational commitment, especially normative commitment, and make it simpler for employers to retain their top employees. Managers should concentrate on applications for healthcare professionals to increase normative commitment.

Burnout of Nurses

Emotional Exhaustion. The item that ranks the highest was item no.2, with a mean score of 3.88 (SD = 1.55), which states, "I feel worn out at the end of a working day." Item no. 14, which states, "I get the feeling that I work too hard," was ranked the second highest with a mean of 3.55 (SD = 1.76). The lowest ranking item was no. 6 with a mean score of 2.10 (SD = 1.76), which states, "Working with people the whole day is stressful for me." Item no. 16 was the second lowest with a mean score of 2.41 (SD = 1.69), which states, "Being in direct contact with people at work is too stressful."

The total mean score of burnout in terms of emotional exhaustion was 27.55 (SD = 12.26), which falls between the score of 27 or over, which means in the verbal interpretation that respondents generally had a high degree of emotional exhaustion. The higher the degree of emotional exhaustion, the more likely the respondent is experiencing burnout or emotionally drained or overexerted by their work (Maslach et al., 2016).

A study by Ezenwaji et al., (2019) says that employees who work in a complex area, like nurses who often encounter life-threatening diseases, are more vulnerable to burnout. The high demand for work and stress affects the ability of nurses to function effectively and provide quality care to their patients.

Bradley & Chahar (2020) also stated that the increased amount of work-related stress factors has contributed to the anxiety and depression being experienced by the healthcare workers and are afflicting these medical staff with real physical and emotional risks. However, nurses are motivated to work when they have a good work environment and appreciative nurse managers and colleagues, despite the stressful job (Karlsson et al., 2019).

Depersonalization. Presented is the level of burnout among nurses in terms of Depersonalization. Item no. 11, which states, "I am afraid that my work makes me emotionally harder," ranks the highest with a mean score of 2.46 (SD = 1.74). The item which ranks as the second highest, was item no. 15, with a mean score of 2.38 (SD = 1.82), states, "I'm not really interested in what is going on with many of my colleagues. Item no. 5, which states, "I get the feeling that I treat some clients/colleagues impersonally as if they were objects," ranks the lowest, with a mean score of 1.39 (SD = 1.69). The second highest was Item no.22, with a mean score of 1.52 (SD = 1.56), which states, "I have the feeling that my colleagues blame me for some of their problems." The total mean score of the respondents when it came to burnout in terms of depersonalization was 10.08 (SD = 5.77), which translates as a moderate degree of depersonalization in verbal interpretation. Despite the pandemic and stress encountered at work, nurses are still compassionate with their jobs. The moderate level of depersonalization demonstrates the connection between their care and personal response towards those who are receiving service is not yet gone but has clearly affected the nurses' mentality, possibly translating to the quality of service rendered. It is not bad per se, but it could be

better if the nurses themselves were feeling better.

Emotional exhaustion was significantly related to work experience, hospital ward, the number of deaths nurses saw during the pandemic, and the total number of shifts during the COVID-19 pandemic (Kamali et al., 2020). In the study conducted by Arimon-Pagès et al. (2019) determined that with constant exposure to negative experiences such as suffering, the quality of life of the nurses was negatively affected, thus causing them to experience being emotionally detached from their patients, resulting in failure to provide quality care.

Personal Accomplishment. The item that ranked the highest was number 4, which states, "I can easily understand the actions of my colleagues/supervisors," with a mean score of 4.45 (SD = 1.49). The second highest was question 9, which states, "I feel that I influence other people positively through my work," with a mean score of 4.15 (SD = 1.31). The lowest ranking item was question 12, which states, "I feel full of energy," with a mean score of 3.68 (SD = 1.49). The second lowest was question number 17, which states, "I find it easy to build a relaxed atmosphere in my working environment," with a mean score of 3.81 (SD = 1.61).

The mean score for burnout in terms of personal accomplishment was 23.99 (SD = 5.73), which translates to a low degree of personal accomplishment. This measures the personal achievement and success one feels in the work that one has done. The lower the degree of personal accomplishment, the more likely the respondents are to experience burnout. These findings are supported by a study conducted by Mefoh et al., (2019), reduced personal accomplishment among nurses was determined to be related to individuals who both have increased age and high emotion-focused coping. The result specifically points to which age and circumstances can be correlated to a reduced sense of accomplishment at work among nurses. The higher the nurse's age, the more likely they experience reduced accomplishment. In addition, a critical burnout assessment was conducted among

healthcare professionals in Ghana (Odonkor & Frimpong, 2020). The population consisted of 365 professionals from the following categories: doctors, nurses, pharmacists, medical laboratory scientists, and radiographers, and 65.2% of the respondents were nurses. It has been shown that the likelihood of experiencing burnout increases as the number of years working in a hospital setting increases. Those working between 6-10 years were determined to be 3.7 times more susceptible to burnout.

Turnover Intention. The item ranked the highest is question number 4, which states, "How often do you dream about getting another job that will better suit your personal needs?" with a mean score of 3.65 (SD = 1.20). The second to the highest was question 1, which states, "How often have you considered leaving your job?" with a mean score of 3.17 (SD = 1.14). The item that ranked the lowest is question number 2, which states, "To what extent is your current job satisfying your personal need?" with a mean score of 2.62 (SD = 0.94). The second to the lowest was question number 6, which states, "How often do you look forward to another day at work?" with a mean score of 2.86 (SD = 1.08). Item no. 4 states, "How often do you dream about getting another job that will better suit your personal needs?" ranks the highest among other items, with a mean score of 3.65 (SD = 1.20). The majority of the population claims that they almost always dream about getting another job that will better suit their personal needs, which is considered the highest contributor to turnover intention. According to Akbari et al. (2020), there are many reasons for turnover, but a significant reason would be that there is much disagreement in recognition at work and the work that the nurses do themselves. These feelings of lack of recognition would be elevated during the COVID-19 Pandemic, which would cause nurses to consider acquiring another job that would better suit their personal needs.

The item that ranked the second highest was item no. 1, with a mean score of 3.17 (SD = 1.14), which states, "How often have you considered leaving your job?". The respondents feel they occasionally

or sometimes considered leaving their jobs, which is considered the second highest contributor to turnover intention. The respondents' answers have shown that there is a consideration for leaving the current job they have in healthcare. Albeit, falling under neutral turnover intention, the idea of leaving their job was the second highest ranked item among the questions, and it can be said that there do exist feelings of healthcare workers wanting to resign from their positions. As stated by Mulisa et al. (2022), due to many different contributors, such as lack of proper pay, insufficient support for one another in the nursing field, and lack of sense of self-calling for the nursing profession have all been heightened during the COVID-19 Pandemic. It has caused a significant number of nurses to consider leaving their jobs in the nursing profession.

The second lowest result was item 6, with a mean score of 2.86 (SD = 1.08), which states, "How often do you look forward to another day at work?". The respondents feel they occasionally or sometimes look forward to another day at work, which is considered the second lowest contributor to turnover intention among the study participants. The results reflect the notion of both looking forward to work and not looking forward to work amongst the nurses in the study. According to Ortega et al. (2022), the COVID-19 Pandemic has exemplified the intense pressures on nurses to competently do their jobs as nurses. This is due to the increased costs and risks that have come, and as such, it has caused nurses to have waning desires to look forward to another day at work.

The lowest result was item no. 2, with a mean score of 2.61 (SD = 0.94), "To what extent is your current job satisfying your personal needs?". To some extent, the respondents feel their current job satisfies their personal needs, which is considered to be the lowest contributor to turnover intention among the study participants. The results reflect a middle ground in terms of job satisfaction, in which some are satisfied, and others aren't in the study. As mentioned in the study of Makowicz et al., (2022), the impact of the COVID-19 Pandemic on the overall

job satisfaction among professionally active nurses has decreased. Factors that have contributed to this diminished job satisfaction include the increasingly stressful working conditions and higher susceptibility to burnout caused by the Pandemic.

The overall mean score of the nurses' perception of their turnover intention was 3.05 (SD = 0.72), which translates to neutral turnover intention. This means that both intending-to-leave and willing-to-stay nurses are present among those who participated in the study. This signifies that although there are nurses willing to continue in the nursing profession, it could be said that there are also those who have intentions to leave the hospital or nursing profession altogether. The nurses' turnover intention allows for the visualization of whether there is low or high job satisfaction, or that there is an increased perception of inadequacy in the work environment, or to identify feelings of leaving the nursing profession in the current workforce. Burmeister et al. (2019) have determined that there is a significant correlation between the factors that include job satisfaction and ensuring that units are adequately staffed and the increased retention of nurses, as well as the decrease in intention to leave the nursing profession. Lee et al. (2019) have also presented that burnout and work environment are also important factors in the feelings of turnover intention, which further solidifies the significance of measuring turnover intention levels.

Relationship between Turnover Intention and Organizational Commitment among Nurses

Affective commitment and turnover intention have a Pearson correlation coefficient (r) of -0.625 and a P value of 0.000, indicating a high negative relationship. For continuance commitment and turnover intention, there is a Pearson correlation coefficient (r) of 0.165 and a P value of 0.029, indicating a negligible positive relationship. Lastly, normative commitment and turnover intention have a Pearson correlation coefficient (r) of -0.550 and a p-value 0.000, indicating a high negative relationship.

Based on Table 2, the p-value is less than .05; thus, the null hypothesis, which states that there is no significant relationship between organizational commitment and turnover intention among nurses, is rejected. Therefore, it implies a significant moderate negative relationship between affective commitment and turnover intention among nurses. This means the more emotionally attached the nurse is to the institution, there will be a lowered intention to experience turnover intention. The same goes for vice versa, in which the lower the experienced affective commitment, the likelihood of having turnover intention increases. Based on a study by Akinyemi et al. (2022), job satisfaction is positively correlated with salary, whereas turnover intentions are negatively affected by compensation, job satisfaction, and affective commitment.

Table 1

Relationship Between Organizational Commitment and Turnover Intention of Nurses

Indicators of Organizational Commitment	Turnover Intention		P Value	Decision	Remark
	r	Qualitative Description			
Affective Commitment	-0.625	Moderate Negative Relationship	*0.000	Reject Ho	Significant
Continuance Commitment	0.165	Negligible Positive Relationship	*0.029	Reject Ho	Significant
Normative Commitment	-0.550	Moderate Negative Relationship	*0.000	Reject Ho	Significant

Note. +-1 Perfect Relationship, +-0.91-+-0.99 Very High Relationship, +-0.71-+-0.90 High Relationship, +-0.41-+-0.70 Moderate Relationship, +-0.21-+-0.40 Low Relationship, +-0.01-+-0.20 Negligible Relationship, 0 No Relationship Significant at $P < 0.05$

The p-value is less than .05; thus, the null hypothesis, which states that there is no significant relationship between organizational commitment and turnover intention among nurses, is rejected. Therefore, it implies a significant negligible positive relationship between continuance commitment and turnover intention among nurses. This means when the individual has a higher fear of losing their job, there will also be an increase in turnover intentions. However, this is on a negligible scale and may not manifest as presented.

Enginyurt et al. (2015) have found a correlation between turnover intention, organizational commitment, and burnout among healthcare workers. Meanwhile, Arslan Yürümezoğlu et al. (2019) have identified common factors that predict organizational commitment and professional turnover intention. These factors include marital status, work shift, organizational affective, normative, and professional affective commitment.

Based on Table 19, the p-value is less than .05; thus, the null hypothesis, which states that there is no significant relationship between organizational commitment and turnover intention among nurses, is rejected. Therefore, it implies a significant moderate negative relationship between normative commitment and turnover intention among nurses. This means the more obligated the nurse is to remain in the profession, the likelihood of having turnover intention decreases. This is also true for

vice versa, in which when there is an increase in turnover intention, the normative commitment experienced will lower. As stated in a study by

Chang et al., (2017) it was discovered that there is an association between burnout and decreased normative commitment. Burnout was seen to decrease the sense of obligation a nurse will have towards remaining in their profession. In addition to this,

Raji et al. (2021) also discovered when nurses have higher normative commitment based on factors such as dedication, moral obligations, etc., job performance was seen to be higher, and the same nurses were less likely to leave their jobs.

Relationship between Burnout and Turnover Intention among Nurses

Table 2 depicts the relationship between indicators of burnout and turnover intention among nurses. Emotional exhaustion and turnover intention have a Pearson correlation coefficient (r) of 0.700 and a P value of 0.000, indicating a high positive relationship. For Depersonalization and turnover intention, there is a Pearson correlation coefficient (r) of 0.439 and a P value of 0.000, indicating a high positive relationship. Lastly, Personal Accomplishment and turnover intention have a Pearson correlation coefficient (r) of -0.225 and a P value of 0.003, indicating a low negative relationship.

Table 2

Relationship Between Burnout and Turnover Intention Among Nurses

Indicators of Burnout	Turnover Intention		P Value	Decision	Remark
	r	Qualitative Description			
Emotional Exhaustion	0.700	High Positive Relationship	*0.000	Reject Ho	Significant
Depersonalization	0.439	Moderate Positive Relationship	*0.000	Reject Ho	Significant
Personal Accomplishment	-0.225	Low Negative Relationship	*0.000	Reject Ho	Significant

Note. +1 Perfect Relationship, +0.91-+-0.99 Very High Relationship, +0.71-+-0.90 High Relationship, +0.41-+-0.70 Moderate Relationship, +0.21-+-0.40 Low Relationship, +0.01-+-0.20 Negligible Relationship, 0 No Relationship. Significant at $p < 0.05$

The p-value is less than .05; thus, the null hypothesis, which states that there is no significant relationship between burnout and turnover intention among nurses, is rejected. Therefore, there exists a significant positive relationship between emotional exhaustion and turnover intention among nurses. This means the more the nurses experience emotional exhaustion, the higher the chances they will have turnover intentions. According to Said & El-Shafei, (2021), there is a strong connection between COVID-19 and creating higher levels of stress in regards to emotional exhaustion. Occupational stressors such as stricter biosecurity measures, higher levels of fear, and stigma about the pandemic all caused an increase in stress. In turn, this increased the likelihood of nurses thinking with turnover intentions.

The null hypothesis states that there is no significant relationship between burnout and turnover intention among nurses is rejected. This implies a significant moderate positive relationship between depersonalization and turnover intention among nurses. The more detached individuals are from themselves, the higher the chances they will have turnover intentions. According to Yeatts et al. (2018), employees who engaged in discussions about challenging situations with colleagues or friends experienced a greater sense of personal accomplishment and empowerment and perceived less depersonalization. Nonetheless, among direct care workers, those who reported feeling empowered were also more likely to experience depersonalization. This suggests that there is a connection between depersonalization and the intent to leave their profession in the nursing field.

The null hypothesis, which states that there is no significant relationship between burnout and turnover intention among nurses, is likewise rejected. A significantly low negative relationship exists between personal accomplishment and turnover intention among nurses. This means that the more feelings of personal accomplishment a nurse experiences, the lessens the likelihood of the

nurse having turnover intention. This is also true for the reverse, in which the fewer feelings of personal accomplishment a nurse experiences, the higher the likelihood of the nurse having turnover intention. According to a study conducted by Wang & Wang (2021), the persistent pressure experienced in the workplace can lead to a depletion of an individual's sense of accomplishment resulting in reduced enjoyment and appreciation of their work. In addition, it should be noted that a diminished perception of its importance was also a part of the results along with these findings. This strain can also make it difficult for individuals to derive higher satisfaction from their profession, given the significant responsibility and demands it entails. Furthermore, workers may feel that their efforts do not adequately reflect their actual value, contributing to further dissatisfaction and frustration.

Conclusion and Recommendations

The purpose of the study was to determine whether organizational commitment had a mediating effect on the burnout and turnover intention of staff nurses from private hospitals during the COVID-19 pandemic. Regarding burnout, nurses had a high level of emotional exhaustion, a moderate level of depersonalization, and a low level of personal accomplishment. Furthermore, the staff nurses have a neutral turnover intention. In addition, the respondents had a somewhat strong affective commitment, a neutral continuance commitment, and a somewhat strong normative commitment.

A highly positive significant relationship was found between emotional exhaustion and turnover intention, and a highly positive significant relationship was found between depersonalization and turnover intention among nurses. This means that the higher the emotional exhaustion and depersonalization of the staff nurses, the higher the chances of turnover or leaving are considered. Moreover, a low negative significant relationship was found between personal accomplishment and turnover intention. This means that the lower

the personal accomplishment of the staff nurses, the higher the chances of experiencing turnover intention.

Organizational commitment was found to partially mediate the relationship between burnout and turnover intention among staff nurses. It means that the staff nurses' organizational commitment plays an important role in the relationship between burnout and turnover intention.

The study found that high emotional exhaustion was a significant factor. This was seen to stem from nurses feeling excessively fatigued and overwhelmed by their demanding workload during shifts. Moderate depersonalization is also seen in nurses who occasionally experience emotional desensitization and expressing disinterest in their colleagues' affairs. Low personal accomplishment also played a role. Nurses were finding it difficult to build a relaxed workplace atmosphere and unable to feel full of energy. Investigating these contributors will provide valuable insights into nurses and burnout.

The researchers recommend more research to determine additional factors that affect burnout to enhance understanding of this variable. Possible factors discussed in the literature were patient ratio, witnessing of deaths, salary, financial compensation, financial burden, social and family support, support system, increasing workload, continuous strain at work, and responsibility of the nurses, to name a few.

The researchers recommend support for the nurses to reduce turnover intention by decreasing incidences of burnout and enhancing organizational commitment through programs and policies within respective hospitals. Specifically, comprehensive programs that focus on quality social support, a supportive and good work environment, sufficient financial compensation, and opportunities for professional growth and career advancement. These programs should include open communication channels, team-building activities, mentorship programs, attractive benefits, and

incentives. By fostering a sense of belonging and autonomy, nurses' burnout is seen to be reduced, and commitment to the organization enhanced. Furthermore, a positive work environment creates a positive cycle that affects current and future employees, thus aiding both the nurses and the institution in the long term.

The researchers recommend replicating the research within a public hospital setting to determine whether the hospital environment and additional factors contribute to any studied variables. Assessing the quality and availability of professional development opportunities, such as continuing education and career advancement, can also determine nurses' commitment and turnover intentions. Additionally, the benefits and workplace policies of public hospitals, such as employee wellness programs and flexible scheduling, should be a point to be explored to determine the influence on the nurses' well-being. Examining these specific areas can better clarify the complex factors contributing to burnout and turnover intentions among staff nurses.

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Oral Health Knowledge and Attitude Towards Seeking Dental Treatment During the COVID-19 Pandemic of Fixed-Appliance Orthodontic Patients: Basis for an Oral Health Promotion Program

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The dental profession is one of the medical specialties that is particularly susceptible to infectious diseases. Orthodontic treatment typically lasts from months to years and necessitates several visits. Treatments such as fabricating dental prostheses require routine dental appointments for adjustments, cleaning, and fitting. Despite the recent pandemic postponed dental visits, orthodontic patients must maintain good oral hygiene to prevent periodontal diseases. This study determined the level of oral health knowledge and attitude of fixed-appliance orthodontic patients seeking dental treatments. Differences due to sex, age, income, and level of education were also determined. Participants consisted of 100 fixed-appliance orthodontic patients residing in a barangay in Silang, Cavite, Philippines. This study utilized descriptive-evaluative, descriptive-comparative, and descriptive-correlational designs. Analyses using T-tests and ANOVA found that fixed-appliance orthodontic patients have high levels of oral health knowledge with positive attitudes when seeking dental treatment during the pandemic. Results also show that women have a higher level of oral health knowledge when compared with men. There was no significant difference in attitude across the different demographic profiles. Pearson-r correlation reveals a low correlation between oral health knowledge and the attitude of fixed-appliance orthodontic patients. Recommendations include establishing a regular health program not limited to orthodontic patients. Further studies on oral health knowledge and the attitudes of patients requiring multiple dental appointments may also be pursued beyond the confines of the local community.

Keywords: *oral health knowledge, attitude towards dental treatment, cross-infection*

The World Health Organization declared a COVID-19 pandemic in March 2020. COVID-19 spreads by touching a contaminated surface or direct or indirect contact with an infected person, saliva droplets, or any respiratory secretion from sneezing or coughing. The dental profession is one of the medical fields that are very much prone to infectious diseases due to its characteristics of giving treatment that comes from saliva, most likely the progenitor of cross-infectious diseases, blood, and AGP or aerosol-generating procedures such as giving restorative treatment (Alassaf et al., 2020).

Orthodontic treatment may produce less aerosols but typically lasts months to years and necessitates several visits. Because of the pandemic's postponed dental visits, orthodontic patients must maintain good oral hygiene to prevent periodontal diseases and subsequent oral health problems such as caries, halitosis, and teeth staining (Khaled et al., 2021). Since the oral cavity is considered one of the main portals of entry of the virus due to the presence of numerous angiotensin-converting enzyme 2 for SARS-CoV-2 in the oral epithelium, good oral health practices are significant in preventing COVID-19 infection (Abdulkareem, Abdulbaqi, Alshami, 2020). Studies by Kapoor et al. in 2014 indicate that practicing and maintaining primary oral hygiene is not likely to be well-known in the population, as seen in their lack of necessary oral health knowledge. During orthodontic treatment, patients must practice proper dental hygiene since neglecting this habit may lead to profound consequences for their oral health (Guo et al., 2020).

Although behavior and cognition have an important role in how attitudes are developed, there remains considerable variation between individuals and among attitudes. Sometimes, attitudes may be based on behaviors, while others may be based on feelings, and some are quite established on their values (Jhangiani, T. & Tarry, n.d.). The patient's attitudes, beliefs, and expectations about various aspects of their situation and health care system

can influence their pain tolerance, activity, disability, and response to treatment (Okifuji, Skinner, 2009).

This study aims to determine the level of oral health knowledge and attitude of fixed-appliance orthodontic patients seeking dental treatment. It will also examine the relationship of sex, age, income, and level of education of the respondents' oral health knowledge and attitude when seeking dental treatment. Furthermore, this study also examines the relationship between sex, age, income, and level of education toward oral health knowledge and attitude in seeking dental treatment.

Methodology

Research Design

In this quantitative study, the researchers used descriptive evaluative, comparative, and descriptive correlational research design. A descriptive research design was employed to determine the level of oral health knowledge and attitude of fixed-appliance orthodontic patients toward seeking dental treatment during the pandemic. This research design was used to help the researchers evaluate if the fixed appliance orthodontic patients were knowledgeable in oral health and determine their attitude towards seeking dental treatment in response to the precautions and protocols implemented by authorities during the COVID-19 pandemic.

The descriptive comparative research design was also used. It is a formal procedure to compare and determine if a significant difference exists without manipulating the variables (Villanueva, 2013). This study design enabled the researchers to analyze the similarities and variances in the oral health knowledge and attitude of fixed-appliance orthodontic patients towards seeking dental treatment when grouped according to their demographic profile. Comparisons will lead to a better understanding and perception of all participants involved.

Lastly, descriptive correlational research design was used to compare the relationship between

the variables. This design helped the researchers to answer if there was a significant relationship between oral health knowledge and the attitude of fixed-appliance orthodontic patients towards seeking dental treatment during the pandemic.

Population and Sampling Technique

The study was conducted among 100 fixed-appliance orthodontic patients from Brgy. Puting Kahoy, Silang, Cavite. Filipinos, 21 – 40 years old, were selected by purposive sampling. Of these respondents, 44 were males, and 56 were female. The respondents were categorized by age, sex, level of education, and monthly income. Regarding age, most of the respondents (n=100; 54%) belong to the 21 – 25-year-old age bracket. Twenty-two percent belong to the 26-30 years, 13% to the 36-40 years, and 11% to the 31-35 years old.

Regarding the respondents' educational attainment, 48% finished their College or bachelor's degree, and 30% finished High School. Master's degrees and associate Degrees had the same frequency, which is 9% of the population, and 4% were in Doctoral Degrees.

As for the household monthly income, 40% of the participants had an income of Php 30,001 to Php 50,000, 21% had an income of Php 20,000, and below, 16% and 15% of the respondents had an income of Php 50,001- Php 70,000 and Php 90,001 and above, respectively, at the time of this study. Php 20,001- Php 30,000 and Php 70,001 to Php 90,000 of monthly income had the same frequency of 4%. This shows that almost half of the participants have a household monthly income of Php 30,001 to Php 50,000.

Instrumentation

A self-constructed survey questionnaire was utilized for oral health knowledge, while questions for attitude, particularly questions from numbers 1-7, 11, and 13, partially adapted from the study of Arqub et al. (2021) while questions 8, 9, 10, and 12 were self-constructed by the researchers.

Questions were modified based on the suggestions made by experts during the validation.

There were three parts to the questionnaire. First is a multiple-choice questionnaire, which includes the respondents' profile in terms of age, sex, level of education, and monthly income. The second part is a 13-item dichotomous scale (yes or no) to measure the level of oral health knowledge of fixed-appliance orthodontic patients. The last part is a 13-item survey using a 4-point Likert Scale to measure the patients' attitudes in seeking dental treatment during the pandemic.

The researchers used the details in the Tables below as a basis for scoring and interpretation of the gathered data. Positive and negative questions were encoded randomly. Questions 1, 2, 5, 6, 7, 9, 12 are positive, while 3, 4, 8, 10, 11, & 14 are negative.

Table 1

Scoring to Determine the Oral Health Knowledge of Fixed-Appliance Orthodontic Patients

Score	Interpretation
0-2.60	Very Low Level of Knowledge
2.61-5.20	Low Level of Knowledge
5.21-7.80	Average Level of Knowledge
7.81-10.40	High Level of Knowledge
10.41-13	Very High Level of Knowledge

Table 2

The four-point Likert Scale measured participants' attitudes toward positive items

Scale	Range	Descriptive Level	Verbal Interpretation
1	1.00-2.50	Disagree	Negative Attitude
2	2.51-4.00	Agree	Positive Attitude

Table 3

The four-point Likert Scale measured participants' attitudes toward negative items

Scale	Range	Descriptive Level	Verbal Interpretation
1	2.51-4.00	Disagree	Positive Attitude
2	1.00-2.50	Agree	Negative Attitude

Table 4

Reliability Statistics on Item Questionnaires for Oral Health Knowledge and Attitude

	Kuder-Richardson Reliability (KR21)	Cronbach's Alpha	N of Items
Oral Health Knowledge	0.7157		13
The attitude of fixed-appliance orthodontic patients in seeking dental treatment during the pandemic		0.716	13

The internal consistency of the questionnaire is shown in Table 4. The values revealed a significant level of reliability acquired from the items of the constructed questionnaire since the values are greater than 0.6.

Analysis of Data

Data gathered were analyzed through statistical measures. Respondents' profiles were organized using frequency and percentage. The respondents' level of oral health knowledge and attitude of fixed-appliance orthodontic patients towards seeking dental treatment during the COVID-19 pandemic were assessed using mean and standard deviation.

Significant differences between oral health knowledge and the attitude of patients seeking dental treatment during COVID-19 were tested using a T-test when sex was considered, ANOVA (Analysis of Variance) for monthly income, and educational attainment. At the same time, the Kruskal-Wallis Test was done for age. Relationships between variables were tested using Pearson's *r*.

Ethical Consideration

Before the administration of the questionnaire, an application was submitted to the University's Ethics Board, and approval was obtained. Informed consent with a letter of introduction explaining the nature of the research and the risks and benefits was provided for voluntary participation before answering the questionnaire. Email addresses were not collected, and data were handled with confidentiality. Through withholding their name, however, the age, sex, educational attainment, and income of the respondents were requested for research purposes.

Results and Discussion

Level of Oral Health Knowledge

Table 5 shows the perceived level of oral health knowledge among the respondents. The result indicates that the respondents have a *high* knowledge of their oral hygiene ($M = 9.77 \pm 1.54$).

Table 5

Mean and Standard Deviation of Level of Oral Health Knowledge

	Mean	SD	Verbal Interpretation	Percentile Rank		
				25th	50th	75th
Oral Health Knowledge	9.77	1.54	High	9.00	10.0	11.0

This is consistent with the study conducted in India, wherein the population had a high knowledge of their oral hygiene measures (Ramanarayan et al., 2020), like the study of Matthew et al. (2023), which states that the overall results of their study showed that majority of the patients had good knowledge

towards oral health and orthodontic treatment. Most of the participants have good oral hygiene, and this was to be expected since orthodontic patients must be educated on oral hygiene before receiving orthodontic treatment. However, this contrasts with the study conducted in the Middle East, which noted that the oral health knowledge of the patients is relatively low (Abdulkareem et al., 2021).

Attitude Towards Seeking Dental Treatment during the COVID-19 Pandemic

Table 6 shows the observed attitude of fixed-appliance orthodontic patients towards seeking dental treatment during the pandemic. The overall response of the respondents resulted in a positive attitude regarding their attitude in seeking dental treatment during the COVID-19 pandemic ($M=3.14 \pm 0.433$).

Table 6

Mean and Standard Deviation of Attitude Towards Seeking Dental Treatment during the COVID-19 Pandemic

Attitude toward seeking dental treatment	Mean	SD	Interpretation
1. I have maintained proper oral hygiene as instructed by my dentist during the pandemic.	3.21	0.868	Positive attitude
2. I am confident in continuing my orthodontic treatment and finishing it while at the pandemic.	3.23	0.874	Positive attitude
3. I would like to postpone my treatment until the pandemic ends.	3.43	0.728	Positive attitude
4. I would like to discontinue my treatment and remove my braces because of the pandemic.	3.49	0.810	Positive attitude
5. I trust my orthodontist to deliver the same standard of care during the pandemic.	3.44	0.783	Positive attitude
6. I agree with reducing the number of visits to an orthodontic clinic during the pandemic.	2.58	0.997	Positive attitude
7. I followed the post-operative instructions and cared for my appliance during the pandemic.	3.09	0.842	Positive attitude
8. I didn't care for my oral hygiene during the pandemic because I was always at home and was not bothered because there was no one to interact with.	3.71	0.478	Positive attitude
9. I feel safe to see my orthodontist for full adjustment appointments during the pandemic.	3.37	0.884	Positive attitude
10. COVID-19 made me too lazy to follow my dentist's instructions, such as wearing elastic bands.	3.19	0.895	Positive attitude
11. I am not pleased with the way my appointment was handled during the pandemic.	3.20	0.791	Positive attitude
12. I am willing to seek dental appointments even if the dental team is not fully vaccinated.	2.18	1.019	Negative attitude
13. The economic impact of the COVID-19 outbreak affects my commitment/desire to visit the dentist.	2.65	0.957	Positive attitude
Overall Mean	3.14	0.433	Positive attitude

Among the 13 items, item number 12, which states that “I am willing to seek dental appointments even if the dental team is not fully vaccinated,” had a negative attitude. This denotes that respondents have a strong belief in getting a full vaccination to continue orthodontic appointments even during a pandemic. Contrasting results were shown by Ume et al. (2021), who mentions that out of 304 respondents, 220 were willing to continue their orthodontic treatment during the pandemic, and 66.1% were willing to undergo further orthodontic treatment after the pandemic. This may be because orthodontic procedures have a lower percentage of infection compared to aerosol-generated procedures. This reassured the patients to continue with their orthodontic treatment. Hence, the dental team should follow preventive steps such as ensuring proper disinfection after each patient and limiting the number of patients per clinic hour. Moreover, certifying the patients about the clinic's safety can add to patients' contentment and cooperation with the treatment (Alassiry AM, Hakami Z, 2021).

Difference in Oral Health Knowledge of Fixed-Appliance Orthodontic Patients in Relation with Demographic Profile

Tables 7 to 11 present the significant differences in oral health knowledge when grouped according to each demographic profile using the Kruskal-Wallis for age, T-test for sex, and ANOVA for income and level of education. The findings of this study showed that the following variables have no significant difference in the aspect of oral health knowledge. However, a study by Marquez et al. (2019) is contrary to this since it concludes that socioeconomic level is generally related to the quality of life, including oral healthcare. Therefore, a higher or lower socioeconomic background has been shown to impact oral health.

Table 7

Difference in Oral Health Knowledge in Relation to Age (Levene's Test)

		Statistic	df	p
Oral Health Knowledge	Age	5.77	3	0.001
	Sex	0.7994	1	0.279
	Income	0.526	5	0.756
	Level of Education	2.23	4	0.071

Tables 7 and 8 show the oral health knowledge of fixed-appliance orthodontic patients in association with their Demographic Profile (Age). Age has a *significant value* ($p=0.001$) *regarding oral health knowledge based on Levene's test; however, Kruskal-Wallis determined that there is no significant difference* ($p=0.870$), which indicates that the null hypothesis is accepted.

Table 8

Difference in Oral Health Knowledge in Relation to Age (Kruskal Wallis Test)

	X2	df	p
Oral Health Knowledge	0.713	3	0.870

Tables 9 and 10 show the oral health knowledge of fixed-appliance orthodontic patients about their Demographic Profile (Income and Level of Education). Both variables, income ($p=0.097$) and level of education ($p=0.441$), have p-values greater than 0.05, which shows no significant difference based on ANOVA.

Table 9*Difference in Oral Health Knowledge in Relation to Level of Education (One-Way ANOVA (Welch's))*

	F	df1	df2	p
Oral Health Knowledge	0.995	4	14.9	0.870

Table 10*Difference in Oral Health Knowledge in Relation to Income (One-Way ANOVA (Welch's))*

	F	df1	df2	p
Oral Health Knowledge	2.28	5	15.7	0.097

Table 11*Difference in Oral Health Knowledge in Relation to Sex (T-test)*

		Statistic	df	p
Oral Health Knowledge	Student's t	2.82	98.0	0.006

Table 11 shows the oral health knowledge regarding the Demographic Profile (Sex) using a T-test. This test revealed a significant value lower than 0.05 ($p=0.006$), which means that with regard to their sex, there is a significant difference in the oral health knowledge of fixed-appliance orthodontic patients. Moreover, in the table below (Table 12), results revealed that a higher score of oral health knowledge was seen in females ($M = 10.5 \pm 1.59$) compared to males ($M = 9.30 \pm 1.36$).

Table 12*Difference Between Groups (Sex) about Oral Health Knowledge*

	Group	N	Mean	Median	SD	Verbal interpretation
Oral Health Knowledge	Female	56	10.5	10.0	1.59	Very High
	Male	44	9.30	9.00	1.36	High

According to the results, females are better than males regarding oral health knowledge. This is similar to previous studies from Saudi Arabia and Kuwait, which showed that females have statistically higher knowledge than males. Also, females have good oral health practices than males. This could be attributed to the fact that males care less for aesthetics than their counterparts; females and females care more for aesthetics and appearances when compared to males (Rajeh, 2022).

The difference in Attitude of Fixed-Appliance Orthodontic Patients towards seeking dental treatment during the COVID-19 pandemic in Relation to Demographic

Table 13 presents the significant differences in oral health knowledge when grouped according to each demographic profile using ANOVA and T-test. The findings of this study showed that the following variables have a p-value greater than 0.05, which means that there is no significant difference in the respondents' attitudes toward seeking dental treatment during the pandemic.

Table 13

Difference Between Groups (Sex) in Relation to Oral Health Knowledge

Attitude towards seeking dental treatment during the pandemic One-way ANOVA / Independent t-test			
	F / Statistic (if t-test)	df	p
Age	0.996	3	0.409
Sex* (Student's t)	0.867	98.0	0.388
Income	1.89	5	0.150
Level of Education	1.46	4	0.266

This coincides with the study conducted by Nair (2021), which noted that the attitude of the participants toward dental treatment during the time of the pandemic had no significant differences across sociodemographic factors. This may be because the attitude in seeking dental treatment is basically influenced by an individual's environment, personal experiences at home, or even any other life experiences, which all contribute to an individual's attitude toward oral health. Familial influence is the most important factor that greatly contributes to an individual's attitude since family practices are carried over into the community (Nair, 2021; Subait A. et al., 2016). Similar results from the study of Inderjit et al. (2022) show that age, income, and level of education have no significant association regarding dental appointments.

Relationship Between the Oral Health Knowledge and Attitude of Fixed-Appliance Orthodontic Patients Towards Seeking Dental Treatment During COVID-19 Pandemic

Table 14 presents the correlation analysis of oral health knowledge and the attitude of fixed orthodontic patients toward seeking dental treatment during the pandemic. The result shows that the two variables with a p-value of more than 0.05 have a very low correlation ($p=0.083$). Findings suggest that oral health knowledge does not necessarily influence people's attitudes. As mentioned, an individual's level of importance to their oral health plays a part in their attitude. An individual may be well-informed and educated about oral health knowledge but still be negligent and possess a negative attitude when receiving treatments (Selvaraj S. et al., 2021).

Table 14

*Correlation Between Oral Health Knowledge and Attitude
Towards Seeking Dental Treatment During the Pandemic.*

		Attitude Towards Seeking dental treatment
Oral Health Knowledge	Pearson's r	0.083
	p-value	0.413

The result of this study is similar to the study of Abdulkareem et al., which mentioned that one's oral health knowledge does not affect one's attitude toward seeking dental treatment (Abdulkareem, A. et al. 2021). The link between the two variables may alter depending on how the population views its significance. An individual may be well informed and educated but would show a different attitude towards seeking dental treatment during the COVID-19 pandemic, which is the importance the individual allocates to their oral health and well-being.

Oral Health Promotion Program

In relation to the outcome of the study, the oral health promotion program will focus mainly on enhancing the oral health knowledge of fixed-appliance orthodontic patients. The program would be divided into visual or infographics and a No-Contact Program with the theme of *“Love Teeth Day: Don’t Waste Your Brace.”*

The first program is designing of infographics, which will be by printed leaflets and a tarp that illustrate oral hygiene tips specifying the importance of fluoride in teeth, the amount of toothpaste to be used, proper tooth brushing techniques, and the use of interdental toothbrush and will be displayed in the Barangay Hall or information centers around a Barangay in Silang. The purpose is to get the attention of the passers-by, especially those who are wearing orthodontic braces and are planning to have one. An invitation to the oral health program, which is to be conducted face to face, would also be included in this leaflet. Moreover, the No-Contact Program is also supported by a promotional video made by the researchers, which includes proper tooth-brushing techniques. This would be a short video to quickly give viewers a good amount of information. The video would repeatedly play for a day or two.

A face-to-face oral health program with the theme *“Love Teeth Day: Don’t Waste Your Brace”* will serve as the second part of the program. A 5–10-minute lecture about the benefits of oral hygiene and the risks if people do not care for their oral health will be done, followed by a short video presentation. The program’s content will be based on and formulated through the Health Belief Model, guiding health promotion and disease prevention programs. The key points that need to be emphasized in this program are the associated risks if individuals do not have enough understanding about oral health and the benefits of taking good care of oral health, which should also be emphasized.

Return demonstrations, such as proper toothbrushing technique and the amount of toothpaste used, would be done. It should be

demonstrated by the researchers and some of the patients to develop that skill and be more confident that they can make it. Researchers would also take this time to promote the Adventist University of the Philippines-College of Dentistry program and how the community can seek help from the College of Dentistry on their concerns regarding their oral health.

Conclusion and Recommendations

The COVID-19 pandemic has all the attention and focus of the medical profession. It brought complications in the medical profession that have led to unprecedented implications, even in the practice of dentistry. It is necessary to know about the oral health knowledge and attitude of fixed-appliance orthodontic patients when getting dental treatments during COVID-19. This study examined the knowledge and attitude of fixed-appliance orthodontic patients when getting dental treatments during COVID-19 in a barangay in Silang, Cavite. It was composed of 100 fixed-appliance orthodontic patients who are residing in a barangay in Silang, Cavite. Most of the participants in this study were in the age group of 21-25 years old.

The study found that the residents of a barangay in Silang, Cavite, wearing fixed orthodontic appliances, had a high level of oral health knowledge and a positive attitude. The result also shows that there is no significant difference between oral health knowledge when grouped by their demographic profile aside from sex, which has a significant difference in oral health knowledge where females have a higher level of knowledge compared to males. Attitude does not correlate with sex, age, income, and educational attainment. Overall, no significant relationship was noted between oral health knowledge and the attitude of fixed-appointment orthodontic patients.

This study recommends establishing a regular oral health program in communities to gauge the oral health knowledge of its residents. The program could be enhanced using infographic

materials, video presentations, and the distribution of interdental toothbrushes and toothpaste. Such a program should not be delimited to orthodontic patients. To further enhance the established oral health program, it should include oral hygiene instructions and reminders on how individuals could be responsible for their oral health, thus decreasing the negative outcomes of improper oral hygiene.

Future studies on oral health knowledge and attitude are also recommended, including non-orthodontic patients, but not limited to patients who require multiple appointments, such as prosthodontic patients. Clinicians and dental professionals should encourage their patients to actively care for their oral health by teaching and showing them proper oral hygiene and home remedies for pain management and, most importantly, seeking dental treatment regularly. Another study could be done beyond the confines of the barangays in Silang and Cavite and to a larger number of respondents this time.

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Ageism: Its Influence on the Clinical Decision-Making Capabilities of Staff Nurses in Selected Hospitals in the Philippines

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The population of older adults is increasing rapidly. By the year 2050, the geriatric population will have doubled compared to the present population. The current healthcare system should be prepared to receive this population; however, ageism is a barrier to that goal. Ageism leads to poorer health outcomes, so it is an issue that must be resolved. Hence, this study aimed to determine whether ageism is correlated with clinical decision-making capabilities in staff nurses in selected hospitals in the Philippines. The research utilized a quantitative descriptive survey method using the Ambivalent Ageism Scale and the Nurse Decision Making Instrument. The scores of the staff nurses were analyzed and compared using descriptive statistics, particularly mean and standard deviation, one-way analysis of variance (ANOVA), Levene's F-test, and Pearson's correlation. The data revealed moderately high beneficent ageism, average hostile ageism, and moderately high ambivalent ageism. The data also reveals moderately high clinical-decision-making skills, interpreted as flexible to analytical decisionmaking. The results revealed that there is no significant relationship between ageism and clinical decision-making based on the data gathered. Furthermore, there is no difference in ageism among staff nurses of varying ages and years of experience. There is also no difference in clinical decision-making among staff nurses of varying ages; however, they do differ significantly in years of work. Further study is recommended to consider other factors that may influence the clinical decision-making capabilities of staff nurses.

Keywords: *ageism, staff nurses, clinical decision-making*

Due to advancements in the health care sector, people in the modern world are enjoying longer lifespans. Thus, the population of older individuals is rapidly increasing. According to a report in 2020, there were 727 million people who were 65 years and above. It is projected that over the next thirty years, the global number of older people will more than double, reaching over 1.5 billion in the year 2050. No region will be exempt from seeing an increase in the size of its population from 2020 to 2050. The share of the global population aged 65 years or over is expected to increase from 9.3 percent in 2020 to 16.0 percent by 2050. (United Nations Department of Economic and Social Affairs, Population Division, 2020). With the number of older individuals growing at such a scale, it is important that the healthcare sector is prepared to receive this wave and manage it in an efficient manner. One of the barriers to this goal is ageism, referred to as stereotypes, prejudice, and discrimination directed towards others or oneself based on age. Based on the analyses conducted on a study, anxiety about aging and knowledge are antecedents for stereotypes, which, together with the other variables, influence ageism, and can influence society's attitudes regarding this population, in addition to impacting the self-perception of elderly people (Donizzetti, 2019). Ageism affects people of all ages and will refer to age-based stereotypes, prejudice, and discrimination (World Health Organization, 2021).

Ageism has seeped into many sectors and institutions, including those that dispense social and health care. A universal systematic approach evaluation of the impacts of ageism on health, which comprised 422 studies from 45 countries for this research, revealed that ageism was related to worse outcomes in all of the health areas studied in 405 (96%) studies. Ageism in the healthcare sector presents undeniable negative consequences for people's overall health and well-being, and it also poses a threat to the economic state of nations. Physical and mental health declines within older adults, as does social isolation and depression, financial uncertainty,

reduced quality of life, and premature death. Ageism is thought to be responsible for 6.3 million incidents of depression worldwide. It pervades and interacts with other forms of discrimination, such as sex, race, and disability, exacerbating the problem and leading to even further negative consequences. (Chang et al., 2020)

On March 11, 2020, an outbreak in 2019 of a new coronavirus disease (COVID-19) was declared a pandemic by the World Health Organization (2020). Research from around the globe has shown that populations of older individuals have higher fatality rates from the disease as compared to younger age groups. Not only has the pandemic had a significant detrimental impact on the elderly population, but it has also raised awareness of ageist preconceptions, stereotypes, and injustice towards the elderly. Discriminatory practices in health services and other key resources have been recorded in various countries, particularly among the elderly in long-term facilities (Suarez-Gonzales et al., 2020). Although the pandemic has revealed the presence of ageism and ageist attitudes in many different areas, it has allowed the public to recognize the issue and make room for reconciliation, reflection, positive initiatives, and a chance to come together.

Research and evidence clearly show that ageism is a current and urgent issue that must be addressed in order to equalize healthcare disparities. It is of utmost importance to be educated and made aware of the problem and the scope of ageism on a global and local scale. In the Philippines, it is still a subject that is severely under-theorized in research studies. Even though senior Filipino citizens appear in national reports, current empirical studies, including older individuals, are scarce in the Philippines (Badana & Andel, 2018). It is of particular interest to healthcare professionals to understand the current situation and to take action toward alleviating the plight of the elderly. Being humanitarians, health professionals continuously refine their attitudes and practices in order to provide high-quality care for their patients.

Methodology

Throughout the following chapter, the methods and strategies that the researchers employed to fulfill the study will be described and explained. These methods and procedures will include the design of the research, the components of the population, sampling techniques, the instrumentation, the process through which data collection was done, and the data analysis.

Research Design

This study is quantitative research utilizing a descriptive-correlational design. This type of research seeks to explore and explain certain occurrences and phenomena. Studies that show relationships between variables are considered correlational, which can predict whether two variables relate to one another or not. In this case, the main variables are ageism and clinical decision-making, whether analytical or intuitive. By measuring levels of ageism in staff nurses as well as evaluating their clinical decision-making, relationships may be determined. With an ample sample size, correlation research can show predictive capabilities, which can be beneficial when proving the relationship between ageism and clinical decision-making.

Population and Sampling Design

The study included 74 staff nurses aged 22 to 65 in one hospital in the Philippines. Using information from the Organization for Economic Cooperation and Development and the 2017 National Nursing Workforce Study, three age brackets were created: 22-34, 35-54, and 55-65. The study will include nurses of varying ages to determine whether it plays a role in the levels of ageism and clinical decision-making. Nurses without contact with elderly patients will be excluded from the respondents. Because the topic is novel in the Philippines, the study will include a large variety of nurses. This strategy may also allow the discovery of potential problems in the healthcare system.

Judgment or purposive sampling was used.

Purposive sampling is a non-probability sampling method based on the objective of the research and the characteristics of the population (Crossman, 2020). The target respondents include nurses who take care of geriatric patients, cardiac nurses, critical care nurses, surgical/OR nurses, orthopedic nurses, medical/surgical nurses, ICU nurses, ER nurses, and telemetry nurses.

Data Gathering Procedure

Data collection began as the researchers sent a request letter to the selected hospital administrators for permission. Once approved, the researchers were given a list of the staff nurses' data, ages, and years of practice. Once received, two tests were administered using Google Forms. The researchers explained the survey's objectives, purposes, and benefits to the respondents before they answered the questionnaire. The respondents were encouraged to contact the researchers if they had difficulty comprehending certain items in any portion of the questionnaire. The respondents were not asked for their names or emails to help ensure confidentiality and privacy. Data collection began in March 2021 and ended in January 2022.

Instrumentation

Two instruments were used: the Nurse Decision Making Instrument-Revised 2014 and the Ambivalent Ageism Scale. Through the Ambivalent Ageism Scale, the researchers could assess either hostile or benevolent ageism. The Nurse Decision Making Instrument revealed which point on the analytical-intuitive continuum the staff nurses fall.

Ambivalent Ageism Scale

Nurses are aware of the consequences of ageism in the healthcare sector. Ageism is a prejudice that is considered complex due to elements that can be negative and positive. Regardless of the orientation, it can lead to stereotypes that are harmful as well as discriminatory. Healthcare professionals must

acknowledge that there are many facets of ageism, which has led to the development of the Ambivalent Ageism Scale. The scale consists of four stages to measure benevolent and hostile ageism individually. The researchers used a theoretical rationale that illustrates benevolent and hostile ageism, the two types that can predict attitudes and sentiments toward older adults.

Through the development and testing of the scale, the researchers discovered that benevolent and hostile ageism does not lead to the same results. While both ageism types are associated with warm stereotypes, the relationship happened in different directions. Respondents who considered older adults as warm scored high on the human scale. On the other hand, those less likely to view older adults as warm scored high in hostile ageism. Furthermore, the study determined that benevolent ageism may seem optimistic, patronizing, and helping behavior (Cary et al., 2017). The survey itself is made up of 13 items. This version of the test includes nine benevolent items and four hostile items. Each item uses a 7-point Likert-type response scale, from "Strongly Disagree" to "Strongly Agree." This survey is a first step in understanding the contribution to ageist attitudes and how they affect the treatment of older adults.

Nurse Decision Making Instrument-Revised 2014

Based on Hammond's Cognitive Continuum Theory (1996), the Nursing Decision Making Instrument (Lauri & Salanter, 2002), comprised of 56 items, was created to assess whether staff nurses or nursing students thought analytically or intuitively while practicing. The Cognitive Continuum Theory proposes a spectrum or continuum in which analytical decision-making lies on one side while intuitive decision-making lies on the other. The researchers created this instrument to determine where nurses lie precisely on the continuum.

There are four stages in clinical decision-making: the collecting of information to define the condition of a patient, analyzing the data

to determine nursing problems, planning and implementation, and monitoring and evaluating the interventions and the patient (Lauri et al., 2001). After factor analysis, certain items were removed, leaving a 24-item scale (Lauri & Salanter, 2002).

This scale has six items for each of the four stages. The odd numbers reflect analytical decision-making when performing structured tasks and ample time to assess and plan. Even numbers will reflect intuitive decision-making in functions considered unstable and have a time limit (Bjork & Hamilton, 2011). An example of an item is, "I collect as much information from the patient's records before beginning care" (Lauri & Salanter, 2002). The questionnaire comprises a Likert scale rated 1 to 5, 1 being Never or Almost Never and 5 being Always or Almost Always. The respondents were instructed to choose the answer that describes their decision-making. Analytical decision-making capabilities have lower scores, while intuitive decision-making capabilities have higher scores.

The questionnaire comprises a Likert scale rated 1 to 5; 1 being Never or Almost Never and 5 being Always or Almost Always. The respondents will be instructed to choose the answer that describes their decision-making. Analytical decision-making capabilities have lower scores, while intuitive decision-making capabilities have higher scores.

Ethical Considerations

Confidentiality with the information collected from the registered nurses was observed. The researchers informed the respondents of the study's purpose and its objectives. It was explained to them how the results of the study would benefit students who would be future nurses. The consent form is considered signed once the instruments are read and answered. Participants were also informed that approval to proceed with the study was also granted by the ethics review board of the institution where the students were enrolled.

Analysis of Data

The researchers utilized descriptive statistics to analyze the extent of benevolent, hostile, and ambivalent ageism and the clinical decision-making capabilities of staff nurses. These coefficients summarized the data gathered using the survey and broke them down into measures of central tendencies and variability. The central tendency describes the mean, median, and mode. Variability explains the standard deviation, minimum and maximum variables, and skewness.

This thesis's primary purpose is to determine the relationship between ageism and clinical decision-making. Pearson's Correlation Coefficient measured the strength of the relationship between two variables. Levene's Statistic was used to test the equality of variances, and ANOVA was used to determine whether there were differences between age or years of practice. Lastly, post-hoc tests were applied to the data where the ANOVA test proved significant.

Results and Discussion

This section describes the analysis and interpret the gathered data on the study of ageism and its influence on the clinical decision-making capabilities of staff nurses in selected hospitals in the Philippines.

Table 1 shows the demographic profile of the respondents in terms of age groups. Of the 74 respondents, 40 (54.1%) are between 22 and 34. Thirty-one (41.9%) are between 35 and 54 years old. Three, or 4.1%, are between 55-65 years old.

Table 1
Age Profile of Respondents

	Frequency	Percent	Valid percent	Cumulative percent
22-34 years old	40	54.1	54.1	54.1
35-54 years old	31	41.9	41.9	95.9
55-65 years old	3	4.1	4.1	100.0
Total	74	100.0	100.0	

In terms of years of service, Table 2 shows that 25 (33.8%) have worked for 1-5 years; 20 (27%) have worked for 6-10 years; 17 (23%) have worked for 11-15 years; 4 (5.4%) have worked for 16-20 years, and 8 (10.8%) have worked for more than 20 years.

Table 2
Years of Service of Respondents

	Frequency	Percent	Valid percent	Cumulative percent
1-5 years	25	33.8	33.8	33.8
6-10 years	20	27.0	27.0	60.8
11-15 years	17	23.0	23.0	83.8
16-20 years	4	5.4	5.4	89.2
> 20yrs	8	10.8	10.8	100
Total	74	100.0	100.0	

Many of the respondents are composed of those 22-34 years of age and have worked for 1-10 years. The patterns illustrate that an increasing number of staff nurses or staff nurses who are young and have worked for a lesser amount of time are more willing to answer questionnaires. Despite the brackets ranging from 22-65, the youngest respondent was 25, and the oldest was 56.

Extent of Ageism of Staff Nurses

The following tables will display the extent of benevolent, hostile, and ambivalent ageism in staff nurses. The tables explore the means, allowing a comparison between the score and the provided legend. In healthcare, ageism is defined as stereotypes, prejudices, and discrimination that can be positive and negative and affect clients based on their chronological or perceived age (Sao Jose et al., 2019). The evidence clearly shows that ageism has negative consequences in every health domain researched (Chang et al., 2020). A Google search performed on January 26, 2022, for the term "ageism" returned 26 million results as compared to the terms "sexism," which returned nearly 2 billion results, and "racism," which returned nearly three and a half billion results.

Table 3 reveals the extent of benevolent ageism in staff nurses of selected hospitals in the Philippines. The responses to the questions revealed a moderately high score in benevolent ageism with a grand mean of 4.5000 (SD = 1.20673). The highest mean is on item number 9 (m = 5.76, SD = 1.460), which states, "Though elderly do not ask for assistance, old people should be helped with their groceries" (Cary et al., 2017). Secondly, item 8 (m = 5.70, SD = 1.661) states, "Even though the elderly do not ask for help, they should always be offered help" (Cary et al., 2017). Moreover, Item 4 (m = 5.36, SD = 1.802) states, "It is good to speak to old people slowly because it may take them some time to understand things that are explained to them" (Cary et al., 2017). The lowest mean scores belong to items 3, 1, and 2.

Item 3 (m = 3.59, SD = 2.054) states, "Even if they want to, old people should not be allowed to work because they are fragile and may get sick" (Cary et al., 2017). Item 1 (m = 3.57, SD = 2.068) states, "It is good to make old people know that they are too old to perform certain things; otherwise, they might get hurt when they eventually fail" (Cary et al., 2017). Moreover, Item 2 (m = 2.91, SD = 1.888) states, "Even if they want to, old people should no longer work because their debt to society has been paid" (Cary et al., 2017).

Table 3

Descriptive Statistics of Benevolent Ageism

	Mean	Std. Deviation
A9	5.76	1.46
A8	5.70	1.66
A4	5.36	1.80
A3	3.59	2.06
A7	5.04	1.69
A6	4.41	2.12
A5	4.16	1.86
A1	3.57	2.06
A2	2.91	1.88
Total	4.50	1.20

Legend: 6.50-7.00 Strongly Agree (Very High), 5.50-6.49 Agree (High), 4.50-5.49 Mildly Agree (Moderately High), 3.50-4.49 Neither Agree nor Disagree (Average), 2.50-3.49 Mildly Disagree (Moderately Low), 1.50-2.49 Disagree (Low), 1.00-1.49 Strongly Disagree (Very Low)

In total, 25 respondents (33.78%) scored high in benevolent ageism, 39 respondents (52.71%) scored moderately, and ten respondents (13.51%) scored low in benevolent ageism. The study results show that 86.49% of respondents score moderately and above in benevolent ageism.

Ageism is complex and composed of positive (e.g., perfect grandparent) and negative (e.g., severely impaired) stereotypes of older adults (Hummert, 1990). The stereotype content model proposes to the readers that older adults are perceived as warm (positive) yet incompetent

(negative). These perceptions combine and move individuals to paternalistic prejudice, such as unnecessary assistance. Differentiate between human and positive actions and attitudes because specific positive manifestations are not necessarily caused by benevolent ageism. While it is essential, it can be challenging to differentiate. An example used in the research article that created the Ambivalent Ageism scale entailed offering an older adult a seat, which in and of itself is not a benevolent ageist action. However, when a person insists that they take his seat, even after they decline his offer, it implies that the opinion of the older adult is irrelevant and that they are not capable of making choices for themselves; it is taking away their autonomy (Cary et al., 2017). These acts of paternalism may seem benign and helpful, but research shows that they can lead to adverse outcomes. One study that measured health outcomes of the elderly in nursing homes displays how important feelings of autonomy are and how harmful paternalistic acts can be. They discovered that better health outcomes in older adults are attributed to more responsibility relative to others (Langer & Rodin, 1976). Other studies have also discovered that patronizing speech also demonstrates potential harm. This over-accommodation brings about decreased self-esteem, motivation, confidence, and autonomy and is even associated with depression (Baltes & Whal, 1996; Hehman & Bugental, 2015; Kemper et al., 1996; Vale et al., 2019). During the pandemic, many agencies and individuals have responded in uncourteous manners, causing an undermining of the autonomy, rights, and social and emotional health of older adults (Ayalon, 2020; Lichtenstein, 2020; Rahman & Jahan, 2020). An example is the isolation of older adults and avoiding content, which increases the risk of social isolation, leading to negative ramifications (Ayalon, 2020; Lichtenstein, 2020; Morrow-Howell et al., 2020).

Table 4 reveals the extent of hostile ageism in staff nursing in selected hospitals in the Philippines. The grand mean of the responses is 3.8885 (SD

= 1.44069), meaning there is an average level of hostile ageism amongst the staff nurses. Item 11, "Old people are too easily offended" (Cary et al., 2017), had the highest mean of 4.45 (SD = 1.852), followed by item 10, "Most old people interpret innocent remarks or act as being ageist" (Cary et al., 2017) which had a mean of 4.11 (SD = 1.852). The lowest means belong to items 12 and 13; item 12 states, "Old people exaggerate the problems they have at work" (Cary et al., 2017) ($m = 4.08$, $SD = 1.661$), and item 13 states, "Old people are a drain on the healthcare system and the economy" (Cary et al., 2017) ($m = 2.92$, $SD = 1.998$). Sixteen respondents, or 21.62%, have high hostile ageism scores, 33 respondents, or 44.69%, have moderate scores, while 25 respondents, or 33.78%, have low hostile ageism scores. 66.31% of respondents scored moderately and above in hostile ageism.

Table 4

Descriptive Statistics of Hostile Ageism

	Mean	Std. Deviation
A11	4.45	1.85
A10	4.11	1.78
A12	4.08	1.66
A13	2.92	1.998
Total	3.88	1.44

Legend: 6.50-7.00 Strongly Agree (Very High), 5.50-6.49 Agree (High), 4.50-5.49 Mildly Agree (Moderately High), 3.50-4.49 Neither Agree nor Disagree (Average), 2.50-3.49 Mildly Disagree (Moderately Low), 1.50-2.49 Disagree (Low), 1.00-1.49 Strongly Disagree (Very Low)

Many of the responses scored moderately or higher in hostile ageism. The stereotype embodiment theory stipulates that ageist perceptions develop early; therefore, they are internalized, impacting attitudes, expectations, and well-being (Levy, 2009). The COVID-19 pandemic has brought about a variety of attitudes regarding older adults. Some blame older adults, while others respond patronizingly, causing fear and pity (Ayalon et al., 2020; Fraser et al., 2020; Lichtenstein,

2020). As mentioned before, hashtags such as #BoomerRemover and other demeaning adjectives such as “coffin dodger” and “boomer doomer” have emerged, poking at the vulnerabilities of the Baby Boomer generation (Fraser et al., 2020; Liechtenstein, 2020). Older adults have also suffered from increased discrimination, devaluing, and neglect (Brooke & Jackson, 2020; Cesari & Proietti, 2020; Morrow-Howell et al., 2020; Petretto & Pili, 2020). Older adults are considered by most people to be a homogenous group, completely discounting the vast diversity present in the population (Ayalon, 2020; Ayalon et al., 2020).

Table 5 reveals the overall levels of ambivalent ageism in staff nurses in selected hospitals in the Philippines. The total amount of responses reveals a grand mean of 4.3119 ($SD = 1.17517$), which translates to a moderately high level of ambivalent ageism. Twenty-three respondents (31.08%) scored high in ambivalent ageism; 38 individuals (51.35%) scored moderately, and 13 respondents (17.56%) scored low in ambivalent ageism. Overall, 61 out of 74 respondents (82.43%) of respondents scored moderately or higher in overall ambivalent ageism.

Table 5
Descriptive Statistics of Ambivalent Ageism

	Mean	Std. Deviation
Ageism	4.31	1.17
Total	4.31	1.17

Legend: 6.50-7.00 Strongly Agree (Very High), 5.50-6.49 Agree (High), 4.50-5.49 Mildly Agree (Moderately High), 3.50-4.49 Neither Agree nor Disagree (Average), 2.50-3.49 Mildly Disagree (Moderately Low), 1.50-2.49 Disagree (Low), 1.00-1.49 Strongly Disagree (Very Low)

The results show that most individuals harbor certain biases either knowingly or unknowingly. Ageism is complex and has both positive and negative elements. Regardless of the complexity, ageism leads to prejudice, stereotypes, and discrimination, leading to disparities and adverse

health outcomes. Nurses must acknowledge their prejudices, be aware of the subconscious elements, and be accountable for their biases.

Level of Clinical Decision Making of Staff Nurses

Clinical decision-making is a core aspect of nursing. Whenever nurses make their clinical decisions, they must gather all the information they have previously learned, including formal nursing education and their experience as practicing nurses. Decisions can be reasoned, analytical, evidence-based, fast, intuitive, and heuristic. These situations create the decision-making spectrum in which one end is based on intuition while the other is more analytical and evidence-based.

Table 6 reveals the clinical decision-making levels of staff nurses in selected hospitals in the Philippines. The overall responses reveal a grand mean of 3.7309 ($SD = 0.52985$) or a high level of clinical decision-making. Item 1 has the highest mean of 4.38 ($SD = 1.082$) and states, “I collect as much information from the patient’s records prior to beginning care” (Lauri & Salanter, 2002). The first item is then followed by item 17 ($m = 4.22$, $SD = 0.940$), “I set target goals for the patient’s care that are easy to measure” (Lauri & Salanter, 2002). Furthermore, item 19 ($m = 4.18$, $SD = 0.927$), “I follow as closely as possible the patient’s existing nursing plan for his/her disease and situation” (Lauri & Salanter, 2002). The lowest mean includes Item 4 ($m = 3.00$, $SD = 1.293$), “I make assumptions about potential nursing problems during the first contact with the patient” (Lauri & Salanter, 2002). Item 10 ($m = 2.91$, $SD = 1.075$), “Even without closer analysis, it is easy for me to see which is relevant information in defining the patient’s nursing problems” (Lauri & Salanter, 2002). Moreover, in Item 2 ($m = 2.91$, $SD = 1.088$), I rely on my interpretations when defining the patient’s conditions (Lauri & Salanter, 2002). Five respondents, or 6.756%, scored over 78 points, interpreted as intuitively oriented decision-making. Thirty-four respondents, or 45.94%, scored between 68 to 78 points, which is interpreted as

having flexible decision-making, meaning they are analytical and intuitive based on the situation. Thirty-five individuals, or 47.29% of the respondents, scored below 67 points, interpreted as analytically oriented decision-making.

Table 6

Descriptive Statistics of the Level
of Clinical Decision Making of Staff Nurses

	Mean	Std. Deviation
DM1	4.38	1.08
DM17	4.22	.930
DM19	4.18	.927
DM21	4.15	1.02
DM3	4.12	1.07
DM9	3.92	1.05
DM15	3.89	1.04
DM5	3.89	1.02
DM7	3.89	1.02
DM13	3.88	1.11
DM18	3.82	1.26
DM22	3.81	1.13
DM23	3.80	.921
DM16	3.68	1.14
DM20	3.66	1.17
DM8	3.61	1.28
DM24	3.59	1.15
DM6	3.46	1.19
DM12	3.42	1.13
DM14	3.27	1.22
DM4	3.00	1.29
DM10	2.91	1.07
DM2	2.91	1.08
Total	3.73	.529

Legend: 6.50-7.00 Strongly Agree (Very High), 5.50-6.49 Agree (High), 4.50-5.49 Mildly Agree (Moderately High), 3.50-4.49 Neither Agree nor Disagree (Average), 2.50-3.49 Mildly Disagree (Moderately Low), 1.50-2.49 Disagree (Low), 1.00-1.49 Strongly Disagree (Very Low)

Within healthcare, decision-making literature usually focuses on the advantages and limitations of analytical versus intuitive decision-making, primarily

in nursing (Lamond & Thompson, 2000; Thompson & Yang, 2009). Intuitive decision-making is seen chiefly as descriptive, and the applications are seen during human judgment or adaptability (Standing, 2010). An example used by Parker-Tomlin et al. is that social contexts can influence the modification of clinical skills due to changes in the environment and social situations, especially when situations arise in patient interactions. (Welsh & Lyons, 2001) The strength of intuitive decision-making lies in considering the dynamic complexities of human interactions and acknowledging varying real-time contexts and their impact on decisions. However, intuitive judgments are prone to cognitive biases and errors (Standing, 2010).

On the other hand, analytical decision-making is aligned with evidence-based practice and is seen as rational and systemic to improve decision-making accuracy. Analytical approaches identify the different variables and create hypotheses to test certain relationships. This approach to clinical decision-making decreases the number of errors that can cloud judgment and cause biases. Research has displayed increasing support for a middle ground between intuition and analysis. One of the leading proponents is Kenneth Hammond, who proposed the cognitive continuum theory and offered the idea of quasi-rationality. It is composed of different combinations of intuition and analysis that can vary, sometimes leaning more toward the intuitive end and nearer to the analytical end. This movement is considered oscillatory, compromising between the two opposite thought processes on the continuum.

Relationship Between Ageism and Clinical Decision-Making Capabilities

These tables display the differences in the ambivalent ageism levels of the respondents based on age and years of practice. Based on the brackets provided, the means and standard deviation were calculated. Levene's F-test and ANOVA were performed to determine whether or not there were any significant differences.

Table 7 illustrates that benevolent ageism has no significant impact on clinical decision-making. After performing the Pearson's correlation test, the correlation coefficient is 0.169. This result falls between 0.00 and 0.30, interpreted as a negligible correlation. The two-tailed p-value, which is the evidence against the null hypothesis, is more significant than the chosen *alpha level, which is 5% (0.05)*; therefore, the null hypothesis cannot be rejected. Thus, the hypothesis that there is no correlation between benevolent ageism and clinical decision-making capabilities is accepted.

Table 7

Relationship Between Ageism and Clinical Decision-Making Capabilities of Benevolent Correlations

		Benevolent ageism	Decision-making
Benevolent Ageism	Pearson Correlation	1	.169
	Sig (2-tailed)		.150
Decision Making	Pearson Correlation	.169	1
	Sig (2-tailed)	.150	

Table 8 illustrates that hostile ageism has no significant impact on clinical decision-making. Thus, the null hypothesis is accepted. After performing the Pearson's correlation test, the correlation coefficient is 0.038. This result falls between 0.00 and 0.30, interpreted as a negligible correlation. The two-tailed p-value, the evidence against the null hypothesis, is more significant than the chosen *alpha level of 5% (0.05)*; therefore, the null hypothesis cannot be rejected. Thus, the hypothesis that no correlation exists between hostile ageism and clinical decision-making capabilities is accepted.

Table 8

Relationship Between Ageism and Clinical Decision-Making Capabilities of Hostile Correlations

		Benevolent ageism	Decision-making
Hostile Ageism	Pearson Correlation	1	.038
	Sig (2-tailed)		.150
Decision Making	Pearson Correlation	.038	1
	Sig (2-tailed)	.748	

Table 9 illustrates that ambivalent ageism has no significant impact on clinical decision-making. After performing the Pearson's correlation test, the correlation coefficient is 0.135. This number falls between 0.00 and 0.30, interpreted as a negligible correlation. The two-tailed p-value, the evidence against the null hypothesis, is more significant than the chosen *alpha level of 5% (0.05)*; therefore, the null hypothesis cannot be rejected. Thus, the hypothesis that there is no correlation between ambivalent ageism and clinical decision-making capabilities is accepted.

Table 9

Relationship Between Ageism and Clinical Decision-Making Capabilities of Ambivalent Correlations

		Benevolent ageism	Decision-making
Ageism	Pearson Correlation	1	.13
	Sig (2-tailed)		.25
Decision Making	Pearson Correlation	.135	1
	Sig (2-tailed)	.253	

Ambivalent Ageism Levels of the Respondents as Related to Age and Years of Practice

These tables display the differences in the ambivalent ageism levels of the respondents based on age and years of practice. Based on the brackets provided, the means and standard deviation were calculated. Levene's F-test and ANOVA were performed to determine whether or not there were any significant differences.

Results reveal that staff nurses who have worked for 1-5 years ($m = 4.1262$, $SD = 1.23435$), 6-10 years ($m = 4.8000$, $SD = 0.95570$), 11- 15 years ($m = 4.3710$, $SD = 1.23683$), 16-20 years ($m = 4.3462$, $SD = 0.56352$), and more than 20 years ($m = 3.5288$, $SD = 1.24608$) did not differ significantly on levels of ambivalent ageism. The hypothesis that no significant mean difference exists between staff nurses who have worked for different amounts of time is accepted.

Clinical Decision-Making Capabilities of the Respondents as Related to Age and Years of Practice

Results show that staff nurses aged 22-34 years old ($m = 3.6615$, $D = 0.52588$), 35-54 years ($m = 3.8212$, $SD = 0.53804$), and 55-65 old ($m = 3.7222$, $SD = 0.53738$) did not differ significantly on levels of clinical decision-making capabilities. The hypothesis that no significant mean difference exists between staff nurses of different ages is accepted.

Staff nurses that have worked for 1-5 years ($m = 3.4750$, $SD = 0.42814$), 6-10 years ($m = 3.8417$, $SD = 0.59152$), 11-15 years ($m = 3.8824$, $SD = 0.48440$), 16-20 years ($m = 3.6979$, $SD = 0.45053$), and more than 20 years ($m = 3.9479$, $SD = 0.58915$) did differ significantly on levels of decision capabilities. Staff with 1-5 years differ from 6-10 years, 11-15 years, and more than 20 years in clinical decision-making. The hypothesis is that there is no significant mean difference between staff nurses who have worked for different amounts of time and are rejected.

Results and Discussion

The results demonstrate that most staff nurses who have responded to the questionnaire harbor ageist sentiments. Regarding benevolent ageism, the overall responses reveal a moderately high score. The most benevolent attitude that resonated with nurses is Item 9, "Even if they do not ask for help, help should be extended to old people even with their groceries" (Cary et al., 2017). The next was Item 8, "Even though they do not ask for help, older people should always be offered help" (Cary et al., 2017), and lastly, Item 4 stated, "Anyone must speak understandably to old people because oftentimes they are challenged to understand things that are said to them." Results show that 86.49% of the respondents, or 64 staff nurses, scored moderately higher in benevolent ageism. While one might argue that these sentiments are harmless, paternalistic prejudices may also exist. By decreasing the over-accommodating older adults, their autonomy may be violated, and decrease their self-esteem, confidence, and motivation.

The overall responses to hostile ageism reveal an average score amongst the staff nurses. The statements with the highest meanings are item 11, "Old people are too easily offended," followed by item 10, "Most old people interpret innocent remarks or act as being ageist." More than 66% of respondents, or 49 staff nurses, scored moderately or higher in negative ageism. There are high scores in benevolent ageism, as they instinctively want to aid older adults. However, scoring moderately in a survey with hostile ageist remarks warrants further investigation and research into why these staff nurses feel that way. To conclude, the staff nurses scored moderately high in ambivalent ageism. Overall, 82.43% of respondents scored moderately or higher in overall ambivalent ageism, or about 61 out of 74 respondents.

The second variable in this study is the clinical decision-making capabilities of staff nurses, which scored moderately high. The item with the highest means is Item 1, "I collect as much information

from the patient's records prior to beginning care" (Lauri & Salanter, 2002). The above statement was followed by Item 17, stating, "I set target goals for the patient's care that are easy to measure" (Lauri & Salanter, 2002). Moreover, Item 19, "I follow the patient's existing nursing plan for his/her disease and situation" (Lauri & Salanter, 2002). Five respondents, or 6.756%, scored over 78 points, interpreted as intuitively oriented decision-making. Thirty-four respondents, or 45.94%, scored between 68 and 78 points which is interpreted as having flexible decision-making, meaning they are both analytical and intuitive based on the situation. Thirty-five individuals, or 47.29% of the respondents, scored below 67 points, interpreted as analytically oriented decision-making. A vast majority of the respondents employ the use of analytical decision-making as well as flexible decision-making. The significant relationship between ageism and clinical decision-making capabilities is accepted after using Pearson's correlation test to compare clinical decision-making capabilities to benevolent, hostile, and ambivalent ageism. While there is no correlation, it does not mean that the subject must be put to rest. Employing analytical, flexible, or intuitive thinking is not correlated to ageism; however, the results show that ageism is present.

The homogeneity assumption of variances was tested and satisfied. It reveals no significant difference in ageism between staff nurses who are 22-34 years old, 35-54 years old, and 55-65 years old. There is also no significant difference in ageism between staff nurses who have worked every five years until over 20-plus years. The same test was done to assess differences in clinical decision-making capabilities in staff nurses 22-34 years old, 35-54 years old, and 55-65 years old, and it was revealed that there is no significant difference. Clinical decision-making in staff nurses based on years of work was discovered, and there was a significant difference. Staff with 1-5 years differ from 6-10 years, 11-15 years, and more than 20 years in clinical decision-making. The hypothesis that no significant mean difference exists

between staff nurses who have worked for different amounts of time is rejected. The staff of 1-5 years are relatively new to the profession in this proximity. In time with their nursing education, the staff carries out education-based theory and evidence-based practice for the first few years and decreases after that.

While the results have illustrated no correlation between ageism and clinical decision-making in staff nurses in selected hospitals in the Philippines; however, the evidence shows ageist attitudes and sentiments. Readers have been made aware of ageism's negative consequences in varying institutions and social sectors, like health and social care, the workplace, the media, and even the legal system. Thus, nurses must resolve any prejudice to ensure that patients receive the best possible care. Ageism is a complex phenomenon; therefore, it will take a complex solution composed of various parts.

The first point of recommendation offered by the WHO is using policies and laws to reduce ageism. By strengthening these policies and laws against ageism, institutions can create new tools and modify existing instruments on all levels. To ensure that policies are being carried out, there must be a plan to enforce this strategy and evaluate and measure the practical implementation to address prejudices, inequalities, and discrimination.

Another angle to approach is proper education across all levels and types of education. By educating and dispelling misinformation, various institutions can cultivate a sense of empathy, ultimately reducing prejudice and discrimination. Ideally, student nurses should resolve, or at the very least be aware of, any prejudices they may have before they enter the clinical area. In order to do this, more advanced assessment measures, such as the Ambivalent Ageism Scale used in this study, should be developed. A very effective way to mitigate these biases is to be aware of them. By providing accurate information about the manifestations and impacts of ageism, student nurses will hopefully be able to recognize and resolve their own biases.

As stipulated in the core competencies of nurses, continuing education is of utmost importance to the nursing profession. Learning should not stop after graduate receive their diplomas. Ageism, a novel topic, especially in the Philippines, will continue to be studied, bringing about more recent and valuable information. An inclusive environment must be created; thus, discrimination and diversity training programs should be developed to encompass respect, implicit bias, and team building. The nurse must continue learning and honing their practice to ensure that all clients have access to the best possible care according to their circumstances.

Ageism is a novel topic in the Philippines; much more research needs to be done on the extent of ageism. Improving the understanding of ageism is the first step to solving the problem. Being a low to middle-income country, the Philippines is a prime site for new data and information. More large-scale descriptive studies must be done to assess the level of ageism in staff nurses throughout the Philippines. In addition, research on older adults' perceptions of their healthcare team should also be examined. From there, correlational research may assess the relationship between ageism and various topics in the clinical area. More sophisticated ways of analyzing ageism must be developed to thoroughly explore the topic's complexity. In addition, instruments that can measure should be made more accessible. Above all, there should be an emphasis on developing strategies to decrease ageism. While there are strategies, they need to be modified to fit the settings for local respondents and evaluated to increase effectiveness.

There should also be intergenerational contact interventions. The divide deepened between generations due to COVID-19. Investments should be made to foster interactions among generations, which will be a meaningful action in reducing the amount of prejudice and stereotypes among groups. This method is one of the most efficient ways to reduce ageism against the older population; it can also help dispel misconceptions about younger

individuals. Doing this will soften the generational divisions, facilitate communication and collaboration, and change the negative perceptions regarding age and aging. Governments, individuals, academic and research institutions, businesses, and many others can band together to combat ageism.

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The Effect of Glucose on the Physical Performance of Non-Athlete Students as Measured by the Cooper Test Method of Running 2.4 Kilometers

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Physical performance is the ability of an individual's body to carry out physical activities efficiently and effectively. Carbohydrates can be the main fuel for various functions, such as physical, cognitive, and cellular activities. The main objective of this experimental study is to determine the effect of the intake of glucose, a form of carbohydrate, on the physical performance of non-athlete students when measured using the Cooper test method of running 2.4 km using a pretest-posttest group research design. The subjects were 30 non-athlete college students. Anthropometric data and physical assessments such as body weight, height, body mass index, body temperature, blood pressure, pulse rate, and blood glucose levels were measured. The length of time measured by the Cooper test method of running 2.4 km for the pre-test is 906.7 ± 189.62 seconds. For the post-test, a 6% glucose solution was given to the subjects after a recovery period of 168 hours. The length of time measured by the Cooper test method of running 2.4 km for the post-test is 837.6 ± 173.94 seconds. The comparative data using a t-test shows a p-value of 0.0021 ($p < .005$), which indicates a significant difference between before and after glucose intake. The subjects ran faster after being given a glucose solution. Therefore, this study concluded that glucose intake significantly affects the physical performance of non-athlete students as measured by the Cooper test method of running 2.4 km.

Keywords: *physical performance, glucose intake, Cooper test running 2.4 km*

Physical performance and physical activity have a close functional relationship. It is defined as the ability of an individual's body to carry out bodily actions ranging from everyday activities to athletic endeavors (Ceria-Ulep et al., 2011). Despite individual differences in response to regular physical activity, the higher the intensity and amount of physical activity, the better the physical performance (Bondarev et al., 2021).

Exercise and physical performance are closely interconnected. Caspersen et al. (1985) defined exercise as deliberate and structured physical activity that is planned, structured, and done repetitively to improve or maintain health and has a final or intermediate objective to improve or maintain physical fitness and overall well-being. It also significantly enhances various aspects of physical performance: cardiovascular endurance, muscle strength, muscle endurance, flexibility, balance, speed, body composition, and mental health (Kylasov and Gavrov, 2011). Physical performance can vary widely depending on an individual's fitness level, training, and skill set. Physical fitness is the body's ability to function efficiently and effectively. It refers to a state of well-being and health that results from regular exercise and physical activity (Health and Physical Education, 2023).

Many factors predict what source of fuel will be used during exercise. Proteins, fats, and carbohydrates are all possible sources of fuel for exercise and muscle contraction (Nakrani et al., 2023). Studies have shown that glucose (a simple carbohydrate) is the primary fuel source as duration and intensity increase. Carbohydrate intake before, during, and after exercise is crucial (US Anti-Doping Agency, 2023). Carbohydrate intake pre-exercise prevents hunger during exercise, provides optimal blood glucose levels for endurance exercise, and increases glycogen stores (Mayo Clinic, 2018). Glucose is obtained from the diet, primarily from carbohydrates, and is also produced by the body through processes like gluconeogenesis.

The physical fitness test measures an individual's physical abilities and fitness levels. These tests are often used in various contexts, including sports, healthcare, physical therapy, and fitness training (Quinn, 2023). A running test is one of the physical fitness assessments specifically designed to measure an individual's physical performance (Boullosa et al., 2020). It provides valuable information about an individual's speed, endurance, and running form (National Register of Personal Trainers, 2023). Running is a popular and effective form of aerobic exercise that can significantly impact physical performance and overall health by improving cardiovascular endurance as well as muscular strength and endurance. The Cooper 2.4 km (1.5 mile) run test is a simple running test of aerobic fitness. This method of physical fitness testing was designed by Kenneth H. Cooper in 1968 for the US military (Cooper Aerobic, 2009). The Cooper test, running 2.4 km, is often used in fitness assessments, physical education classes, military fitness evaluations, and other fitness evaluations. Coaches and trainers also use it to determine cardiovascular fitness and track fitness over time (Quinn, 2022). This test aims to complete the 2.4-kilometer course in the shortest possible time. Testing is easier to administer when the distance is fixed and the finishing time is measured (Translating Research Evidence and Knowledge, 2023).

This study aims to determine the effect of glucose (a simple form of carbohydrate) intake on the physical performance of non-athlete male students as measured by the Cooper test method of running 2.4 km using a pretest-posttest group research design.

Methodology

Research Design

This study utilized a pretest-posttest group research design. This research design was used for this study because it is a standard experimental research design that involves measuring subjects

before they undergo a treatment and then measuring them again on the same variable after the treatment. The primary purpose of this design is to assess the effect of the treatment by comparing the pretest and post-test scores.

Population and Sampling Techniques

The study subjects were 30 non-athlete male college students, selected randomly with an age range between 19 and 23 years old (20.9 ± 0.76 years), who were healthy and did not consume any energy drink or its kind before and during the test and did not perform any strenuous activity before the test. The ethics board of the university approved the study. Subjects were asked to fill out and sign informed consent forms before treatment.

Materials

Tools and materials utilized for this research were a bathroom weighing scale (Camry, precision 0.1) for measuring body weight and a thermometer (Thermogun Infrared, Vin Med) for measuring body temperature. Sphygmomanometer (Riester, precision 1 mmHg) and stethoscope (Littman) for measuring blood pressure, digital stopwatch (mobile phone), whistle for starting sign, stationery (pen and paper), and 400-meter running track.

The treatment materials were a 6% glucose solution of 18 grams of pure glucose (dextrose) powder or crystals dissolved in 300 milliliters of distilled water. According to Febrina (2023), the oral glucose intake dosage for adults is between 4 and 20 grams.

Experiment One (No Glucose Intake). After going through physical assessments such as body temperature, pulse rate, blood pressure, and blood glucose level (after 8 hours of fasting), the subjects ran track for a 10-minute warm-up to prepare their joints and muscles before the Cooper test, running 2.4 km, started. The test aims to complete the 2.4-kilometer course in the shortest possible time. At the start, all subjects line up behind the starting line.

On the command “go,” the stopwatch was started, and they all began to run at their own pace. Walking was strongly discouraged. It was only permitted during the cool-down stage after completing the test. The total time to complete the course was recorded. The subjects then proceeded to a post-treatment physical assessment, which included body temperature, pulse rate, blood pressure, and blood glucose levels.

Recovery Stage. The subjects were going through the recovery stage for 168 hours. They were prohibited from strenuous physical activities during the recovery stage. This was a long-term recovery time. It is essential to give the body enough time to replenish energy stores and allow the damaged muscle to recover. The American Council on Exercise suggests a rest day every seven to ten days after high-intensity exercise (Ansorge, 2022).

Experiment Two (with glucose intake). The subjects underwent physical assessments such as body temperature, pulse rate, blood pressure, and blood glucose level (after 8 hours of fasting). Each of the subjects was given a glucose solution. The blood glucose level was measured again after 30 minutes of rest. The subjects were allowed to rest another 30 minutes before proceeding to the running track for a 10-minute warm-up. After completing the Cooper test, which ran 2.4 km, the subjects moved on to the post-treatment physical assessment, which included body temperature, pulse rate, blood pressure, and blood glucose levels.

Results and Discussions

The recorded data from the pretest and posttest were analyzed using a paired-sample t-test for Microsoft Excel and a p-value ($p = 0.05$).

Experiment One (No-Glucose)

Table 1 shows the mean value, standard deviation, and p-value of experiment one for the subjects without glucose before and after completing the Cooper test running 2.4 kilometers.

Table 1**Experiment One (No Glucose Intake)**

Variable	Experimental One (No-Glucose)				P Value
	Pretest		Posttest		
	Mean	SD	Mean	SD	
Temperature (Celsius)	35.3	0.3	35.7	0.4	0.0005
Pulse Rate (bpm)	76.3	12.9	105.1	16.7	0.0000
Systole	126.6	11.5	128.4	17.7	0.2819
Diastole	84.6	12.1	83.2	10.9	0.2676
Glucose Level (mg/dL)	91.6	10.3	102.3	20.7	0.0001
Running Time (seconds)	-	-	904.8	189.2	-

Table 1 shows data for body temperature for the test before ($35.3 \pm 0.350^\circ\text{C}$) and after ($35.7 \pm 0.410^\circ\text{C}$). The *p-value* of 0.0005 ($p = 0.05$) indicates a significant difference between before and after the test. There is an increase in body temperature after intense activities, in this case, running 2.4 kilometers. This is supported by Handayani et al. (2016), who state that increased physical activity causes an increase in body temperature, which reflexively triggers the heat dissipation mechanism. Aside from producing energy in the form of movement, energy metabolism also has power in the form of heat (Irawan, 2007).

The pulse rate before the test is 76.3 ± 12.9 beats per minute (bpm); after the test, it is 105.1 ± 16.7 bpm. The *p-value* is 0.0000, showing a significant difference between before and after the test. The increase occurs due to physical activity. The heart rate will increase quickly when the subject starts running. This happens as the body's need for oxygen carried by the blood increases and causes the heart to pump blood more often (Barret et al., 2016; Maulana et al., 2020).

Blood pressure before completing the test shows the systole is 126.6 ± 11.5 and after completing the test is 128.4 ± 17.7 with $p=0.2819$, while the diastole before the test is 84.6 ± 12.1 and after the test is 83.2 ± 10.9 with $p=0.2676$. The data shows no significant difference between systole

and diastole before and after completing the test. The *p-value* for both systole and diastole is greater than 0.05. There is no significant increase in blood pressure (systole and diastole). Based on blood pressure categories according to the American Heart Association, the average blood pressure of the subjects was classified as high blood pressure (systolic pressure: 120–129 mmHg, and diastolic pressure: <80 mmHg). Physical activity increases the heart rate. It also increases energy requirements by cells, tissues, and organs of the body, which may increase respiratory activity and vein activities, which causes an increase in stroke volume and cardiac output, thereby causing blood pressure to increase moderately (Aji, 2015).

The data also shows a change in blood sugar level between before (91.6 ± 10.3) and after (102.3 ± 20.7), completing the test with a *p-value* of 0.0001, which offers a significant difference between before and after. The mean value and standard deviation for running time for experiment one (without glucose intake) are 904.8 ± 189.2 seconds.

Experiment Two (with glucose solution):

Table 2 shows experiment two's mean value, standard deviation, and *p-value* for the subjects after being given glucose solution before and after completing the Cooper test running 2.4 kilometers.

Table 2**Experiment Two with Glucose Intake**

Variable	Experimental Two (Glucose Solution)				P Value
	Pretest		Posttest		
	Mean	SD	Mean	SD	
Temperature (Celsius)	35.7	0.08	36.9	0.26	0.0000
Pulse Rate (bpm)	77.2	9.04	124.1	13.7	0.0000
Systole	123.7	12.7	140.7	14.0	0.0000
Diastole	80.6	11.3	81.1	8.39	0.3955
Glucose Level (mg/dL)	85.3	9.6	-	-	-
Glucose Level (mg/dL): 30 minutes after glucose intake	140.3	16,36	-	-	0,0000
Glucose Level (mg/dL)-after the test	-	-	89.9	16.61	-
Running Time (seconds)	-	-	837.6	173.9	-

Table 2 shows data for body temperature before ($35.7 \pm 0.080^\circ\text{C}$) and after ($36.9 \pm 0.260^\circ\text{C}$) the test. The p-value of 0.0000 ($p = 0.05$) indicates a significant difference between before and after the test. Similar to experiment one, there is a substantial increase in body temperature due to intense physical activities, such as running 2.4 kilometers. The temperature rise is caused by energy metabolism, which produces heat, meaning if the body temperature is higher than the environmental temperature, the body will sweat. This is supported by the statement of Sandi et al. (2017) that up to 20%–30% of the heat produced by the body during exercise is made from energy burning, with the remaining heat being converted into body heat. Someone who runs needs a lot of oxygen so that the heart can pump more blood throughout the body.

The pulse rate before the test is 77.2 ± 9.04 beats per minute (bpm); after the test, it is 124.1 ± 13.7 bpm. The p-value is 0.0000, showing a significant difference between before and after the test. There is a substantial increase in pulse rate after the test. Physical activity affects the pulse rate. Ismail et al. (201) stated that exercise causes the heart rate to increase due to the increase in sympathetic and decrease in parasympathetic activity in the sinoatrial (SA) node. This is the body's natural response to

increase heart rate and speed up the distribution of energy-producing substances (Ashadi, 2014).

Blood pressure before the test shows the systole is 123.7 ± 12.7 , and after completing the test, it is 140.7 ± 14.0 with $p = 0.0000$. The data shows a significant difference in systole before and after completing the test. The p-value is less than 0.05. On the other hand, the diastole before completing the test is 80.6 ± 11.3 ; after the test, it is 81.1 ± 8.39 with $p = 0.3955$. The data shows no significant difference in the diastole before and after completing the test because the p-value is more significant than 0.05. The data also indicates a change in blood sugar level between before (140.3 ± 16.36) and after (89.9 ± 16.61), completing the test with a p-value of 0.0000, which shows a significant difference between before and after. The mean value and standard deviation for running time for experiment two (after glucose intake) are 837.6 ± 173.9 seconds. Systolic blood pressure is when the heart contracts, while diastolic blood pressure is when the heart relaxes. When exercising, systolic blood pressure generally increases due to an increase in the heart rate (the amount of blood pumped in one minute) and an increase in peripheral resistance (the resistance to blood flow in small blood vessels). Meanwhile, diastolic blood pressure tends not to

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change or may even decrease slightly because there is an increase in blood vessel capacity, which causes a decrease in peripheral resistance. This situation occurs because when a person exercises, the body needs more oxygen, so the heart has to work harder to pump blood. As a result, systolic blood pressure increases due to stronger heart contractions. On the other hand, diastolic blood pressure does not change or decrease because blood vessels are wide open, blood flow to body tissues is smoother, and peripheral resistance decreases.

Comparison of Pretest in Experiment One and Experiment Two (No-Glucose Intake)

Table 3 shows the mean value, standard deviation, and p-value of comparing the pretests in experiments one and two after completing the Cooper test running 2.4 kilometers.

Table 3

Pretest Comparison between Experiment One and Experiment Two (No Glucose Intake)

Variable	Pretest (No-Glucose)				P Value
	Experiment One		Experiment Two		
	Mean	SD	Mean	SD	
Temperature (Celsius)	35.3	0.3	35.7	0.1	0.0000
Pulse Rate (bpm)	76.3	12,9	77.2	9.0	0.0849
Systole	126.6	11.5	123.7	12.7	0.0447
Diastole	84.6	12.1	80.6	11.3	0.3585
Glucose Level (mg/dL)	91.6	10.3	85.3	9.6	0.0004

Table 3 shows a significant difference for body temperature (35.3 ± 0.3 , 35.7 ± 0.08 , $p=0.0000$), systole (126.6 ± 11.5 , 123.7 ± 12.7 , $p=0.0447$), and fasting blood glucose level (91.6 ± 10.3 , 85.3 ± 9.6 , $p=0.0004$) between experiment one and experiment two no-glucose with a p value less than 0.05. Meanwhile, the data also shows there is no significant difference for pulse rate ($76.3 \pm 12,9$, 77.2 ± 9.04 , $p=0.0849$) and diastole (84.6 ± 12.1 , 80.6 ± 11.3 , $p=0.3585$) between experiment one and experiment two without glucose with a p-value greater than 0.05. Pulse rate and systolic and diastolic blood pressure did not experience significant changes, as shown in Table 3, due to the absence of intense physical activities. Several factors are causing the absence of substantial changes in the subjects, such as the subjects staying in the same environment, eating the same foods, and being monitored for not doing any intense physical activities during the research.

Comparison of Posttest in Experiment One and Experiment Two (With Glucose Intake)

Table 4 shows the mean value, standard deviation, and p-value of the comparison between the posttest in experiments one and two after completing the Cooper test running 2.4 kilometers. Table 4 shows a significant difference for body temperature (35.7 ± 0.4 , 36.9 ± 0.26 , $p=0.0000$), pulse rate (105.1 ± 16.7 , 124.1 ± 13.7 , $p=0.0000$), systole (128.4 ± 17.7 , 140.7 ± 14.0 , $p=0.0000$), blood glucose level ($102,3 \pm 20,7$, $89,9 \pm 16,61$, $p=0.0000$), and running time ($904.7 \pm 189,6$, $837,6 \pm 173,9$, $p=0.0021$) between experiment one and experiment two with glucose solution. The p-value is less than 0.05. Meanwhile, a comparison between experiments one and two for diastole (83.2 ± 10.9 , 81.1 ± 8.39 , $p=0.3955$) shows no significant difference (p-value greater than 0.05).

Table 4

Posttest Comparison between Experiment One and Experiment Two (No Glucose Intake)

Variable	Pretest (Glucose Intake)				P Value
	Experiment One		Experiment Two		
	Mean	SD	Mean	SD	
Temperature (Celsius)	35.7	0.4	36.9	0.26	0.0000
Pulse Rate (bpm)	105.1	16.7	124.1	13.7	0.0000
Systole	128.4	17.7	140.7	14.0	0.0000
Diastole	83.2	10.9	81.1	8.39	0.3955
Glucose Level (mg/dL)	102,3	20,7	89,9	16,61	0.0000
Running Time (seconds)	904,7	189,6	837,6	173,9	0.0021

Data shows there is a significant increase in body temperature. Although the range is below normal (37,2–37,5°C), this can still be considered normal (>35°C). This condition is due to the temperature in Parongpong, which is between 11 oC and 22 oC. As the subjects ascend to higher altitudes, the air temperature generally decreases. This means that subjects are exposed to colder conditions, which can decrease their body temperature.

The pulse rate also significantly changes due to intense physical activities, such as running 2.4 kilometers. Pulse rate and glucose intake are related in that changes in blood glucose levels can influence heart rate, especially during certain physiological responses to food intake and exercise.

There is an increase in systolic blood pressure and a slight increase in diastolic blood pressure. This condition occurs because of glucose intake. Mansoori et al. (2019) stated that there is a strong association between the intake of added sugar and systolic and diastolic blood pressure. As mentioned above, when a subject exercises, systolic blood pressure generally increases due to an increase in the heart rate and an increase in peripheral resistance. Meanwhile, diastolic blood pressure tends not to change or may even decrease slightly because of the increase in blood vessel capacity, which causes a decrease in peripheral resistance.

There is a significant increase in blood glucose after 30 minutes of glucose solution intake. High

blood glucose levels may trigger the release of insulin, which directs glucose into the body's cells to be used as an energy source.

Data shows running time decreasing in experiment two after the glucose solution was given. This means the subjects ran faster and had less travel time than in experiment 1, without a glucose solution. This condition is due to the high availability of energy sources needed for running. This study shows that giving a glucose solution before starting exercise affects physical performance. The results align with the study by Budi (2010), which stated that giving fructose and glucose could speed up the travel time of 3000-meter runners.

Comparison of VO2 Max Between Experiment One and Experiment Two

Data shows that in experiment one with no-glucose intake, of the total of 30 subjects, no one was categorized as “excellent” (0%) or “very good” (0%), only one subject was categorized as “good” (3.3%). Eight subjects categorized as “moderate” (26.7%), fourteen as “poor” (46.7%), and seven as “very poor” (23.3%). Meanwhile, in experiment two with glucose intake, none of the 30 subjects categorized as “excellent” (0%) nor as “very good” (0%). Seven subjects are categorized as “good” (23.3%), seven subjects categorized as “moderate” (23.3%), ten subjects categorized as “poor” (33.3%), and six classified as “very poor” (20%).

Table 5

Comparison of VO2 Max Between Experiment One and Experiment Two

Category	Experiment One (No-Glucose Intake)		Experiment Two (Glucose Intake)	
	Absolute	Percent (%)	Absolute	Percent (%)
Excellent	0	0	0	0
Very Good	0	0	0	0
Good	1	3.3	7	23.3
Moderate	8	26.7	7	23.3
Poor	14	46.7	10	33.3
Very Poor	7	23.3	6	20
Total	30	100	30	100

VO2 max measures a person's ability to use oxygen during maximal physical activity. VO2 max results can vary depending on many factors that can vary between individuals, including genetics, environmental factors, and a person's level of physical fitness (Myers, 2022). There was an increase in the VO2 max category of each subject, possibly because an additional energy source was provided to provide enough energy for running, which would help increase strength and endurance. The relationship between endurance and VO2 max is that the higher a person's VO2 max, the more efficient their body is at using oxygen during exercise, thus allowing a person to carry out physical activity for a longer period of time. In other words, the higher the VO2 max, the higher a person's endurance ability in exercise with higher intensity.

Based on the results on the effect of glucose intake on the physical performance of non-athlete students using the Cooper 2.4 kilometers running test method, this study concluded that glucose administration has an effect on the physical performance of non-athlete students by decreasing running time. Further study is needed regarding administering glucose to more sample subjects.

It is recommended that research on female non-athlete students be conducted to find out whether there is an effect of giving a glucose solution on physical performance and increasing travel time

while still paying attention to the menstrual cycle, such as its duration and intensity as well as the peaks of the hormones progesterone and estrogen.

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Co-sleeping Practices and Sense of Fulfillment of Mothers: A Correlation Study

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Co-sleeping is viewed differently by different people depending on how they feel about the controversial issue of sudden infant death syndrome (SIDS). Some mothers decide against co-sleeping because of associations with lethal sleeping habits. However, research on Filipino mothers' co-sleeping practice is lacking. This study determined the relationship between co-sleeping practices and the sense of fulfillment of mothers. Using descriptive-correlational study and purposive sampling techniques, 1,252 mothers participated in the survey using Google Forms. They answered the adapted and modified questionnaires on Parenting Sense of Competence and the Parenting Stress Index. Data were analyzed using descriptive statistics, Pearson correlation coefficient, t-test, and one-way ANOVA. Findings show that mothers had a high level of co-sleeping practice ($M = 4.08$, $SD = .27$) and a high level of sense of fulfillment ($M = 4.41$, $SD = .27$). Furthermore, the study showed that there is a significant relationship between co-sleeping and the sense of fulfillment of mothers ($p=.001$). The study also showed no significant difference in the sense of fulfillment when the socioeconomic status of the mother ($p=.410$) and the number of years of co-sleeping are considered ($p=.590$). Thus, it is concluded that mothers who showed good co-sleeping practice would also have a high perception of a sense of fulfillment. Although the study mainly focused on the mothers their co-sleeping practice, and their sense of fulfillment, it is recommended that further studies be conducted to include the children who also practiced co-sleeping with their mothers.

Keywords: *co-sleeping, sudden infant death syndrome*

To young children, sleeping is a fundamental step for growth and development. Parental involvement in children's sleep can significantly affect how much a child would react toward sleep. More parental involvement would mean that the child would have fragmented sleep. Co-sleeping practice is when individuals sleep adjacent to one another and are aware of persons sleeping next to them (McKenna J., 2005). Most non-western cultures observe co-sleeping or routinely sleeping with a child as the norm. Sleeping with a child gives the mother a complete advantage in caring for her child while she is resting. Co-sleeping encourages mothers to continue breastfeeding until the child chooses to wean (Hunt, 2001).

Worldviews about co-sleeping are split in relation to controversial topics relating to SIDS or sudden infant death syndrome. Although more than 40% of documented cultures have a tradition of bed-sharing, association with fatal sleeping practices causes some mothers to opt out of co-sleeping (Roberts, 2014).

In the Philippines, close-knit relationships with family members are essential and integral to Filipino culture. Parenting in the Philippines and other Asian countries with a similar approach to parenting is called attachment parenting. Babywearing, extended breastfeeding, and co-sleeping are the most common practices a Filipino household would do if an infant is around. Co-sleeping practices arise in areas with no extra room to put the baby to sleep; however, some parents choose to have their children sleep close by. The child's age is a factor as to whether or not Filipinos practice co-sleeping.

This study addresses the lack of literature on Filipino mothers' co-sleeping practices with their children. A study conducted in the Philippines only focused on the physical aspects of co-sleeping of fathers with their children. Having this in mind, the researchers wanted to expand the topic and further research how it will affect the child. The research purposed to expand the knowledge on how co-sleeping practices of mothers can affect how they

feel towards their newborn child and gather and deepen the information regarding the impact that it has on their sense of fulfillment. The study also focuses on a particular criterion—that of Filipino women who are new mothers.

Methodology

This section describes the strategies utilized to fulfill the purpose of this study such as research design, population and sampling techniques. Discussions on the instrumentation, data gathering, procedures, and analysis of the gathered data are also included.

Research Design

The study used a quantitative research design, specifically, a correlational research design. Quantitative research designs generate numerical data and usable statistics. The research leaned toward the correlational design, which aims to find the relationship between two or more variables within the situation to know the relationship between them. Correlational research designs recognize the trends and patterns in data. The gathered quantitative data seeks to find the influence of co-sleeping of mothers on their sense of fulfillment. The collected data from respondents was used as descriptive and correlating statistics towards the said population. Analysis of variance is best used with three or more populations. The study utilized a T-test to form fewer biases toward the results (Kim, 2015). The researchers concluded and applied the results to future studies related to the topic with the gathered quantitative data.

Population and Sampling

The study was composed of mothers of childbearing ages of 18 to 45 years old. The research included mothers who had mutually agreed with their spouses to co-sleep with their children. The research sample totaled 1,252 participants. Non-probability purposive sampling was used. Mothers not currently breastfeeding or bottle feeding were

excluded from the research. The researchers used an online survey form. The researchers shared the study's purpose, objectives, and benefits with the participants. The mothers who passed the inclusion criteria were emailed online survey questionnaires.

Instrumentation

The researchers utilized self-structured and modified questionnaires asking how the mothers perceived their fulfillment. It also asked how co-sleeping with their children affected their perceived co-sleeping practice. The questionnaire comprises three parts: Part one of the survey included the demographic data of the respondents, which it asked about the years of co-sleeping as well as the mother's socioeconomic status. Part two focuses on the co-sleeping practices of the mother, and Part three was for the sense of fulfillment of the mother.

The questionnaires were based on two sets of established instruments, which are the Parenting Sense of Competence or PSOC and the Parenting Stress Index (short form), which was developed in 1983 and focused on parents with children of ages one month to 12 years of age. The Parenting Stress Index and Parenting Sense of Competence focused on the mother's attitudes towards her sense of fulfillment while co-sleeping with her baby.

In using the Parenting Stress Index, the instrumentation solely focused on the mother's sense of competence and the emotional attachment to the child. Certain parts of the PSI uncovered how mothers determined their sense of fulfillment while co-sleeping with her child. Results from the pilot study found a Cronbach's Alpha reliability test result of .782 for the mothers' sense of fulfillment and .391 for their co-sleeping practices.

The instrument utilized in the research regarding mothers' co-sleeping practice was self-structured and made specifically to measure maternal involvement or one-to-one engagement with the child while sleeping. The instrumentation focused on the valid behavioral components by measuring how the mother perceived how she

was engaged in an activity with her child. Since there are limited resources regarding scales that measure the practices of mothers, a Likert-scale type questionnaire that has 15 questions regarding co-sleeping practice was made. It also included a 5-point scale, ranging from always (5) to never (1), and the scores are interpreted using the following: 4.50-5.00 (very high), 3.50-4.49 (high), 2.50-3.49 (moderate), 1.50-2.49 (low), and 1.00-1.49 (very low). A pilot study was conducted before giving the mother the questionnaires entirely.

The questionnaire on Parenting Stress Index, which comprises three scales, focused on the Parental distress scale. The Parenting Stress Index was developed in 1983 and was designed for parents of children ranging from 1 month to 12 years old. The PSI is a 120-item inventory, shortened to a 36-item inventory. There is a 5-point Likert scale ranging from Strongly agree to disagree. The scores are interpreted using the following 4.50-5.00 (very high), 3.50-4.49 (high), 2.50-3.49 (moderate), 1.50-2.49 (low), and 1.00-1.49 (very low).

Data Gathering Procedure

The researchers utilized self-structured questions based on Parenting Sense of Competence or PSOC and the Parenting Stress Index (short form). Once the proposal was approved, the researchers sent a request letter to the candidate participants. The approved questionnaires were distributed to the respondents. Before starting the data collection, respondents were informed about the study's purpose and significance, the benefits, and how it will be conducted. Furthermore, the respondents were asked if they had any questions for clarification.

Ethical Considerations

The confidentiality of the respondents was also observed, and it ensured that names would not be collected in the online survey. The survey was not shared with anyone besides the advisors. The data collected through online forms will be

deleted afterward. The respondents' privacy of their personal information was considered. The respondents were thoroughly informed of how the gathered information was utilized.

Analysis of Data

The gathered data underwent statistical analysis to determine how co-sleeping affected the sense of fulfillment of mothers. Descriptive statistics summarize the measured samples that were gathered. Correlational statistics showed how the variables relate to each other. The data comparison also determined which participants had the lowest sense of fulfillment or the highest level of sense of fulfillment with the practice of co-sleeping with mothers. In order to determine the relationship between co-sleeping practices with mothers and their sense of fulfillment, ANOVA (analysis of variance) was used.

Results and Discussion

The findings and discussion of the study conducted are presented in this section. The answers to the research questions are also discussed. Tabulated, analyzed, and interpreted data are systematically presented.

Extent of Co-Sleeping Practices of Mothers

Table 1 presents the extent of mothers' co-sleeping practices. The grand mean of co-sleeping practice is ($M = 4.08$, $SD = .27$), which has a qualitative descriptor of its high extent. The statement "I am aware that smoking, whether secondhand or thirdhand, is not good for my child while we co-sleep" has the highest mean score (4.98 , $SD = .23$) and has the qualitative descriptor of always. The statement "I do not sleep with my child when I lack sleep" has the lowest mean score (1.49 , $SD = .99$) and the qualitative descriptor of never.

Table 1

Extent of Co-Sleeping Practice of Mothers

No	Questionnaire Item	Mean	SD	Scaled Response
17	I am aware that smoking, whether secondhand or thirdhand, is not good for my child while we co-sleep.	4.98	.23	Always
14	I sleep with my child on our bed.	4.95	.28	Always
7	Co-sleeping makes feeding easier.	4.95	.30	Always
3	I sleep with my child even on the sofa.	3.66	1.44	Sometimes
4	I can easily respond to my child at night when we co-sleep	4.93	.31	Always
12	Even when I am asleep, I am aware of my child's presence.	4.87	.37	Always
10	I sleep with my child to monitor his/her sleep.	4.73	.71	Always
18	I allow myself to have alcohol consumption even as I sleep with my child.	4.68	.73	Always
16	I face my child while we co-sleep to ensure his/her safety.	4.60	.67	Always
20	I let my child sleep with a stuffed toy next to him/her during his/her first 12 months.	4.42	.94	Always
11	I let my child sleep on his/her back on a firm mattress when we co-sleep.	4.34	1.06	Always
9	I do not let my child sleep alone in a room.	4.26	1.18	Always
2	I use heavy blankets when I am co-sleeping.	4.25	1.08	Always
6	Our bed has no gaps that could entrap my child while we co-sleep.	4.25	1.09	Always
19	I use loose bedding when I co-sleep with my baby.	4.24	1.35	Always
15	I can leave my child sleeping unattended in his/her cot	3.99	1.12	Often
5	I play lullabies to help my child fall asleep faster while co-sleeping.	3.93	1.12	Often

[table continues on the next page]

13	I place my child in the crib to sleep during his/her first 12 months.	3.67	1.44	Often
1	I do not sleep next to my child when I lack sleep.	1.49	.99	Never
Co-sleeping practice (overall mean)		4.08	.27	High extent

Legend: 4.50-5.00 (very high), 3.50-4.49 (high), 2.50-3.49 (moderate), 1.50-2.49 (low), and 1.00-1.49 (very low)

In general, the respondents valued co-sleeping practice to a great extent. Regarding safe practices of the parents, they have valued it with a verbal interpretation of always. Physiologically, human babies seek physical contact with their parents (Doupleff, 2018). Among the criteria, "I can easily respond to my child at night when we co-sleep," which has the verbal interpretation of always, proved the beneficial characteristics of co-sleeping practices.

The respondents are aware of the effects of secondhand cigarette smoke. Exposure to secondhand smoke has a higher association with sleep problems among children with parents who sleep next to them after smoking a cigarette. Parasomnias, daytime sleepiness, sleep onset delays, and total disturbances are commonly seen in children who have parents who smoke. Children exposed to secondhand smoke, pre- or post-natally, are more than likely to experience poorer sleep quality and breathing problems than those who have not.

The data gathered showed that most Filipino mothers are unaware of the safety practices of co-sleeping. While most respondents are aware of the hazards of smoking, many of the respondents practice unsafe co-sleeping practices by consuming alcohol prior to sleeping with their children. Most respondents answered, "*I allowed myself to have alcohol consumption even as I sleep with my child*" (4.68, $SD = .73$), a relatively high figure and verbal interpretation of Always. The association of alcohol consumption and "sofa sharing" increases the risk of SIDS (Blair et al., 2009). It is noted that most children of families who had experienced SIDS had co-slept in a hazardous environment, which could have been prevented if mothers or parents had been educated about the risk it would entail when co-sleeping (Blair et al., 2009).

Despite the contrasting figures related to co-sleeping practice, it is observed in the data that most mothers are also unaware of the risk related to using unsafe beddings or fabrics with co-sleeping. The most common cause of SIDS or sudden infant death syndrome includes too-soft sleeping surfaces and overheating. In the data that was gathered, the respondent had a high input towards the question of "*I use heavy blankets when I am co-sleeping*" (4.25, $SD = 1.08$) and "*I use loose beddings when I co-sleep*" (4.24, $SD = 1.35$), which contrast previous studies regarding SIDS. The American Association of Pediatrics (AAP) declares that weighted blankets are a risk factor for infants and toddlers because they are trapped underneath the blanket and unable to move (Brusie, 2021). Weighted blankets or heavy blankets pose a significant risk to babies and toddlers due to the excessive weight that can also block the infant's airway. Loose bedding or sheets are unsafe and associated with SIDS because they cover the head and prevent the child from breathing (Lowe, 2022).

Surprisingly, the respondents have a relatively high input towards the question of, "*I sleep with my child even on the sofa*" (3.66, $SD = 1.44$) with a verbal interpretation of Sometimes. Contrary to the results, sofa sharing is highly discouraged by experts ("Co-sleeping with your baby," 2021). Sofa sharing or couch sharing can be hazardous to the baby co-sleeping with the parent, associated with an increased risk of suffocation or becoming trapped than if they have co-slept on the bed. Experts recommend that regardless of where the baby is placed, except between parents, infants should always be sleeping on their backs, on firm and clean surfaces, and have light, comfortable blanketing. Other materials, such as waterbeds or heavy fabrics, should not be used when practicing safe co-sleeping with a child.

Level of Sense of Fulfillment of Mothers

Table 2 presents the level of Sense of Fulfillment of mothers. In the research, a sense of fulfillment is defined as an individual's subjective evaluation of their satisfaction and happiness regarding caring for their baby. The grand mean for the sense of fulfillment is 4.41 ($SD = .27$), with a qualitative descriptor of High. The statement *"I feel more emotionally connected with my child"* has the highest mean score ($M = 4.90$, $SD = .37$) with the qualitative descriptor of Strongly Agree, whereas the statement *"I am distressed and exhausted having a child so close"* has the lowest mean score ($M = 1.72$, $SD = .95$) and has the qualitative descriptor of strongly disagree.

Table 2

Level of Sense of Fulfillment of Mothers

	Mean	SD	Scaled Response
I feel more emotionally connected with my child.	4.90	.37	Strongly Agree
I sleep with my child on our bed.	4.90	.35	Strongly Agree
I am happy when my child sleeps next to me.	4.89	.35	Strongly Agree
I can establish an intimate bond with my child.	4.88	.41	Strongly Agree
I feel closer to my child when he/she is co-sleeping with me.	4.80	.38	Strongly Agree
This is not what I envisioned motherhood to be.	2.30	1.26	Disagree
I am distressed and exhausted from having a child so close.	1.72	.95	Strongly disagree
I think co-sleeping with my child makes me feel tense.	1.94	.93	Strongly disagree
Co-sleeping practice (overall mean)	4.41	.27	High

Legend: 4.50-5.00 (very high), 3.50-4.49 (high), 2.50-3.49 (moderate), 1.50-2.49 (low), and 1.00-1.49 (very low)

Most respondents answered, *"I feel more emotionally connected with my child."*, with a verbal interpretation of *Strongly Agree*. The statement indicates the emotional attachment of the parent towards their child. Parents can be emotionally unavailable toward their children, and their lack of understanding of their children's feelings is linked to their lack of awareness of their own emotions. Receiving valuable support and care that the child needs allow them to grow and develop. Healthy attachments the child acquires with their parents allow them to be more open to exploring and interpreting their own experiences (Dennis, 2007). During the most critical time of developing a healthy attachment in infancy, healthy attachment with others can blossom into a good relationship between the parent and the child. As the child grows, growing children tend to be more dependent than aging parents. Frequent emotional support from children at least 18 years old or older relies on emotional support from their parents (Parker & Patten, 2020). According to Parker and Patten, people with two living parents are much more likely to have more contact with their mother than their father (2020). Parents develop their ways of connecting to their children solely based on their experience and relationships with their mothers and fathers. Inconsistent and harmful parenting styles may resemble the parent's experiences when they were still young. Unconsciously, failure to resolve any unresolved emotional baggage from the past may reflect on the children (Wilson, 2013). The repeated cycle of destructive behavior can delay the process of being able to form a healthy attachment relationship with their child. Breaking the cycle includes the parents identifying and discerning their background and exploring their attachment weaknesses (Wilson, 2013). The gathered data supports the idea that family relationships can influence children's well-being through psychosocial, behavioral, and psychological aspects.

In the statement, *"This is not what I envisioned motherhood to be,"* the respondents answered with a verbal interpretation of disagree. This statement means mothers feel responsible with their positive attitudes towards their journey to motherhood. The respondents can accept that motherhood has its ups and downs, and they are prepared to face that challenge ahead. In contrast to the data, one study shows that unmet expectations of parenthood or motherhood are related to poor adjustment to their pregnancy. Most mothers who expressed indifference towards becoming mothers, especially with increased unrealistic expectations of motherhood, had difficulty accepting postnatal responsibilities toward their children (Staneva et al., 2012). Feelings of societal pressure to become a perfect mother are related to prenatal burnout, as well as it is related to difficulty in lower family balance and lifestyle. It is also perceived that societal norms and expectations influence how mothers identify themselves. The mothers would also fear the societal penalties if they fail to reach the standards of motherhood (Liss et al., 2012). Pressures to be the perfect mother correlate to the direct efforts to reach their career ambition. It is posited that fellow mothers often pressure newly transitioned mothers to be perfect (Meeussen & Van Laar, 2018).

Despite the contrast to the data gathered, in a study by Razina (2014), women who have good attitudes towards motherhood tend to have a positive emotional connection with their future children. Women who have a much more positive attitude toward motherhood also have a preconceived notion of what motherhood should be and tend to imagine themselves surrounded by children than those who negatively view motherhood. Motherhood is an intuitive and natural process that a new mother will face as she journeys into being a parent. Unrealistic and idealistic standards are often at the forefront in representing the journey of motherhood. Unachievable goals and the feeling of

being overwhelmed are often felt by women who are new to motherhood. Mothers are encouraged to discuss parenthood with their partners, establish a healthy, realistic attitude toward having a baby, and keep emotional and mental support through this new journey.

Prenatal expectations often play a role in the transition of motherhood. These expectations allow individuals to understand their recent experiences during pregnancy. Negative parenting experiences are significantly associated with false expectations and poor parenthood adjustment (Lazarus & Rossouw, 2015). Exceeded expectations with their prenatal experience often showed a decrease in depression. Maternal attachment to their children usually develops during pregnancy, which helps them transition to motherhood. Commitment, attachment, and preparation for taking care of the children are the typical responsibilities of mothers during their pregnancy (Mercer, 1981).

Respondents have also reported, as stated in *"I think co-sleeping with my child makes me feel tensed,"* with one of the lowest mean scores ($M = 1.94$, $SD = .93$) and with the verbal interpretation of strongly disagree, that parents feel the most comfortable around their children. Mothers who co-slept with their children or infants beyond six months were also reported to have higher depressive symptoms than those who used solitary sleep by six months. Heightened vigilance towards their child's sleep behavior is also increased with those who co-sleep as an additional consequence of unrealistic social criticism towards the mothers (Teti et al., 2016). Cultural norms may also affect how the mother can care for her child. The criticism from their families who strongly believe in them will also affect how the mother-to-be will react. The risk for depression, worries about the infant's sleeping behavior, and the extent of the imposed cultural norms determine the mother's vulnerability and the parents' support for each other (Teti et al., 2016).

Relationship of Co-sleeping Practices and Sense of Fulfillment

Table 3 reveals a weak positive relationship ($r = .237$, $p = 0.000$) between co-sleeping practices and a sense of fulfillment among mothers. This result indicates that if mothers have good co-sleeping practices with their children, they also experience a high sense of fulfillment. Furthermore, the null hypothesis stating no significant relationship between co-sleeping practices and a sense of fulfillment is rejected.

Table 3

Relationship Between Co-sleeping Practices and Sense of Fulfillment Among Mothers

Variable	Components	Sense of Fulfillment
Co-sleeping Practices	Spearman's rho	.237**
	p-value	0.000
	N	1,252
	Verbal Interpretation	Significant

** significant at the 0.05 level

The data interpretation of good co-sleeping practice is evident with good promotion of bonding and increased feelings of safety among children. Since babies sleep close to their mothers, they do not have to cry or get stressed out to receive care (Mckenna, 2008). Additionally, mothers can fully tend to their children because they can attend to them thoroughly and have more restful sleep. A study on British children and the influence of parent-infant co-sleeping showed that the children had lower cortisol levels than children who attended daycare early. Low cortisol levels in children indicate they are less likely to experience stress (Waynforth, 2007). In contrast to studies, pediatric organizations call on families to refrain from co-sleeping and elevated nighttime awakening because their interpersonal relationships are affected. Sleep disturbances are associated with lower marital happiness among Caucasian and African-American women (Sharkey, 2013).

Difference in Terms of their Socioeconomic Status

This study establishes the difference in mothers' sense of fulfillment when their socioeconomic status is considered. Table 4 reveals that the socioeconomic status of those who have the following: less than 10,000 ($n = 215$, $m = 587.65$), 10,001-20,000 ($n = 277$, $m = 610.35$), 20,001-30,000 ($n = 323$, $m = 644.21$), 30,001-40,000 ($n = 171$, $m = 644.96$), 40,001-50,000 ($n = 76$, $m = 662.47$), 50,001 and above ($n = 190$, $m = 632.91$) which has the p-value (0.41) which conveys that the difference between the medians is not statistically significant.

Table 4

Differences In Sense of Fulfillment Across Socio-Economic Status Groups

Socio-economic status		N	Mean Rank	H	p-value	Interpretation
Sense of Fulfillment	Less than 10,000	215	587.65	5.08	0.41	Not significant; Retain Null Hypothesis.
	10,001-20,000	277	610.35			
	20,001-30,000	323	644.21			
	30,001-40,000	171	644.96			
	40,001- 50,000	76	662.47			
	50,001 and above	190	632.91			
	Total	1252				

Significant at the 0.05 level

The interpretation was made based on the Kruskal Wallis test, which revealed that there was no significant difference across socioeconomic status in groups in terms of their sense of fulfillment [$(h(5) = 5.08, p = 0.41)$]. This result implies that the mother's socioeconomic status does not affect their level of sense of fulfillment. Furthermore, the null hypothesis that there is no significant difference in the sense of fulfillment of mothers when socioeconomic status is involved will be retained.

In studies related to families with low socioeconomic status, the children growing up in that household tend to perform poorly and have a lower cognitive level than their counterparts. Multiple studies suggest that high socioeconomic status and families under nuclear status are analogous to the decrease in psychosocial problems in children. It is posited that low socioeconomic status is related to a worse parenting style (Kuruczova et al., 2020). According to a study done on Turkish immigrants in Germany, mothers who come from low-income and low education levels were depressed compared to those in more advantageous situations. The study shows that the higher the mother's socioeconomic status, the less likely they are to feel less satisfied with their life or feel daily hassles in taking care of their family (Fassbender & Leyendecker, 2018). There are many contradicting studies on how the mothers' satisfaction levels are affected by co-sleeping, yet the data showed otherwise. The mothers in a low or high socioeconomic status are not affected by how they would take care of their children.

The data gathered indicated that more mothers were in the brackets of 20,000 and beyond. In other words, the sampled population had a striking figure of mostly middle-class mothers (Albert et al., 2018). Mothers within this social bracket could observe a progressive attitude toward parenting as associated with modernization and westernization (Alampay & Jocson, 2011). In terms of an increase in women's labor participation, employed mothers who originally came from a high socioeconomic status were much more prevalent than the unemployed in a study done among Taiwanese women (Teng et al., 2018). The result states that mothers of a higher socioeconomic status would treat their children more harshly than those of unemployed status.

Difference in Terms of Years of Co-Sleeping

Table 5 represents the differences in the sense of fulfillment across the length of co-sleeping groups. The interpretation was based on the Kruskal Wallis test, which revealed that there was no significant difference across the length of co-sleeping groups in terms of their sense of fulfillment [$(h(4) = 2.82, p = 0.59)$].

Table 5

Differences in Sense of Fulfillment Across Length of Co-Sleeping Groups

	Socio-economic status	N	Mean Rank	H	p-value	Interpretation
Sense of Fulfillment	Less than six months	193	620.76	2.82	0.59	Not significant; Retain Null Hypothesis.
	Seven months – 1 year	464	638.38			
	Two years- 5 years	488	614.47			
	Six years- 11 years	104	632.77			
	12 years and beyond	3	898.17			
	Total	1252				

Significant at the 0.05 level

The implication brought about by the result of the study clarifies that mothers who have participated indicated that no matter how long they are practicing co-sleeping with their children, their level of sense of fulfillment is not affected. Thus, the null hypothesis stating there is no difference in the sense of fulfillment

of mothers in terms of co-sleeping is retained. The table above also proved that most mothers would co-sleep with their children between two to five years. In their study, Keller and Goldberg (2004) stated that mothers of early co-sleepers were least likely to choose solitary sleeping arrangements but were more supportive of their children's autonomy.

A study conducted to determine relationship difficulties or maternal depression between mothers who co-sleep beyond six months showed that it was not a problem; instead, it is suggested that sharing or co-sleeping with an infant for a long term can be a sign of family dysfunction (Teti, 2016). The data gathered among Filipino mothers shows that mothers prefer to go beyond six to 12 months of co-sleeping with their children. Studies have shown that long-term co-sleeping or going beyond the suggested co-sleeping years showed that stress has become apparent in the family contributes to poor sleep patterns and hinders the child's independence. As previously stated by articles regarding the age when the child should start co-sleeping, parents are suggested to start co-sleeping when their child is 12 months and over. Chronic co-sleeping with older children also showed that they are more than likely to develop anxiety and low self-esteem. As more and more mothers in the Filipino culture practice co-sleeping with their children, it is also to be pointed out that chronic co-sleeping could lead to dangers affecting their children's behaviors (Roberts, 2014).

Conclusion

This study investigated co-sleeping practice and mothers' sense of fulfillment and determined the effects of co-sleeping practice on mothers' sense of fulfillment. The study sought out and determined whether the included variables, such as socioeconomic status and the years of co-sleeping, would be detrimental to the sense of fulfillment. Furthermore, the results show that the mothers of differing socioeconomic status did not have their levels of fulfillment affected. The study's results

indicate that the years of co-sleeping practice did not determine the mothers' level of sense of fulfillment. Thus, it is concluded that mothers who showed good co-sleeping practice would also have a high perception of a sense of fulfillment.

Although the study mainly focused on the mothers' co-sleeping practice and their sense of fulfillment, it is recommended that another study focus on the perceived sense of fulfillment of their children. It will be beneficial to do an in-depth review of their children to support the mother-child relationship when co-sleeping practice and a sense of fulfillment are involved. Since the data had been gathered from a large population in the Philippines, it would be substantial to include the children who did practice co-sleeping with their mothers as a contributing population. It is recommended that this study be used as a guide to further explore the knowledge we have about the mother population in the Philippines. We highly encourage future researchers to use our study as a stepping stone and a guide to widen the Philippines' knowledge about the practice of co-sleeping and the levels of sense of fulfillment mothers experience.

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Comparative Study of the Sulcular Bleeding Index, Clinical Attachment Loss and Plaque Index Among Vape Users, Cigarette Smokers, and Nonsmokers in CALABARZON

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The study intended to find whether vape users, cigarette smokers, and non-smokers differ in sulcular bleeding index, clinical attachment loss, and plaque index. The sulcular bleeding index measures gingival condition, while clinical attachment loss measures how the soft tissue is positioned in relation to the tooth's cemento-enamel junction. Participants included 15 vape users, 15 smokers, and 15 nonsmokers who are males aged 18 to 35 years old and are healthy. All the participants reside within the Philippines' CALABARZON region. The data was gathered at the College of Dentistry, Adventist University of the Philippines in Silang, Cavite, and in a private dental clinic in Tayabas, Quezon. Results were obtained by computing periodontal indices such as the O'Leary plaque control record and the Modified Sulcus Bleeding Index. The findings revealed no significant difference between the participants' sulcular bleeding index and plaque index. However, the vape users and cigarette smokers yielded a significantly higher clinical attachment loss compared to the nonsmokers. Results, therefore, suggest that using vaping or cigarette smoking can affect the person's clinical attachment loss. Future studies may investigate how dental health education is given to vape users and cigarette smokers. The study may also be expanded to examine other oral structures.

Keywords: *sulcular bleeding index, clinical attachment loss, plaque index*

The World Health Organization (2017) highlights tobacco smoking as a significant global health issue, with around one-third of the adult population using tobacco. This habit is a risk factor for chronic health and oral diseases, with half of users expected to die early in life. The WHO has implemented taxation, prevention, and education programs to control tobacco use. Scientific studies show that tobacco use has detrimental effects on oral health, particularly the mouth. Dentists play a crucial role in addressing tobacco use, as they have direct clinical visualization of patients' mouths. Quitting smoking can reduce the risk of oral diseases.

Gingivitis is an inflammatory gingival disease characterized by redness, edema, and bleeding upon probing. The modified sulcus bleeding index is used to accurately assess gingiva status. Studies show that gingival bleeding is higher in women than men and female dental students have a higher awareness of their gingiva health. Chronic cigarette smokers may experience reduced gingival bleeding on probing but may also have destructed gingiva and bleeding.

Clinical Attachment Loss (CAL) measures the distance between the cementum-enamel junction and the free gingival margin. Periodontitis is a chronic inflammatory disease associated with dental plaque, characterized by tooth loss, masticatory function, esthetics, social problems, and impaired quality of life. Smoking is a significant risk factor for CAL, as it increases the destruction of periodontium and bone resorption. Aging is a strong relationship between periodontal disease and higher levels of clinical attachment loss observed in elderly individuals. Gender also plays a role in periodontitis, with males being at a higher risk than females. About 30% of people in the United States are affected by periodontitis.

Plaque, a yellow-grayish film, accumulates on teeth due to poor oral hygiene and improper brushing techniques. Children from lower classes have worse oral hygiene, gingival status, and dental caries compared to those in the upper class.

Socioeconomic factors, dietary habits, gender, and dental health practices contribute to the progression of dental diseases. Research in India found less plaque accumulation on anterior teeth than on posterior teeth, particularly on the lingual surface of the molar region. Cigarette smokers have a lower oral hygiene index and are more susceptible to higher plaque index and periodontal diseases. The O'Leary method is used in clinical practice to record patient plaque scores. Vape users have an increased likelihood of diagnosing periodontal disease, but the relationship between vaping and periodontal diseases is ongoing. A healthy mouth promotes overall health, and factors such as poor oral hygiene, systemic diseases, age, pregnancy, and stress levels must be considered.

Cigarette smoking is a global issue, with ten Filipinos dying every hour due to it (GATS, 2015). The Centers for Disease Control and Prevention has found that cigarette smoking has fallen to its lowest recorded rate in written history (CDC, 2018). However, despite efforts to reduce smoking, a significant number of people continue to use tobacco products. Among the negative effects are oral health issues such as tooth discoloration, dental caries, bad breath, taste and smell diseases, poor wound healing, plaque accumulation, gum disease, and oral cancer. The rise of vaping among youth is also a growing concern, as exposure to nicotine during youth can cause fixation and long-term mental health issues. This paper aims to evaluate and compare the periodontal status of vape users, conventional cigarette smokers, and non-smokers in the Philippines.

Methodology

Research Design

The study utilized descriptive and comparative research designs to analyze the periodontal status of vape users, cigarette smokers, and nonsmokers. The data collected provided reliable evidence for determining significant relationships, but larger sample sizes were needed for more objective results.

Population and Sampling Techniques

The population of the study was composed of males aged 18-35 years who were patients at the Periodontal Department of the Adventist University College of Dentistry clinic of the university and a Private Clinic in Tayabas Quezon. Using purposive sampling, 45 participants participated in the study: 15 vape users, 15 smokers, and 15 non-smokers.

Instrumentation

The researchers followed standard operating procedures, including sterilizing equipment, handwashing, and using protective gear. They ensured proper handling of patients and avoided cross-contamination of bodily fluids. Patients were required to fill out screening forms and were advised to contact a medical provider if they had a fever due to respiratory disease. After passing qualifications, a mouth examination was performed using electronic scalers to control fluid. A comprehensive periodontal examination was performed, and parameters such as sulcular bleeding index, clinical attachment loss, and plaque index were recorded. The O'Leary plaque control record was used to measure plaque presence, and the score was determined by the total number of stained tooth surfaces divided by the total number of all present tooth surfaces. The sulcus bleeding index was measured using a periodontal probe, and the clinical attachment loss (CAL) was estimated using a PCP UNC 15 periodontal probe. Patients with severe calcar deposits were pre-scaled and recalled after two weeks for proper periodontal evaluation. The researchers aimed to minimize interexaminer variation and ensure the safety and well-being of patients.

Data Analysis

Students T-test (two-tailed, independent) was utilized to determine the significance of the study's parameters between smokers, vape users, and non-smokers. ANOVA and Turkey posthoc tests were also employed to find the significant association between sulcular bleeding index, clinical attachment loss, and plaque index. The data were analyzed with the statistical software SPSS 22.0, and graphs, tables, and other graphics were generated with Microsoft Word and Excel.

Ethical Considerations

To ensure that the research has undergone a standard ethical protocol, Questionnaires, and a mouth examination chart were submitted for approval.

Results and Discussion

Sulcular Bleeding Index of the Vape Users

Table 1 presents the sulcular bleeding index of vape users. The result shows that the sulcular bleeding index of the fifteen (n=15) vape users having the mean rating of ($M = 0.867 \pm 8.34$) with ($SD = 0.834$) and ($SE = 0.215$) is interpreted as *mild*. It implies that there is only pinpoint bleeding on some examination sites during evaluating the teeth's sulcus.

A recent study by Figueredo (2021) and his colleagues found that vape users exhibit low sulcular bleeding. A vape has a nicotine content. It may constrict blood vessels, contributing to a patient's low sulcular bleeding index (Benowitz et al., 2016).

Table 1

Sulcular Bleeding Index of the Vape Users

	Classification	N	Mean	SD	SE	Verbal Interpretation
Sulcular Bleeding Index	Vape User	15	0.867	0.834	0.215	Mild

Clinical Attachment Loss of the Vape Users

Table 2 presents the clinical attachment loss of vape users. The result shows that the clinical attachment loss of fifteen ($n=15$) vape users having the mean rating of ($M = 2.800$) with ($SD = 1.821$) and ($SE = 0.470$) is interpreted as moderate. This result implies a progression of periodontal disease.

Papapanou (2018) stated that clinical attachment loss is a primary feature of periodontal disease. The result of this study coincides with the result of research made by Figueredo (2021) that vape users commonly have an increased value of clinical attachment loss.

Table 2

Clinical Attachment Loss of the Vape Users

	Classification	N	Mean	SD	SE	Verbal Interpretation
Clinical Attachment Loss	Vape User	15	2.800	1.821	0.470	Moderate

Plaque Index of the Vape Users

This table presents the plaque index of the vape users. The result shows that the plaque index of fifteen ($n=15$) vape users having the mean rating of ($M = 88.200 \pm 15.970$) with ($SD = 15.970$) and ($SE = 4.123$) is interpreted as very high. It means that there is a great amount of biofilm of microorganisms that grow on the surfaces of the teeth. The plaque index assesses oral hygiene. Thus, a high plaque index can be associated with poor oral hygiene.

Table 3

Plaque Index of the Vape Users

	Classification	N	Mean	SD	SE	Verbal Interpretation
Plaque Index	Vape User	15	88.200	15.970	4.123	Very High

Sulcular Bleeding Index of the Cigarette Smokers

Table 4 presents the Sulcular Bleeding Index of Conventional Cigarette Smokers. The result shows that the Sulcular Bleeding Index of fifteen ($n=15$) conventional cigarette smokers having a mean rating of ($M = 1.400$) with ($SD = \pm 0.737$) and ($SE = 0.190$) is mild. It indicates that there is only pinpoint bleeding on the examined sulcular sites.

Cigarette smoking can significantly reduce the bleeding index. Bleeding on probing was less noticeable in conventional cigarette smokers; it indicates a negative impact on gingival blood vessels (Maddipati et al., 2012).

Table 4

Sulcular Bleeding Index of the Cigarette Smokers

	Classification	N	Mean	SD	SE	Verbal Interpretation
Sulcular Bleeding Index	Conventional Cigarette Smoker	15	1,400	0.737	0.190	Mild

Clinical Attachment Loss of the Cigarette Smokers

Table 5 presents Clinical Attachment Loss of the Conventional Cigarette Smokers. The result shows that the Clinical Attachment loss of fifteen ($n=15$) conventional cigarette smokers having the mean rating of ($M = 3.533$) with ($SD = \pm 2.167$) and ($SE = 0.559$) is interpreted as *moderate*. It means that periodontal disease or gum disease is progressing to affect the tissues that surround the teeth.

Several studies proved that the chemicals in cigarette smoking play a role in the destruction of clinical attachment loss (Katz et al., 2005). Smokers have been linked to increased attachment loss and deeper pockets, and this rise as smoking years increase (Mohammed et al., 2015).

Table 5

Clinical Attachment Loss of the Cigarette Smokers

	Classification	N	Mean	SD	SE	Verbal Interpretation
Sulcular Bleeding Index	Conventional Cigarette Smoker	15	1,400	0.737	0.190	Mild

Plaque Index of Cigarette Smokers

Table 6 presents the plaque index of cigarette smokers. The result shows that the Plaque index of fifteen ($n=15$) conventional cigarette smokers having the mean rating of ($M = 89.133$) with ($SD = \pm 12.856$) is interpreted as very high. It indicates that the respondent's teeth are abundantly covered with a sticky, slimy substance, mostly of the germs that cause tooth decay.

Studies show that smokers have increased plaque and calculus index. The effect of smoking on host response provides a negative impact on the plaque index of a cigarette smoker because smoking may provide an environment for some of the opportunistic pathogens that can contribute to periodontal disease development (Maddipati et al., 2012).

Table 6

Plaque Index of the Cigarette Smokers

	Classification	N	Mean	SD	SE	Verbal Interpretation
Plaque Index	Conventional Cigarette Smoker	15	89.133	12.856	3.319	Very high

Sulcular Bleeding Index of Nonsmokers

Table 7 presents the sulcular bleeding index of non-smokers. The result shows that the sulcular bleeding index of fifteen ($n=15$) non-smokers having the mean rating of ($M = 1.200 \pm 0.676$) with ($SD = 0.676$) and ($SE = 0.175$) is interpreted as mild. It implies that there is only pinpoint bleeding on some examination sites during evaluating the teeth's sulcus.

The sulcular bleeding index is one of the indicators of periodontal status (Bessa, 2011). Bleeding occurs due to inflammation of the gingival tissues, which ulcerates easily when probed (Rathee & Jain, 2020).

Table 7*Sulcular Bleeding Index of the Nonsmokers*

	Classification	N	Mean	SD	SE	Verbal Interpretation
Sulcular Bleeding Index	Nonsmokers	15	1.200	0.676	0.175	Mild

Clinical Attachment Loss of the Nonsmokers

This table presents the clinical attachment loss of nonsmokers. The result shows that the clinical attachment loss of fifteen ($n=15$) nonsmokers with a mean rating of ($M = 1.200$) with ($SD = 1.082$) and $SE = 0.279$ is interpreted as mild. It indicates that there is only a minimal loss in the attachment apparatus of the tooth from the gingiva.

A study in Korea revealed that males have an increased clinical attachment compared to females. It also mentioned that smoking, blood pressure, and blood glucose may contribute to increased clinical attachment loss (Rheu et al., 2011).

Table 8*Clinical Attachment Loss of the Nonsmokers*

	Classification	N	Mean	SD	SE	Verbal Interpretation
Clinical Attachment Loss	Nonsmokers	15	1.200	1.082	0.279	Mild

Plaque Index of the Nonsmokers

This table presents the plaque index of nonsmokers. The result shows that the plaque index of fifteen ($n=15$) nonsmokers having the mean rating of ($M = 89.200$) with the ($SD = 9.578$) and ($SE = 2.473$) is interpreted as very high. It indicates that the respondents have a lot of bacteria that leave a constantly-forming, sticky film on teeth.

Based on the most recent study by Szymanik et al. (2022), people during the COVID-19 pandemic feared going to the dentist because they feared contracting the virus. This is one of the factors related to the high plaque index of patients.

Table 9*Plaque Index of the Nonsmokers*

	Classification	N	Mean	SD	SE	Verbal Interpretation
Plaque Index	Nonsmokers	15	89.200	9.578	2.473	Very High

The difference in the Sulcular Bleeding Index of the Respondents when Grouped According to Vaper Users, Conventional Cigarette Smokers, and Non-smokers.

Table 10

Comparison of Sulcular Bleeding Index of the Vape Users, Cigarette Smokers and Nonsmokers. One-way ANOVA (Welch's)

	F	df1	df2	p
Sulcular Bleeding Index	1.6937	2	27.8	0.202

*Significant at <0.05 level of significance

The ANOVA test revealed that there is no significant difference in the sulcular bleeding index of the vape users, conventional cigarette smokers, and nonsmokers. (Sig = 0.202).

According to Pesce and his co-researchers, vape users and cigarette smokers have poorer results in bleeding on probing than people who do not smoke. Figueredo et al. (2020) also stated that it is due to the nicotine content in vape and tobacco can lead to tissue ischemia and decreased blood flow due to its vasoconstrictor effect on blood vessels, resulting in a negative impact on the circulation of blood in the gingiva.

Table 11

Comparison of Clinical Attachment Loss of the Vape Users, Cigarette Smokers and Nonsmokers. One-way ANOVA (Welch's)

	F	df1	df2	p
Clinical Attachment Loss	1.6937	2	27.8	0.202

*Significant at <0.05 level of significance

The ANOVA test revealed that there is a significant difference in the sulcular bleeding index of vape users, conventional cigarette smokers, and nonsmokers. (Sig = 0.001)

A Tukey Post-Hoc Test sustained a significant difference in the clinical attachment loss of cigarette smokers, vape users, and non-smokers. The test comparing cigarette smokers and non-smokers garnered a p-value of 0.002. The comparison of cigarette smokers and vape users had a p-value

of 0.490, while the comparison of non-smokers and vape users had a p-value of 0.042. The test results indicate that there is a significant difference between the clinical attachment loss of vape users, cigarette smokers, and nonsmokers. The result denotes that cigarette smoking and vape use have an adverse on the clinical attachment.

Table 12

Tukey Post-Hoc Test – Clinical Attachment Loss of the Vape Users, Cigarette Smokers, and Nonsmokers

		Cigarette Smoker	Non-smoker	Vape User
Cigarette Smoker	Mean difference	—	2.33	0.733
	p-value	—	0.002	0.490
Non-smokers	Mean difference		—	-1.600
	p-value		—	0.042
Vape User	Mean difference			—
	p-value			—

A study conducted by Figueredo et. Al (2020) revealed the same result in this study, wherein cigarette smokers have been shown to have increased levels of clinical attachment loss.

Despite all the proven studies that smoking can adversely influence the periodontal tissues, there is still little evidence about the effect of vaping. In some studies, Vaping has also been revealed to produce unwanted effects on periodontal ligament; its aerosol can lead to protein matrix and DNA damage (Javed et al., 2017).

Table 13

Comparison of Plaque Index of the Vape Users, Cigarette Smokers and Non-smokers. One-Way ANOVA (Welch's)

	F	df1	df2	p
Plaque Index	1.6937	2	27.8	0.202

*Significant at <0.05 level of significance

The ANOVA test revealed no significant difference in the plaque index between vape users, conventional cigarette smokers, and non-smokers. The (Sig = 0.978).

In a study by Figueredo (2020), the plaque index shows that non-smokers have the least plaque accumulation. A few pieces of literature also reported lower plaque levels in smokers than nonsmokers. At the same time, other studies showed that the plaque index between smokers and non-smokers is almost the same and reported to have no significant difference. The greater rate of plaque and accumulation of plaque and calcaral deposits is believed to be related to their careless approach to dental hygiene.

Conclusion and Recommendation

Results, therefore, suggest that using vaping or cigarette smoking can affect the person's clinical attachment loss. Future studies may investigate how dental health education is given to vape users and cigarette smokers. The study may also be expanded to examine other oral structures.

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Family-Work Conflict and Technostress Among Telecommuting University Faculty

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The current COVID-19 pandemic has forced the faculty and staff of universities to adapt a work-from-home environment in which stressors such as family-work conflict and pressure to learn new technologies are present. Despite the undeniable existence of technostress, only a few studies have focused on the stress levels of telecommuting university faculty and relevant factors. Hence, this study aimed to investigate the relationship between family-work conflict and technostress among telecommuting university faculty during a certain period. This cross-sectional descriptive correlational study purposively sampled 125 employees of a private university in the school year 2020–2021 who were telecommuting for at least 6 months. Respondents answered an online survey questionnaire composed of 3 parts: the demographic profile, the family-work conflict scale, and the technostress scale. Results revealed that the respondents have moderate levels of family-work conflict and technostress. Although there were no significant differences in the technostress of the respondents considering age, sex, and the presence of a dependent child, Spearman Rank correlation revealed a significant moderate positive correlation between family-work conflict and technostress. Because of the positive association between the variables, a reduction in family-work conflict is associated with a decrease in technostress. Hence, it is recommended that ways to reduce family-work conflict and technostress be explored through a thematic review of the literature and qualitative study. Moreover, a regression analysis with a wider inclusion criteria in the sampling method should be conducted for future studies to determine the direction and causal relationship between the variables.

Keywords: *work-from-home, telecommuting, family-work conflict, university professor, online teaching*

The phenomenon of work-from-home during the COVID-19 pandemic has manifested its effects in all sectors, from IT to teaching (Shahid & Shareena, 2020). Working at home can be more stressful than working at the office (Russell, 2019). According to Dragano and Lunau (2020), the usage of digital technology is linked to particular psychosocial demands (e.g., increased workload, difficulty, and disputes between work and other life domains), as well as the resulting psychobiological stress reactions. Technostress occurs if the technology user cannot monitor his or her mobile technology, which may lead to information and communication overload (Boonjing & Chanvarasuth, 2017).

During the pandemic, a study found that average perceived stress increased for all participants, including female employees, but significantly increased for workers who did not have the flexibility to work from home before the pandemic (Hayes et al., 2020). Employees experiencing stress have lower job satisfaction and motivational levels, resulting in unwanted behavior such as absenteeism, mistakes at work, violence at work, and physical and psychological health issues (Anandasayanan & Subramaniam, 2013). In a qualitative study conducted by Kidd and Murray (2020), the intensification of workload due to the transition to online platforms, reorganization of domestic space and routines, and the need to be digitally present to colleagues and students for longer periods may negatively impact work-life balance. Similarly, teacher organizations in the Philippines complain that teachers' workload impacts their professional well-being (Ancho & Bongco, 2019). Moreover, the need to care for a dependent child may bring additional stress for work-from-home employees (Ballard, 2020).

Telecommuting has been a trend during the COVID-19 pandemic, and many employees who usually work in the office are forced to work from home as a precaution to flatten the curve of cases. As a result, employees are exposed to adjustments related to the use of technology to

telecommute. The literature seems consistent that telecommuting employees are at risk of experiencing stress related to utilizing technology. However, only a few studies have explored the stress levels of telecommuting university faculty and its relationship to technostress. This study aimed to determine the relationships between these variables and how gender, childcare, family life conflict, and stress among the respondents affect these relationships.

Methodology

Research Design

This study utilized a cross-sectional descriptive-correlational study. A cross-sectional study is a research design that allows the researcher to simultaneously measure the outcomes and exposure of the study participants, which is commonly used in population-based surveys (Setia, 2016).

Population and Sampling Techniques

This study utilized purposive sampling techniques. The population of this study included 125 faculty in private universities who have been working remotely for at least 6 months in the 2020-2021 academic year.

Instrumentation

The instrument consisted of three parts. The first part collects the demographic profile, including age, sex, civil status, and number of children. The second and third part is the family-work conflict and technostress scale.

The instrument was adapted from Tarafdar et al. (2011). The questionnaire was initially developed to assess how stressed the employees are regarding technology. It is composed of 23 items, and each item will be assessed using a 5-point Likert scale where a score of 1 is denoted as "Strongly Disagree," 2 as "Disagree," 3 as "Neutral," 4 as "Agree," and 5 as "Strongly Agree." The instrument was modified and adapted from Carlson et al., 2000 with an

average Cronbach alpha score of .946, interpreted as excellent internal consistency. The questionnaire was developed to assess the stress and perceptions of the employees regarding the conflict between the responsibilities at work and, at the same time, in their respective families. The questionnaire comprises 18 items. The reliability level of each dimension: Time-based Work Interference with Family = .87; Time-based Family Interference with Work = .79; Strain-based Work Interferes with Family = .85; Strain-based Family Interference with Work = .87; Behavior-based Work Interference with Family = .78 Behavior-based Family Interference with Work = .85 (Carlson et al., 2000). This indicates that the data's level exceeds the reliability level that was recommended by Nunnally (1978), which is .70. The verbal interpretation of the statistical results will be using 5 ranges where a mean score of 4.5-5 is interpreted as "very high" work-life conflict, 3.5-4.49 as "high," 2.5-3.49 as "moderate," 1.5-2.49 as "low," and 1-1.49 as "very low."

Table 1*Family-Work Conflict Stress Level Scale*

Response Scale	Degree of Responses	Mean Interval	Qualitative Descriptor
1	Strongly Disagree	1.0-1.49	Very Low
2	Disagree	1.5-2.49	Low
3	Neutral	2.5-3.49	Moderate
4	Agree	3.5-4.49	High
5	Strongly Agree	4.5-5.00	Very High

Technostress Scale

The researchers adapted the questionnaire was validated by different experts to determine the appropriateness of the scale to the respondent and the study's objective. Permission from the developer was obtained to adapt and modify the questionnaire. According to Chen (2015), the internal reliability of the measurement model was assessed by computing the composite reliability. The reliability scores of each dimension are Techno-

Overload = 0.908; Techno-Invasion = 0.927; Techno-Insecurity = 0.848; Techno-Uncertainty = 0.924 with an Overall alpha Cronbach of 0.938 meaning that the instrument will produce similar results when the same population sample re-takes the survey under similar conditions. The instrument was found both valid and reliable in the context of the technostress of employees. The verbal interpretation of the statistical results will be using 5 ranges where a mean score of 4.5-5 is interpreted as "very high" technostress, 3.5-4.49 as "high," 2.5-3.49 as "moderate," 1.5-2.49 as "low," and 1-1.49 as "very low."

All the items were rephrased in the questionnaire except items 1-6, 11, and 18-26 based on the recommendation during the expert's validation. Items 7, 8, 10, 15, 16, and 27 are added to the questionnaire.

Table 2*Technostress Level Scale*

Response Scale	Degree of Responses	Mean Interval	Qualitative Descriptor
1	Strongly Disagree	1.0-1.49	Very Low
2	Disagree	1.5-2.49	Low
3	Neutral	2.5-3.49	Moderate
4	Agree	3.5-4.49	High
5	Strongly Agree	4.5-5.00	Very High

Data Analysis

Descriptive statistics using mean and standard deviations were utilized to answer questions one and two. A Shapiro-Wilk test showed that the independent variable (Family-work conflict) is not normally distributed, $W(125) = 0.98$, $p = 0.035$, while the dependent variable (technostress) is normally distributed, $W(125) = 0.99$, $p = 0.95$. This violates the assumption of Pearson correlation; hence, a non-parametric test, Spearman rank, was used in analyzing the correlation between family-work-life conflict and technostress. On the other hand, Mann Whitney U test was used to analyze

gender [$W(125) = 0.63$; $p < 0.01$] and dependent children [$W(125) = 0.71$, $p < 0.01$] because both variables are not normally distributed hence a non-parametric statistic was utilized. Lastly, the Kruskal Wallis test was used to analyze the age group [$W(125) = 0.83$; $p < 0.01$] due to non-normal data.

Ethical Consideration

The study secured the approval of the research ethics committee before collecting the data. Informed consent from each participant ensured the voluntary involvement of each respondent. The board had the right to accept or withdraw from participating in the study. Before data collection, the study's purpose and nature were discussed with the participants. Informed consent was given to all respondents, meaning the collected data was kept confidential, specifically by removing respondents' names. Confidentiality was upheld when handling the collected data. Access to the digital copies of the data was restricted to the researchers, research advisors, statisticians, and the university's research department. At the completion of the study, all digital records and copies were erased from all services and devices.

Results and Discussion

Extent of Family-work life conflict

Table 3 presents the extent of perceived family-work-life conflict among respondents. The result showed that family-work life conflict had an overall mean score of 2.73 (SD = 0.82), interpreted as Moderate. Table 3 showed that the item "The time I must devote to my job keeps me from participating equally in household responsibilities" had the highest mean score of 3.27 (SD = 1.15). The second highest mean was "I have to miss family activities due to the amount of time I must spend on work responsibilities," with a mean score of 2.98 (SD = 1.15). The third highest statement was "Due to all the pressures at work, sometimes I cannot enjoy family time," with a mean score of 2.91 (SD = 1.19).

The item "Because I am stressed from family responsibilities, I have a hard time concentrating on my work" had the lowest mean score of 2.36 (SD = .97), which is interpreted as low. The second to the lowest item was, "Tension from my family life often weakens my ability to do my job," with a mean score of 2.39 (SD = 1.03). The item that ranks third to the lowest mean was "The time I spend with my family causes me not to spend time in activities at work that could be helpful to my career with a mean score of 2.50 (SD = 1.09) interpreted as moderate.

Table 3

Extent of Respondent's Family-Work Life Conflict

	Mean	Std. Deviation	Scale Response	Interpretation
2. The time I must devote to my job keeps me from participating equally in household responsibilities.	3.27	1.15	Neutral	Moderate
3. I have to miss family activities due to the amount of time I must spend on work responsibilities.	2.98	1.15	Neutral	Moderate
9. Due to all the pressures at work, sometimes I cannot enjoy family time.	2.91	1.19	Neutral	Moderate
7. After working, I am too exhausted to participate in family activities/responsibilities.	2.90	1.14	Neutral	Moderate
1. My work keeps me away from my family activities.	2.86	1.11	Neutral	Moderate

[table continues on the next page]

6. My responsibilities at work inhibit me from performing family activities.	2.73	1.15	Neutral	Moderate
4. The time I spend on my family responsibilities interferes with my work responsibilities.	2.67	1.10	Neutral	Moderate
8. I am so emotionally drained after working that it prevents me from taking care of my family.	2.58	1.15	Neutral	Moderate
10. Due to personal stress, I am preoccupied with family matters while working at home.	2.58	1.06	Neutral	Moderate
5. The time I spend with my family causes me not to spend time on activities at work that could be helpful to my career.	2.50	1.06	Neutral	Moderate
12. Tension from my family life often weakens my ability to do my job.	2.39	1.03	Disagree	Low
11. Because I am stressed from family responsibilities, I have a hard time concentrating on my work.	2.36	.97	Disagree	Low
Family-Work Life Conflict	2.73	0.82	Neutral	Moderate

Legend: 4.50-5.00 strongly agree (very high), 3.50-4.49 agree (high), 2.50-3.49 neutral (Moderate), 1.50- 2.49 disagree (low), 1.00-1.49 strongly disagree (very low).

Role duties for family and work are unavoidable, and these roles result in time conflict, strain conflict, and behavioral conflict (work-family conflict), with mutual reconciliation between the work and family domains remaining a struggle (Dizaho et al., 2016). Work schedules have also been examined as potential stressors. For instance, low-income mothers of preschoolers who worked nonstandard schedules reported higher levels of parenting stress (Wang et al., 2011). The article by Voydanoff (2004) states that work expectations are assumed to be involved in work-family conflict by hindering the performance of family tasks and duties or reducing the resources needed for family engagement.

A study by Lapierre and Allen (2006) concludes that someone working from home may have more trouble letting go of work duties or family commitments. In other studies, the result is contradictory to this study's findings. It says that while WFH may provide women with the flexibility to combine work and family commitments, it may also weaken employee's presence and attachment to the workplace, possibly detrimental to career progression (Hupkau & Petrongolo, 2020). While

the later literature states that WFH has a negative impact on work, the findings show that for this population, the respondents are more likely to compromise family time for work matters.

Level of Technostress

Table 4 presents the means, standard deviation, and corresponding interpretation of each item that measures respondents' technostress level. Table 4 shows that this study's respondents have moderate stress regarding technology ($M = 3.05$; $SD = 0.67$). In this table, the items that got the highest score pertain to having more workload due to the technology that falls under Techno-Overload and having more impact on their personal life, which is under Techno Invasion, are item number 6. "I have to be in touch with my work even during my vacation due to this technology." which loaded a mean and standard deviation of 3.84 (1.07) with an interpretation of 'High'; item number 4. "I am forced to change my work habits to adapt to new technologies." which loaded a mean of 3.61 and SD of 1.05 with an interpretation of 'High' and item number 2. "I am forced by this technology to do more

work than I can handle.” with a mean of 3.34 and an SD of 1.10 with an interpretation of ‘Moderate.’ The results of the top 3 items that received the highest score explain that most respondents experienced more stress when forced to do more work and adapt due to the technology (Tarafdar et al., 2011). Furthermore, the items that loaded with the lowest mean score are item numbers that the respondents seem to experience less stress in situations where the respondents feel threatened about losing their jobs to other people who have a better understanding of the technology (Tarafdar

et al., 2011) which falls under Techno-Insecurity are; 15. “I do not share my knowledge with my coworkers for fear of being replaced,” which loaded a mean of 1.78 and SD of .90 with an interpretation of ‘Low’; item number 16. “I feel there is less sharing of knowledge among co-workers for fear of being replaced.” with a mean of 1.94 and SD of .94 with an interpretation of ‘Low’ and item number 14. “I am threatened by co-workers with newer technology skills.” with a mean of 2.39 and SD of 1.04. which received an interpretation of ‘Low.’

Table 4

Level of Technostress Among Telecommuting University Faculty

	Mean	Std. Deviation	Scale Response	Interpretation
6. I have to be in touch with my work even during my vacation due to this technology.	3.84	1.07	Agree	High
4. I am forced to change my work habits to adapt to new technologies.	3.61	1.05	Agree	High
2. I am forced by this technology to do more work than I can handle.	3.34	1.10	Neutral	Moderate
17. There are constant changes in computer software in our organization.	3.34	.95	Neutral	Moderate
1. I am forced by this technology to work much faster.	3.31	1.12	Neutral	Moderate
11. I find new employees to this organization know more about computer technology than I do.	3.30	1.12	Neutral	Moderate
3. I am forced by this technology to work with very tight time schedules.	3.25	1.12	Neutral	Moderate
9. I feel my personal life is being invaded by this information communication technology I am using at work.	3.25	1.11	Neutral	Moderate
19. There are frequent upgrades in computer networks in our organization.	3.22	1.05	Neutral	Moderate
5. I have a higher workload because of increased technology complexity.	3.21	1.15	Neutral	Moderate
7. I have to sacrifice my weekend time to keep current on new technologies.	3.18	1.19	Neutral	Moderate

[table continues on the next page]

8. I have to sacrifice my vacation time to keep up with new technologies.	3.17	1.17	Neutral	Moderate
13. I have to constantly update my technology skills to avoid being replaced.	3.17	1.23	Neutral	Moderate
18. There are constant changes in computer hardware in our organization.	3.03	1.08	Neutral	Moderate
10. I spend less time with my family due to this information and communication technology I am using for work purposes.	2.98	1.07	Neutral	Moderate
12. I feel a constant threat to my job security due to new technologies.	2.57	1.10	Neutral	Moderate
14. I am threatened by co-workers with newer technology skills.	2.39	1.04	Disagree	Low
16. I feel there is less sharing of knowledge among co-workers for fear of being replaced.	1.94	.94	Disagree	Low
15. I do not share my knowledge with my coworkers for fear of being replaced.	1.78	.90	Disagree	Low
Technostress	3.05	0.67	Neutral	Moderate

Legend: 4.50-5.00 strongly agree (very high), 3.50-4.49 agree (high), 2.50-3.49 neutral (moderate), 1.50-2.49 disagree (low), 1.00-1.49 strongly disagree (very low).

The concept of using modern technologies in classroom teaching is not new. While technology adoption in classrooms can improve teaching and learning, it is not confined to electronic devices. However, electronic gadgets are the focus here and have a link to performance. Despite this, technology is constantly changing, and when it improves and adds more features and functionality, some children may be able to use it more effectively than what is available at school. It is possible that teachers do not have the tools or assistance they need to adapt to modern technology, putting their efficacy at risk (Liu, 2019), according to (Borle et al., 2021). Techno-overload and techno-invasion have received the most attention to date. In the results, the sub-dimension with the highest mean of 3.84 is the Techno-invasion, which describes where professionals can potentially be reached anywhere and anytime and constantly feel the need to be connected due to work. The regular workday/ hours extend into family days/hours, including

vacations, which invades an employee's personal time. At the same time, due to this continuous demand for connection and updates, individuals feel shackled to these technologies and experience an invasion of their time and space. Hence, they experience frustration and stress (Tarafdar et al., 2011). Next to techno-invasion is techno-overload, which received the second and third highest mean of 3.61 and 3.34, respectively. Techno-overload is when employees receive information from multiple channels simultaneously that is difficult to manage, as it may be unclear how to prioritize or utilize the information received, which forces the workers to process more information and simply do more tasks in a limited time frame (Brivio et al., 2018). One of the theories the researchers used as a framework is the Person-environment fit theory, which confirms that the environment affects a person's well-being (Holmbeck et al., 2008). The work that represents the environment affects the individual's family time. Technostress

is usually regarded as a modern disease of adaptation, which is caused by an inability to cope with new computer technologies, affecting mental health in ways such as a struggle to accept or over-identify with them (Bondanini et al., 2020). Brod (1984) defined it as an event that occurs due to a constant interaction between a person and the environment. (Martínez-Córcoles et al., 2017) verbalized that technology may challenge our established behavior patterns and practices that make us adapt to our environment, resulting in adverse emotional reactions such as stress and anxiety.

One communication measure to reduce techno-invasion includes a clear separation of private and business devices and deactivating online access to business devices within specific periods after work. On the other hand, to reduce techno-overload, decrease the number of emails forwarded or exchanged among groups without a need. In addition, if people engage informally, introducing workplace social networks can help minimize e-mail traffic and communication efforts (Pflügner et al., 2020).

Family-work Conflict and Technostress

Table 5 shows that a moderate ($r=.65$) positive correlation ($p<.01$) exists between Family-Work Conflict and Technostress (Schober et al., 2018). Thus, the null hypothesis, which stated no significant relationship exists between conflict and technostress among university faculty, is rejected. Schober et al. (2018) say that correlation measures a monotonic association between 2 variables. A monotonic relationship between 2 variables is one in which either (1), as the value of 1 variable increases, so does the value of the other variable.

Table 5

Relationship between Family-work Conflict and Technostress

Family-Work Conflict	Technostress	
	Spearman's rho	.65**
	p-value	.000
	N	125

Legend: ** significant $<: 0.01$ level

According to the study of Ringlea et al. (2021), stress generated by the overload and invasion of Information and Communications Technology (ICT) in his study had a significant positive effect on work-family conflict. Employees who faced a high level of technostress due to exposure to ICTs to perform their work tasks reported a high level of work-family conflict. The data implies that as work-life conflict increases, the level of technostress among respondents also increases. According to Ahmadi & Sadeghi (2017), the Neuman systems model is based on a broad system theory and depicts the nature of living creatures as open systems in constant interaction with one another and their surroundings. The client can be an individual, a family, a group, a community, or a social organization in the model. One of the theory's key assumptions is that each client has unique features and characteristics within a specific range of responses. The psychological variable refers to mental processes in interaction with the environment, implying that family-work conflict is an external factor.

The Level of Respondent's Technostress Considering Sex

Table 6 illustrates that using the Mann-Whitney test revealed no significant difference in the stress levels between males ($Mdn = 60.73$) and females ($Mdn = 64.73$), $U = 1794$, $p = 0.54$. Thus, the null hypothesis is accepted, which stated that there was no significant difference between male and female respondents in their technostress levels.

Table 6

Differences in Technostress of the Respondents Considering Sex

	Gender	N	Mean Rank	z	p-value	Interpretation
Technostress	Male	54	60.73	-6.11	0.54	Not significant
	Female	71	64.73			
	Total	125				

Similar to the study conducted by Soumya (2021), the findings claimed that irrespective of gender, both males and females are affected by techno-overload and techno-invasion. However, some studies explain the difference between males and females in their technostress levels. According to a study conducted by Estrada Muñoz et al. in terms of gender, male teachers showed a higher incidence of techno-stress than their female peers. It was interesting to note that male teachers were more techno-anxious than their female co-workers.

The Level of Respondent's Technostress Considering the Presence of Dependent Child

Table 7 shows no significant difference in the stress levels between respondents without a dependent (Mdn = 64.21) and respondents with dependents (Mdn = 61.12), $U = 1770$, $p = 0.64$. Thus, the null hypothesis, which stated that there was no significant difference between without dependent and with dependent respondents in their technostress levels, is accepted.

Table 7

Differences in Technostress of the Respondents Considering the Presence of Dependent Child

	Gender	N	Mean Rank	z	p-value	Interpretation
Technostress	Without	76	64.21	-0.47	0.64	Not significant
	With	49	61.12			
	Total	125				

The findings are inconsistent with the study conducted by Broos (2005), which showed that females had significant levels of technostress, which could be attributable to the fact that they have to care for their children and families while working from home during the lockdown, adding to their load. The result showed that both faculty with or without dependent children to take care of have similar technostress levels.

The Level of Respondent's Technostress Considering Age

Table 8

Differences in Technostress of the Respondents Considering Age

	Gender	N	Mean Rank	z	p-value	Interpretation
Technostress	23-24	5	90.90	3.38	0.34	Not significant
	25-40	39	61.41			
	41-56	68	62.96			
	57-62	13	57.23			
	Total	125				

Kruskal Wallis test revealed that there was no significant difference among age groups in terms of their level of technostress ($H(3) = 3.38$, $p = 0.34$), with a mean rank of 90.90 for 23-24 years old, $Mdn = 61.41$ for 25-40 years old, $Mdn = 62.96$ for 41-56 years old, and $Mdn = 57.23$ for 57- 62 years old. The relationship between age and technostress aligns with the hypothesis because the results show no significance. Berg-Beckhoff (2017) mentioned in his study that even though different outcome measurements for stress or burnout and exposure to several forms of ICT use were considered, older employees were not shown to be experiencing more stress or burnout when using ICT.

Conclusion and Recommendations

Where findings showed that the respondents showed a moderate overall family-work conflict and a moderate overall technostress during the data collection, the respondents may have noticeably experienced work-to-family spillover that may result in employees being unable to fulfill family duties over work-related tasks and activities. Moreover, the sources of technostress among respondents are techno overload and techno invasion, which reasonably affect the faculty's personal life and require extra time and effort to complete the task. Although there is no significant difference in the age group, sex, and presence of dependent child considering technostress, it was found that a moderate positive correlation exists between family-work conflict and technostress. This means an increase in family-work conflict is also associated with an increase in the levels of technostress among telecommuting faculty. Hence, exploring ways to reduce family-work conflict and technostress is recommended through a thematic review of the literature and qualitative study. Moreover, a regression analysis with a purposive-random sampling method should be conducted for future studies to determine the direction and causal relationship between the variables.

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Lived Experiences of Adult Clients Accessing Telehealth in the New Normal

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The COVID-19 pandemic prompted changes in healthcare delivery. The utilization of technology to provide healthcare services from a distance is viewed as a significant approach to addressing the continuous rise in healthcare demands. Telehealth is seen as a major strategy to address those healthcare needs; hence, its progress and innovation continuously increase exponentially. The purpose of this study is to explore the lived experiences of adults accessing telehealth during the COVID-19 pandemic. The study utilized a phenomenological qualitative research design. Data was collected by conducting a semi-structured online interview until saturation was achieved. The researchers used Braun and Clarke's (2006) thematic analysis in analyzing the gathered data. Two themes and nine subthemes were extracted from the online interviews of the six informants. The results of this study identified the limitations of telehealth, which include: the informants' *inclination towards face-to-face consultation, internet connection problems, the inadequacy of assessments* done by healthcare providers, *challenges in communication*, and *schedule conflicts*. It also revealed the *convenience* experienced by the informants since telehealth *reduced travel burdens and expenses*, allowed them to enjoy the comfort of staying at home, and provided flexibility in schedule and *support for primary care and chronic conditions*. By exploring these experiences, the researchers were able to determine the conveniences and limitations of telehealth from the clients' perspectives. The findings of the study can be a basis for improving the telehealth system in the future. The researchers further recommend investigating the health care providers' perspectives to discover the challenges and advantages they experienced.

Keywords: *telemedicine, online consultation, remote consultation, healthcare delivery*

The utilization of technology to provide healthcare services from a distance is viewed as a significant approach to addressing the continuous rise in healthcare demands. Telehealth is gaining popularity as communication technology becomes more accessible (Houwelingen, 2016). Besides, Young and Schneider (2020) explained that the COVID-19 pandemic has triggered a change in the delivery of healthcare and care interventions due to strict protocols and guidelines that must be followed in order to manage the spread of the virus. Telehealth, also known as telemedicine, refers to the application of telecommunication and electronic information technologies to offer healthcare services even when the healthcare provider and patient are not in the same physical location. Moreover, high-risk people with health complications who reside in nursing homes and assisted living facilities regularly receive medical care remotely in their homes and are discouraged from scheduling routine appointments in person (Somers, 2020). Smith (2020) stated that telehealth nowadays is significant in delivering healthcare to clients, as this helps avoid person-to-person contact, thus reducing the risk of cross-contamination. It is the ideal management for infectious diseases like COVID-19.

Development and innovation in telehealth continue at an exponential rate. The results of Nesbitt and Bell's (2019) experiment proved that telehealth is now widely used in many areas of healthcare and is receiving more and more acceptance as a legitimate and, in certain situations, the most suitable way of providing healthcare services. Similarly, in the study of Lurie and Carr (2018), even before the COVID-19 pandemic, the use of telehealth or other technologies to support and facilitate distant healthcare delivery, education, and health administration has been increasing substantially.

Locally, with the archipelagic geography of the Philippines, proper usage of information and communication technology (ICT) in health appears

to be a viable option. It could be a solution to close the gap in the healthcare delivery system brought about by a shortage of nurses and doctors in remote areas and isolated communities. Telehealth is recognized as one suitable application of ICT in health. It is described as the incorporation of telecommunication systems into safeguarding and health promotion, a term that also integrates curative medicine (Montalban & Marcelo, 2008).

Existing studies usually conceptualize telehealth's effects, roles, benefits, and limitations to the client during the pandemic. Despite a lack of local evidence and experience, telehealth was thought viable even before the pandemic to provide distant teleconsultation, teletherapy, telementoring, or telemonitoring, primarily for destitute clients in rural regions, even before the pandemic (Leochico et al., 2020). However, there are minimal studies about the lived experiences of adult clients accessing telehealth during the COVID-19 pandemic. The investigations have followed a quantitative approach, restricted by the capacity to explore responses (Lee et al., 2018). Thus, this study aims to close the gap by exploring the client's perception, particularly their challenges in accessing telehealth, their expectations, and the factors that led them to choose telehealth.

Research Objectives

This study aims to explore adult clients' lived experiences in accessing telehealth during the COVID-19 pandemic. The study specifically seeks to explore the perceptions of clients with regard to achieving care through telehealth.

Methodology

The study is in the form of qualitative research using phenomenology. Pizarra (2022) described phenomenology as a qualitative research approach that aspires to describe and comprehend the point of view of an individual as well as the experiences of a person to generate an in-depth description of certain phenomena. Based on Rahman (2016),

using a qualitative approach generates a dense description of the experience, emotions, and feelings of the participants and analyzes their actions.

Population and Sampling Techniques

The six participants of the study are adults aged 50-65 years old, residing in Silang, Cavite, who have experienced at least one telehealth service since March 2020, without regard to their gender and profession.

Through purposive sampling, they were selected based on their knowledge and experience in the phenomena of interest to ensure a close and reliable connection between the participants' characteristics and research questions (Palinkas et al., 2015). The sampling continued until the data was saturated.

Instrumentation

The main instrument used in this research was an online interview using a semi-structured questionnaire. The questions were formulated based on the literature reviewed by the researchers. The interview was scheduled according to the participants' availability and was done using the Zoom application.

Data Gathering Procedures

The researcher asked for approval from the thesis adviser and the Dean of the College of Nursing and sought permission from the participants by writing a formal letter. The letter included a request to conduct the study, the purpose of the study, and an assurance of privacy. The researchers found potential participants within the chosen area and population. Initially, they approached 1-2 participants; then, they were asked to recruit other likely people to be part of the study. The researchers sent a letter to the participants regarding their privacy and participation in the study through a private message on their social media accounts. After receiving their responses, the researchers scheduled a Zoom meeting

wherein the participants were interviewed using the questions prepared by the researchers. The Zoom meeting was recorded. Transcribing was done after gathering information. The researchers analyzed the data using Braun and Clark's (2006) framework. The process was done in six phases. During triangulation, the members of this research checked if the researchers' interpretations and the clients' answers conveyed the same meanings.

Rigor and Trustworthiness

To analyze and ensure the study's robustness, the researchers organized and performed a series of interviews based on the four-dimensional criteria of Guba and Lincoln (1989): credibility, dependability, confirmability, and transferability. Rigor is a means of building trust or confidence in the conclusions of a research study, allowing researchers to maintain consistency in the methodologies used throughout time and offer an accurate depiction of the community being investigated.

Credibility. Research must present an authentic and sincere image of a participant's lived experience to be credible. In this study, this goal was met through intensive participation and ongoing observation to understand the phenomenon in which it is embedded and minimize data distortions.

Transferability. This is the scope of its applicability in other contexts and studies. It is equivalent to the phrase's generalizability and external validity, or a replacement for them. To accomplish this, the researchers will use the same data collection procedures with different demographic groupings in the same geographic region. The information was gathered via Zoom meetings, Messenger video calls or chats, or Google Meet within 45 minutes to 1 hour. The participants came from all across Cavite but congregated in Silang.

Dependability. To establish dependability, the researchers made an audit trail wherein they developed a detailed track record of the data collection. In this context, the research team documented the research techniques used to ensure

that the research findings were consistent and dependable. They also documented these methods in a way that allowed non-research members to review and scrutinize the research process.

Additionally, the research team actively participated in the data analysis process to guarantee the reliability of the research.

Confirmability. Credibility, transferability, and dependability have been demonstrated and established. The analysis was conducted by the research team, who approached it from various perspectives to interpret the data. To comprehend the combined interpretation of the findings, each researcher maintained an individual notebook in which they recorded any ethical issues or sensitive topics that could have influenced the data analysis.

Triangulation. This is achieved by cross-checking the data and interpretations within and across each participant category. To carry out member checks, the researchers regularly consulted with participants from whom the data was collected to validate the data and interpretations.

Ethical Considerations

The researchers know the importance of respecting the study's respondents by adhering to appropriate ethical requirements. The respondents engaged in the investigation based on informed consent. The concept of informed consent includes researchers who provide adequate knowledge and insurance regarding the involvement in the study so that participants may know the assurances of taking part in the study to comprehend the impact of participation and to get at a fully informed, reasoned, and free decision as to whether to do so or not. The researcher also took into account the importance of confidentiality. Participants should not be harmed in any manner, the information on the research should be secured at an appropriate level of confidentiality, and priority must be given to respect the dignity of the research participants (Bryman & Bell, 2007).

Data Analysis

The researchers used Braun and Clarke's (2006) framework to define and explain the analytical process systematically for all the gathered data.

Phase 1. Familiarization of Data

Data from qualitative research can take several forms. Therefore, the researchers dedicated themselves to understanding the content's depth and breadth. They enhanced their familiarity with the gathered data.

In this phase, repeated readings of the transcribed data were done, and video recordings were watched several times. In the initial reading, the researchers thoroughly read through the details of the data and took note of the most significant information from the responses of the participants to gain familiarity. The following readings were done thoroughly and meticulously, annotations were added, and critical elements were marked on the data. The researchers kept the objectives of the study visible and went through them from time to time to be guided accordingly.

Phase 2. Generating Initial Codes

This phase included generating codes from the data, which aid in organizing the data from a granular to a specific level and focusing on the distinct points of the responses.

Each researcher worked on all the transcripts and coded each segment that was significantly related to the research questions. The codes generated by each member were compared. The researchers discussed and modified the codes and then continued on with the other transcript. The researchers based on the observed patterns and similarities in coming up with the initial codes.

Phase 3. Search for Themes

A theme is a pattern that highlights something remarkable or intriguing about the data and proposed study. There are no definitive standards for what determines a theme; as Braun and

Clarke (2006) illustrate, a topic is defined by its significance. In cases where data collection is limited, the coding step and the early theme identification stage may have considerable overlap. Researchers looked at the codes, and some of them matched into a pattern. Codes were organized into more prominent themes that implied something particular about the research issue at the end of the process.

Phase 4. Review Themes

Through this phase, researchers evaluated, adjusted, and improved the preliminary themes found in the previous step. It is essential to gather all of the data relevant to each subject, and the themes should be unique from one another and should be unified.

Phase 5. Defining and Naming Themes

The researchers analyzed the data within each theme by defining and naming existing themes that were displayed in the final analysis. The essences of the themes were identified at this stage, and they relate to how every single theme fits into the overall picture of the data. During this stage of analysis, the focus is on identifying the recorded data segments, exploring the fascinating aspects of the themes, and determining how the themes connect to form a coherent and engaging narrative about the data.

It is important to remember that researchers start planning for topics that would provide the reader with a complete picture of the theme and its significance. Researchers who do not use the data to support their analysis beyond just reporting or paraphrasing the content of the data are said to have failed to analyze the data adequately. When conducting a theme analysis, researchers should strive to move beyond superficial interpretations of the data and instead aim to provide a comprehensive narrative that makes sense of the data and its implications.

Phase 6. Producing the report

This is the final phase of data analysis, wherein the researchers have already identified the themes and done the report writing and final analysis. In this write-up, the data is presented in a clear, logical, rational, and engaging manner, and the member checking for trustworthiness was already done.

The findings of phase six of theme analysis were reported in the paper's results and discussion section. Based on the topic grid, the researchers presented the findings in a straightforward and logical manner, supplemented with justifications and clarifications.

Results and Discussion

The data analysis, gathered from six informants, yielded two emergent themes, eight subthemes, and nineteen codes that were extracted thoroughly, manually, and specified clearly by the researchers. The information obtained through the interviews was saturated. When there is sufficient data to do a similar study, then data saturation is reached; it is no longer possible to add new information, and it is no longer possible to code (Low, 2019).

Table 1

Convenience in Accessing Telehealth in the New Normal

Theme	Subtheme
Convenience	Reduced travel burdens and expenses
	Flexibility
	Comfort of staying at home
	Support for primary care and chronic conditions

Reduced Travel Burdens and Expenses

Participants have observed that telehealth reduces the burden of travel, expenses, and waiting times.

"This is an easier one because you are at home. It's very convenient; you will not go there and spend your gasoline there; it's cheaper (Informant 1).

This teleconsultation is convenient. You did not spend more time going there, spending half a day or sometimes the whole day, but this one is just 30 minutes, and it's done" (Informant 4).

Telehealth allows patients to receive medical care from their own homes, thereby eliminating the need for transportation and reducing the time and financial expenses of in-person visits. Some patients and family members who were looking after them said that telehealth alleviates financial and psychological strain from having to travel for care that wasn't accessible nearby (Maria et al., 2022).

According to Finkelstein et al. (2020), telemedicine can be more cost-effective than in-person visits. Families save on travel costs and time away from work or school, while healthcare providers save on overhead costs associated with maintaining a physical clinic. In line with some other research in accordance with Dorsey et al. (2013), a typical 30-minute office visit for Parkinson's disease door-to-door consultation takes patients and caregivers more than four hours. The majority of this time has been spent traveling and waiting. Hence, telehealth visits save money and prevent many uncomfortable travel experiences for those with limited mobility, which minimizes the likelihood of slips and falls.

Additionally, telehealth eliminates the need for patients and families to travel to in-person appointments, which can be time-consuming and disruptive (Leyser et al., 2021). May et al. (2021) also identified that the use of video consultation can reduce the amount of time spent on documentation, minimize the amount of time doctors have to travel, and facilitate the provision of urgent treatment for patients.

Flexibility

The informants reported the convenience and flexibility of being able to choose their preferred teleconsultation time.

"It's convenient, especially since you don't need to go to the hospital right away." (Informant 3).

"This teleconsultation is convenient. You will not spend half a day or sometimes the whole day just for this. Just 30 minutes, and you can be done" (Informant 4).

Telehealth, especially for clients who live far away, cuts down on the amount of time needed for the trip to in-person visits. Also, it greatly reduces the amount of time lost from a job, school, or both to attend in-person appointments. Virtual appointments can be more convenient than protracted in-person meetings because they just need clients to have a dependable internet connection, camera, and microphone, which many clients have access to on mobile phones, other portable devices, or computers (Garcia et al., 2021). According to McAlearney et al. (2022), telehealth has provided a silver lining for patients, as it offers convenience and flexibility while helping them stick to follow-up appointments. Overall, telehealth has improved patient access to healthcare and made it easier for them to receive necessary care.

Comfort of Staying at Home

The interview showed that informants see the home as a place of comfort and convenience for accessing and receiving healthcare.

"I can still have access to healthcare services even though I'm just at home" (Informant 6).

"It will be a great help, especially for senior citizens who cannot easily go to the facility, to the hospital. They have an option to do teleconsultation at home" (Informant 3).

With the help of safe online platforms, clients can interact with their healthcare providers (HCPs) from any location, including the convenience of their own homes, thanks to the innovative and adaptable care model known as telehealth (Garcia et al. 2021).

Telehealth enables patients to be regularly visited by a doctor at home and monitored remotely, as evidenced by Beck et al. (2017). This setting offers the chance to learn more about how clients behave in everyday settings and can provide clients with a more patient perspective since it develops a better grasp of their societal circumstances. In relation to one study, they stated that people felt more at ease with video visits than with face-to-face consultations and that they prefer obtaining potential vital information via video visits so they can stay in their comforting surroundings (Powell et al., 2017).

Support for Primary Care and Chronic Conditions

A study shows that Home-based primary care (HBPC) kept the elderly medically delicate patients safe in their homes, which required a lot of flexibility, openness, collaboration, and relationships with outside specialists (Franzosa et al., 2020). According to Leyser et al. (2021), telehealth allows patients to access care regardless of their geographic location or physical mobility. Clients who live in rural or isolated places, as well as those with impairments who find it challenging to go to in-person visits, should be aware of this. Bloem et al. (2020) also indicated that the findings of providing remote care by a neurologist through videoconferencing have been increasing at a rate similar to traditional outpatient appointments but with far more efficacy. Telehealth is capable of being utilized to provide home-based interventions, such as activity-based training for stroke survivors, which was as successful when supervised via videoconferencing as in-clinic programs. Based on the research conducted by Cooke et al. (2023), telehealth is beneficial for patients with chronic non-cancer pain and opioid use disorders in safety net primary care. The advantages of telehealth include reducing the patients' burden and decreasing the number of missed appointments, along with making it more convenient and easier to manage chronic conditions such as hypertension and diabetes.

Telehealth allows patients to receive medical care from their own homes, thereby eliminating the need for transportation and reducing the time and financial expenses of in-person visits. Ultimately, telehealth has the potential to improve chronic condition management and encourage patients to take an active role in their healthcare. Interviews showed that if the health condition is not that serious and home-based, they would recommend telehealth.

"If the patient is a home-based patient that needs to be monitored because the patient's status is bedridden, I recommend telehealth" (Informant 6)

"If the patient has difficulty in traveling, telemedicine can be used." (Informant 1)

Table 2
Limitations in Accessing
Telehealth in the New Normal

Theme	Subtheme
Limitations	Inclination toward face-to-face consultation
	Internet connection problem
	Inadequacy of assessment
	Challenges in communication

Inclination Toward Face-to-face Consultation

The interviews showed that most of the participants used telehealth as a mode of consultation for the reason that they had no choice but to use this approach and stated that they can have more clarification through in-person visits when they have queries.

"Back then, because it was a lockdown, there was no choice but to use telemedicine." (Informant 1).

"In face-to-face consultations, I can readily clarify the prescriptions and procedures that I need to do." (Informant 4).

"What drove me to have telehealth is because of the pandemic. So, I had no choice because I was confined at home." (Informant 6).

One study concluded that adult respondents preferred in-person care to a video visit for their medical concerns (Predmore et al., 2021). According to Siegel et al. (2022), it was discovered that families prioritized in-person clinic visits over telehealth, despite the latter's advantages in terms of flexibility and convenience, specifically for their initial visit regarding pediatric weight management amid the COVID-19 pandemic. These findings imply that families place importance on face-to-face interaction and the ability to establish a relationship with their healthcare provider in person.

Moreover, a study was conducted that shows that telehealth cannot absolutely substitute face-to-face consultation but only when it is appropriate for them to use based upon their own discretion (Spark et al., 2022).

Internet Connection Problem

One of the results of the study from the book Digital Health showed that the absence of reliable internet was the challenge that was brought up the most, and a lot of ineffective telehealth sessions were reported by medical professionals due to poor and unreliable internet (Cummings et al., 2019).

In addition, based on a study by Indria et al. (2020), poor internet connectivity was the main obstacle to the adoption of telemedicine. The participant clinicians realized that the infrastructure, particularly the internet network, needed to be improved in order to ensure reliable telemedicine services.

Another study to support this claim was conducted by De Guia et al. (2022); it revealed that participants encountered various challenges when utilizing telehealth for healthcare delivery, with technology and internet access being the most commonly cited obstacles. Specifically, poor internet connectivity was the most frequently mentioned issue, which affected both healthcare providers and patients. The study's findings highlight the critical role of reliable internet connectivity in facilitating the successful implementation of telehealth services

and improving healthcare access for patients. Addressing the challenges related to technology and internet access is essential to overcome these obstacles and enhance the effectiveness of telehealth services.

A secure and stable broadband internet connection is a basic requirement for telehealth services. However, the lack of a reliable internet connection limited the successful implementation of telehealth services, with both therapists and clients experiencing internet disconnection. Service provider shortages and inclement weather were also contributing factors to the unstable internet connection (Delos Reyes et al., 2021). According to Rural Health (2019), for many rural telehealth projects, access to high-speed broadband internet remains a challenge. Telehealth initiatives that require live video connections between patients and clinicians can't be implemented or expanded if there is a lack of connectivity. Patient discontent with telehealth can be caused by dropped calls and delays in video feeds, which can impede the delivery of care.

During the pandemic, disparities in internet connection among the population could further complicate access to medical care. There have been instances when the informants stated that they had a dilemma communicating with their healthcare provider due to unstable internet connection.

"Sometimes the internet signal is unstable."
(Informant 1).

"The internet connection can be a barrier. If the internet connection is weak, the conversation is affected and is not good anymore." (Informant 3).

Inadequacy of Assessment

The majority of the participants expressed concerns regarding limitations in the physical assessment done by physicians using telehealth due to the inability of the physician to perform necessary procedures to assess certain areas of the body, such as examining respiratory and circulatory

systems (lung sounds and heart sounds) through auscultation. They indicated that personal touch from the physician is still needed when it comes to health assessment, and this is evidently absent in telehealth consultations.

"The doctor cannot check something like, say, listening to your heartbeat and lung sounds when breathing." (Informant 4).

"The doctor is only basing his decision on the medications that he gave me during my last examination." (Informant 2).

"That is when I saw that we still need it because when we are sick, we still need the personal touch of a doctor, which you cannot get during telehealth consultations." (Informant 6).

According to a study conducted by Hwei and Octavius (2021), participants, particularly clients interviewed, expressed concern about the thoroughness of the assessment since telehealth prohibits physical examination. On top of that, doctors believe it is difficult to make a diagnosis throughout the virtual clinic due to the absence of a physical examination and their inability to use their practical experience (Mubarak et al., 2021). Based on the study by Gordon (2020), patients were concerned about the completeness and accuracy of physical examinations conducted through clinical video telehealth. They were worried that healthcare providers might be unable to identify all their symptoms or perform a comprehensive physical examination without being physically present, which raised questions about the quality of care they would receive via clinical video telehealth compared to in-person visits.

Based on the guidelines created by Bakhai (2020), having a face-to-face consultation may allow for a richer information exchange, improved nonverbal cue assessment, and a better physical examination of patients. When treating patients who are in distress, the use of touch can be a reassuring/supportive action.

Challenges in Communication

According to Coleman (2020), nonverbal communication is a crucial component of doctor-patient interactions. There are reasons to suspect that there are also major communication disparities between telephonic and two-way video engagements.

Interaction analysis has demonstrated significant differences in communication behaviors between in-person and telemedicine patient-physician encounters. Any effects of nonverbal body language are lost during telephone conversations, and they may be lessened during video conversations. Clients may not be able to precisely evaluate the level of concern displayed by medical personnel, and it may be challenging to recognize facial expressions or movements that show a lack of comprehension or disapproval in clients. Additionally, based on Eddison et al. (2022), both the clinicians and managers of telehealth services reported the loss of communication via body language as the highest disadvantage of telehealth. This suggests that the absence of non-verbal cues may affect the quality of communication between clinicians and patients. This also highlights the importance of non-verbal communication in healthcare interactions, as it allows clinicians to pick up on subtle cues and nuances that may be missed in telehealth consultations. According to a study conducted by Gordon et al. (2020) about clinical video telehealth visits, patients appreciate the potential advantages of using clinical video telehealth to improve their access to care. However, they expressed concerns about how the technology could hinder effective communication with their healthcare provider. Specifically, patients reported feeling excluded from the conversation during clinical video Telehealth appointments, which prevented them from fully expressing their concerns or asking questions.

"You can't interact well with the doctor." (Informant 1).

"I felt very awkward, you know, about talking to your doctor, and you try to

describe what you feel, which will be different from what if the doctor examines you personally” (Informant 2).

Conclusion and Recommendation

The adoption of telehealth has increased at a fast pace, especially when the pandemic and lockdown occurred. The result of this study identified that there were limitations in telehealth when it comes to communicating with their health care provider because of internet connection problems and the inadequacy of health/physical assessments carried out by physicians because of the inability to carry out vital tests to evaluate systems of the body, such as assessing the respiratory and circulatory systems. With the identified limitations, the informants expressed their preference for a face-to-face consultation over telehealth.

Nevertheless, the informants also shared the convenience afforded by telehealth because it reduces travel burdens and expenses, allows them to enjoy the comfort of staying at home, is flexible, and provides support for primary care and chronic conditions.

This study focused on the perspective of the client on their experience using telehealth. It is recommended to explore the physicians' standpoint on utilizing telehealth in order to identify the struggles and gains they experience.

The participants in this study were 50-65 years old, since it is believed they will face more challenges in using telehealth because of their lack of exposure to technology and the internet. It will be worthwhile to examine the experiences of younger generations, who are said to be more knowledgeable about technology and internet usage. This will help differentiate the problems and disadvantages they face as compared to the older generation.

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Advancing Nursing Care Through Artificial Intelligence

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This systematic review investigates how artificial intelligence (AI) advances nursing care and practice, with an emphasis on its influence on healthcare through Augmented Human Abilities, Assistive Robotics, Natural Language Processing, and Machine Learning. This study carefully examines the current literature in a systematic manner, adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) criteria. The review methodically follows PRISMA's recommended steps, ensuring rigor and transparency. PubMed, CINAHL, and MEDLINE databases were employed for article selection, covering January 2018 to July 2023. The search strategy was meticulously devised using Medical Subject Headings (MeSH) terms, enhancing the precision of article retrieval. The synthesis of findings underscores AI's transformative role in nursing. Augmented human abilities, driven by AI, empower healthcare professionals by enhancing patient care and safety. Assistive robotics facilitate tasks like patient lifting and monitoring, reducing nurse fatigue and preventing injuries. Natural Language Processing optimizes clinical documentation by expediting information retrieval and fostering accurate communication. Machine Learning's predictive capabilities aid in early disease detection, risk assessment, and treatment optimization, enabling personalized patient care. AI augments nursing efficiency, precision, and patient outcomes through these advancements. In conclusion, this systematic review underscores the immense potential of AI integration in nursing practice. Augmented Human Abilities, Assistive Robotics, Natural Language Processing, and Machine Learning empower nurses to deliver high-quality, patient-centric care while optimizing operational efficiency in healthcare settings. There is a need for careful implementation, considering further research and security considerations, to ensure a successful and sustainable AI-driven healthcare future.

Keywords: *artificial intelligence, nursing practice, patient care, future of healthcare*

In the 21st century, artificial intelligence has risen to prominence in the healthcare industry. According to Shuaib et al. (2020), artificial intelligence (AI) denotes the capability of computers or computer-controlled machines to deliver tasks that mimic the human brain in its cognitive function and performance level. AI is a broad scientific field with origins in computer science, mathematics, and philosophy that seeks to comprehend and create systems that exhibit characteristics of intelligence (Panch, 2018).

Current publications have shown increased optimism and curiosity in the use of such advances in technology in healthcare. Esmaeilzadeh (2020) emphasizes how artificial intelligence (AI) systems affect healthcare provision, highlighting how AI-based technologies may enhance prognosis, diagnostics, and care planning. Accordingly, fresh evidence is emerging that machine learning (ML) algorithms have already shown their ability to increase the accuracy of diagnostic testing and illness prediction. When performing objective feature ranking, ML algorithms can uncover novel insights in actual data (Dey et al., 2019).

Artificial intelligence (AI) has the potential to provide support in both the clinical and diagnostic aspects of the healthcare system. Artificial intelligence (AI) is a valuable tool for the healthcare sector, enabling the identification of nuanced patterns in data. Physicians may then analyze these patterns to detect novel clinical and health-related concerns (Choudhury et al., 2020). Therefore, this research aims to investigate the scale, range, and importance of using these technologies among nurses and their impact on the nursing field. To accomplish this objective, it is important to investigate the documented performance of artificial intelligence (AI) in nursing as described in the available literature. This systematic review aims to fill the existing gap in the literature by conducting a comprehensive selection and evaluation of studies that have included artificial intelligence (AI)

and AI-related processes, such as robotics, within the nursing sector. The research will primarily focus on examining the outcomes associated with integrating these technologies in nursing practice.

Methodology

This systematic review adheres to the requirements established by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) framework. The review is structured and presented by the prescribed procedures outlined by PRISMA. Furthermore, the organization and consistency of the study presentation adhere to the guidelines outlined in the PRISMA Checklist. In order to seek out studies that align with the topic and eligibility criteria of this systematic literature review, the researcher searched for peer-reviewed publications in the CINAHL, MEDLINE, and PubMed repositories. The researcher intentionally selected material that falls between the timeframe of January 2018 to August 2023.

Search Strategy

The researcher used a methodical technique to delineate and identify all search phrases to include all relevant and qualified publications across many databases. An initial literature assessment was conducted to identify appropriate keywords for further searches. The search technique was refined and established using the Medical Subject Headings (MeSH) phrases inside the PubMed database.

The keywords were systematically arranged, based on MeSH terms, and joined using Boolean operators (AND/OR) to discover any relevant research that aligns with the specified scope and inclusion criteria pertaining to the use of artificial intelligence in clinical decision-making. The used keywords included MeSH terminology such as “nursing care [MeSH]” and “artificial intelligence [MeSH]”.

Inclusion and Exclusion Criteria

The major goal of this research was to analyze peer-reviewed articles that met two specific criteria. Firstly, the publications had to include the use of machine learning or automated processing methods in order to meet nursing demands. Secondly, the publications had to discuss or report on the effects and changes seen in nursing care outcomes due to these approaches. Any articles that did not meet both criteria were eliminated from this review. Excluded from consideration were studies that only focused on developing or assessing machine-learning models without providing any information or analysis about the effects or implications on patient safety outcomes at the clinical level. This study does not include secondary research sources such as reviews, comments, and conceptual pieces. The sources used in this investigation included clinical trials and experimental research endeavors. The scope of the search was limited to scholarly articles that were published in the English language throughout the time frame of January 2018 to August 2023.

Study Selection and Quality Assurance

The researcher conducted a comprehensive assessment of all the obtained papers to determine their suitability for inclusion. The articles' titles and abstracts were examined to conduct a screening process. Subsequently, the entire texts of the remaining articles were thoroughly examined, and the final selection was made. The standardized information from each publication was recorded using a data matrix form, which included details such as authors, goals, objectives of the research, and conclusions. The papers were classified based on their relevancy and their notable contributions to nursing care outcomes as reported.

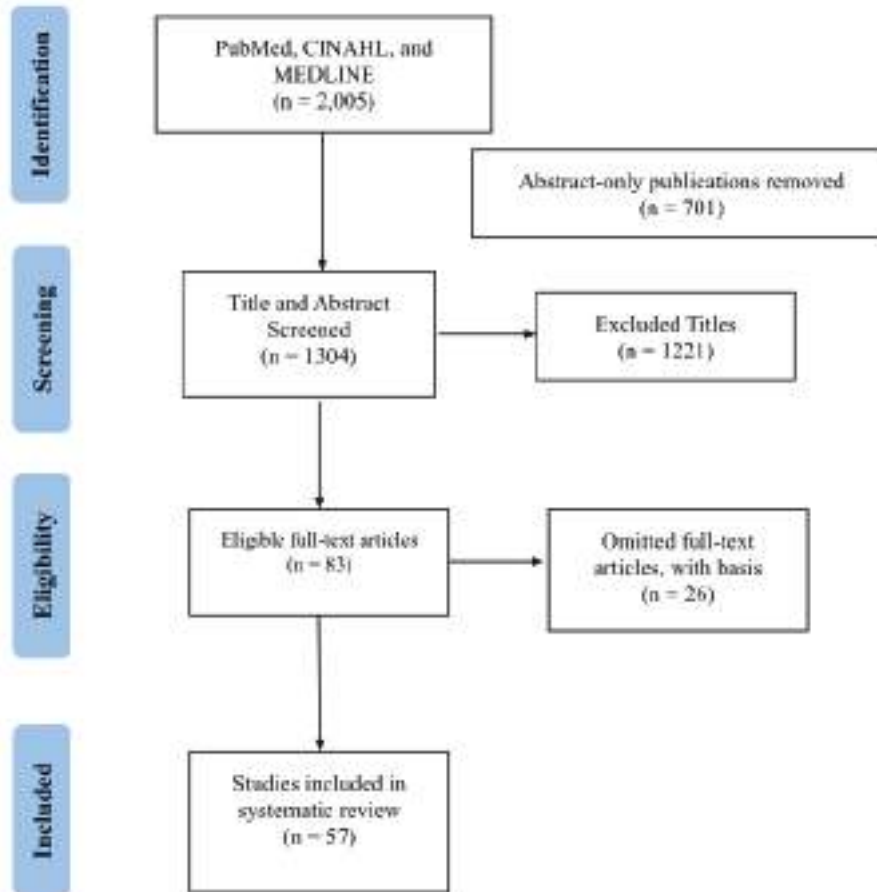
Study Selection

Figure 1 presents the flowchart outlining the selection procedure for the inclusion of articles in this systematic literature review. Based on the previously stated metrics, the first search using a predetermined set of queries yielded a cumulative count of 97 articles from CINAHL and MEDLINE databases accessed via the EBSCOhost portal. Concurrently, a total of 1,908 publications were retrieved from PubMed. As such, the initial search generated a total of 2,005 items. As an initial measure, the researcher excluded publications that were only accessible in abstract form, resulting in a total of 701 articles being deleted from the analysis. Subsequently, the screening procedure adhered to the inclusion and exclusion criteria and thoroughly examined the titles and abstracts. This meticulous approach yielded 83 articles that met the requirements for further study. Subsequently, the author proceeded to exclude 26 articles from consideration based on the criteria of free full-text availability and a comprehensive evaluation of the full-text content, ultimately resulting in a total of 57 papers being excluded from the study. The researcher assessed each full-text publication based on additional pertinent information, title, and the inclusion and exclusion criteria. Therefore, the total number of papers included in the systematic review amounted to fifty-seven (n=57).

Figure 1 presents the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow chart, which illustrates the systematic procedure used to select eligible publications and articles to include in the systematic review.

Figure 1

The PRISMA Flowchart



Results and Discussion

Principal Findings

In recent years, there has been a growing interest in exploring the potential of artificial intelligence in nursing practice. With the ever-changing healthcare demands of society, innovation is paramount to ensure that nurses cope with the technological revolution brought about by the surge of AI and robotics. The researcher has identified fifty-seven (n=57) studies within the scope of this review. The publications included the basic concepts of AI in nursing, how AI devices augment the capabilities of nurses, the usefulness of assistive robotics, the integration of natural language processing, and the impact of machine learning. The reviewed articles portrayed promising improvements that AI has contributed to nursing.

Augmented Human Abilities

This study examines the potential of artificial intelligence (AI) to enhance the capabilities of nurses in performing various skills and jobs. This paper includes two examples that specifically explore the impact of AI on nurse performance. The research done by Lin et al. (2018) examined the translational acceleration, rotational speed, and joint angle of patients about the techniques used by nurses during patient transfer. During the experimental procedure, a motion capture system was implemented to quantify the joint angle, which the encoder will substitute into the robot. Similarly, Kato et al. (2022) provide evidence of the potential of Resyone (robotic bed/wheelchair) to enhance care activities in individuals with severe disabilities. The findings mentioned above indicate that using

sustainable practices in the utilization of Resyone would positively impact the overall quality of care provided at care facilities.

Assistive Robotics

The researcher identified ten (n=10) studies concerning the use of assistive robotics in nursing practice and the benefits it renders. The study conducted by Bulfin et al., (2019) investigated the reception of care robots within the nursing profession. The findings revealed that nurses exhibited favorable responses towards the integration of robots in several aspects of their practice, including “measuring/monitoring,” “safety care,” “mobility/activity,” and “reduction in workload.”

Nurses experience a significant incidence of self-inflicted injuries during their duties, particularly when aiding, repositioning, and lifting patients. AI-enabled robots can provide aid to nurses in patient mobility tasks. An example of such a robot is the robot for interactive body assistance (RIBA) from Japan, which can lift patients weighing up to 80 kilos (Practical Guidance for Nurses, 2021). Similarly, a trial population revealed a reduction in both hospitalization rates and duration of hospital stay among persons with COPD compared to the control group (Hong et al., 2021).

Integrating robot-assisted training and electromyography-triggered neuromuscular stimulation (EULT) did not yield significant improvements in upper limb function following a stroke compared to the standard therapy provided to patients with moderate or severe upper limb functional limitations. The study's findings do not provide sufficient evidence to endorse the implementation of robot-assisted training as a standard practice in clinical settings (Rodgers et al., 2019). While the effectiveness of the unique hybrid RAGT (Robot-assisted gait training) has been observed, there is a lack of robust data to support its therapeutic effectiveness compared to control interventions in individuals with significant lower limb impairment following a stroke (Lin et al., 2022).

Distraction therapy is not implemented as a customary practice for intravenous infusion (IVI) in North America. The study conducted by Ali et al. (2018) suggests that engaging with a humanoid robot can serve as an effective distraction technique for children undergoing invasive medical procedures, reducing their experience of pain and anguish. Huynh et al. (2018) conducted a study involving robot-assisted radical prostatectomy (RARP). Thus, robots can influence surgical procedures by enhancing healing time.

Mild cognitive impairment (MCI) represents a transitional phase preceding the onset of dementia, and timely intervention during this stage is of utmost importance. The findings of Park et al. (2021) suggest that a 6-week cognitive training program utilizing robot-assisted techniques and targeting multiple cognitive domains has the potential to enhance overall cognitive function and alleviate symptoms of depression in older persons diagnosed with mild cognitive impairment.

According to Robert (2019), multidisciplinary teams are currently seeking methods to create the Tele-Robotic Intelligent Nursing Assistant (TRINA), a robot that can be operated remotely. This development aims to address the needs of healthcare professionals who are at a heightened risk of infection due to their regular interactions with patients, handling of contaminated materials, and the difficulties associated with safely removing protective gear. According to reports, TRINA has undergone testing inside the nursing simulation laboratory and can now execute around 60% of predetermined nursing duties. However, it is worth noting that TRINA operates at a much slower pace than a human nurse, with an approximately 20 times slower speed.

Simultaneously, Łukasik et al. (2018) point out the opinions of potential users about robots helping the elderly with age-related nutritional problems. The findings suggest that the study's older and younger participants positively responded to using a robot to enhance older people's diets.

Natural Language Processing

The topic of natural language processing (n = 11) has been addressed in eleven scholarly publications. The term “Natural Language Processing” (NLP) encompasses a set of machine learning techniques used to categorize and evaluate the content included within unstructured clinical notes (Reading Turchioe et al., 2022). This study looks into The Large Language Model, which can efficiently search through extensive data and generate concise best practice recommendations, which may be promptly provided to the nurse during the dressing change process, thereby serving as a valuable guide (Heerschap, 2023).

Marcuzzi et al. (2023) led a randomized clinical trial design to investigate the efficacy of individually tailored self-management support, delivered through an artificial intelligence-based app in addition to standard care, in improving musculoskeletal health. The results indicate that this intervention did not yield statistically significant improvements compared to standard care alone or web-based self-management support not tailored to individual needs.

The findings of a study by Liaw et al. (2023) indicate that the use of AI-powered physicians is comparable to human-controlled virtual reality simulations regarding sepsis care and interprofessional communication performance. This supports the feasibility of using AI-powered doctors to enhance the scalability of sepsis team training. Furthermore, considerable efforts have been dedicated to the development of in-home sensor technologies in order to facilitate the independent aging of the growing global population of older persons. The study introduced a system designed to extract clinically significant aspects from sensor data collected within the residences of older individuals. These features are then summarized using natural language processing techniques. The initial evaluation of our summarization approach indicates its potential to enhance the clinicians' ability to efficiently utilize this data (Jain et al., 2019).

Rafferty et al. (2021) looked into the potential impact of Heali, a newly developed artificial intelligence dietary mobile application, on enhancing adherence to LFD, reducing the intensity of irritable bowel syndrome (IBS) symptoms, and improving overall quality of life among adult individuals with IBS or IBS-like symptoms within four weeks. The initial study offers preliminary evidence suggesting that using Heali may potentially yield therapeutic advantages for individuals, particularly in enhancing their quality of life and bowel habits.

The SELFBACK application provides personalized self-management help to individuals experiencing low back pain (LBP) based on evidence-based practices. Research has demonstrated that including SELFBACK in standard therapy can effectively decrease disability associated with LB. However, it seems that the selfBACK application, which utilizes artificial intelligence, aids individuals with multimorbidity or concurrent musculoskeletal discomfort (Øverås et al., 2022).

Porter et al. (2019) conducted a study in which they captured cough noises in typical clinical environments. The researchers picked the first five coughs from the recorded data for further analysis. The analyses were performed using cough data and up to five-symptom input acquired from the medical history provided by patients or their guardians. A comparative analysis evaluated the concordance between the diagnoses generated by an automated cough analyzer and the consensus clinical diagnosis established by a panel of pediatricians. The results indicate that this technology is a valuable diagnostic tool for assessing common respiratory diseases in pediatric populations.

In this diagnostic study, deep-learning natural language processing (NLP) and NLP-screened human abstraction exhibited beneficial attributes in assessing an electronic health record (EHR) outcome on a large scale. These findings indicate that integrating this methodology into the study design of NLP-based research will yield advantageous outcomes (Lee et al., 2023).

As reported by Cook et al. (2019), their study findings indicate that they successfully obtained 6849 out of the total 7177 health provider directory data by using natural language processing (NLP) techniques. In addition, using sentiment analysis, a technique for quantifying or classifying subjective attributes of written text, quantitative metrics derived from unstructured clinical notes exhibit an association with patients' 30-day death and survival rates. Therefore, this may be a prognostic indicator for patient care outcomes in the intensive care unit (ICU).

Machine Learning

Most of the results ($n=34$) reported in this study pertain to Machine Learning (ML). As defined by Rubinger et al. (2023), the term "machine learning" (ML) pertains to the approach of developing statistical models via the use of past empirical data to forecast future outcomes or categorize new observations. This is accomplished by using training data received from individuals. Accordingly, it has been seen that these prognostications are used to forthcoming data, and the additional data is included in the statistical model to enhance its performance progressively.

Algorithms and Software. To start the process of addressing epistemological difficulties arising from current models, it is necessary first to ascertain the fundamental components of the ontology of care (González Aguña et al., 2018). However, there are various and diverse possibilities for advancing machine learning in the field of nursing care. The research conducted by Lee et al. (2020) demonstrates the efficacy of the Random Forest (RF) algorithm in identifying predictive factors associated with falls in nursing care settings. The efficacy of the decision tree classification technique will be evaluated using the WEKA program to analyze biological data derived from real patients (Hajje et al., 2022).

Clinical Decision Support. Alongside this, a choice has been made to furnish the physician with medical decision support by utilizing the

dataset derived from the speech recordings of the individual suspected to have Parkinson's disease, along with the built model. As a result, it has been deduced that the provision of medical decision support will be extended to physicians (Al-Otaibi et al., 2022), facilitating the flow of nursing care. Vasilica et al. (2023) support the idea that machine learning and artificial intelligence (AI) systems have the potential to assume responsibilities that human doctors traditionally carry out. These systems exhibit enhanced accuracy and, in certain instances, may detect patterns within data, thereby contributing to advancements in diagnoses, monitoring, and therapy.

Integrating EMA data with machine learning techniques exhibited potential in assessing the association between nonadherence risk and relevant factors. This technique has the potential to yield advancements in various areas, including individual self-management insights, predictions of behavioral risks, improved clinical decision-making, and timely patient care in the context of diabetes (Zhang et al., 2022). Machine Learning-Based Gynecologic Tumor Diagnosis experimental findings indicated that the incidence of postoperative incision infections among patients in the study group was 2.70%, a statistically significant decrease compared to the control group's rate of 21.62% ($P < 0.05$) (Shen & Wang, 2021). It was determined that Artificial Neural Networks (ANNs) exhibited superior predictive capabilities in estimating the occurrence of postoperative complications, namely Thromboembolic Events (THEs), in patients following breast cancer surgery. (Chen et al., 2021).

Indeed, unsupervised machine learning has the potential to assist in the stratification of patients into distinct risk groups. The present work employed unsupervised machine-learning techniques to categorize patients into discrete clusters based on the severity of their symptoms. It was observed that patients with greater severity of symptoms before treatment exhibited a higher likelihood of being hospitalized and experiencing mortality (Xu et al., 2023).

Diagnostic Tests and Imaging. Imaging has been crucial in guiding how nurses should monitor their patients. Badr et al. (2022) demonstrate that it is feasible as an initial approach to utilize deep networks in situations where annotated images are scarce. Their results indicate that employing convolutional neural networks, both with and without transfer learning, is a favorable approach to develop classifiers to detect diseases in chest X-rays. Similarly, a research project by Alshamrani et al. (2022) sought to showcase the potential of artificial intelligence in facilitating the early detection of pneumonia by developing deep-learning models that can support healthcare practitioners.

Similarly, artificial intelligence (AI) has had major developments at Stanford University. In a conducted test, Müller (2022) signifies that CheXNet, an x-ray powered by machine learning, has shown a higher level of accuracy in diagnosing pneumonia compared to three out of four human radiologists. During the supervised training procedure, the algorithm was provided access to a database including chest X-ray pictures, wherein each image was associated with diagnostic metadata. The algorithm utilized the annotated dataset to derive novel recognition patterns for X-ray diagnostics.

Likewise, Jiang et al. (2022) strongly testifies that the implementation of the artificial intelligence FCM algorithm in MRI imaging has the potential to significantly enhance the clinical diagnosis of ovarian endometriosis. Therefore, the implementation of comprehensive nursing intervention strategies can contribute to improved patient prognosis and recovery outcomes. Zhang and Wang (2022) also point out that the utilization of AI algorithms in MRI scans, along with thorough pelvic floor muscle exercises, has demonstrated substantial potential and utility in facilitating the restoration of intestinal functions among patients who have undergone anus-preserving surgery following rectal cancer.

The enhanced fuzzy C-means (FCM) algorithm has shown greater efficacy in detecting activation zones within fMRI scans, thereby reducing instances

of misdiagnosis. Simultaneously, implementing the Plan-Do-Check-Act (PDCA) home nursing intervention has proven to be highly beneficial in facilitating the recuperation of patients diagnosed with Diabetic Neuropathy (Du et al., 2022). In the same light, the deep learning automatic grading system for intervertebral foramen stenosis images aims to enhance the precision of computer-aided diagnosis and optimize the productivity of medical professionals (Wang et al., 2022). Moreover, applying the Weighted Nuclear Norm Minimization (WNNM) algorithm in Mei et al.'s (2022) study resulted in optimal DWI pictures that exhibited enhanced clarity and reduced noise. This improvement in image quality holds significant advantages for clinical diagnosis. Also, it demonstrates a certain level of predictive capability in assessing treatment efficacy in patients with lung cancer.

Xu et al., (2022) attest that the utilization of Image Color and Indocyanine Green Angiography (ICGA) employing the Otsu approach has demonstrated its effectiveness in the assessment of cerebrovascular morphology in the context of craniotomy and ICAP procedures, hence enhancing surgical efficacy. In another light, Alhazmi (2022) notes that an alternative computational model based on deep learning techniques, to automate the detection of cells in images of blood samples, has proven successful. The accuracy rates for counting white cells, red cells, and platelets were 100%, 89%, and 96%, respectively.

Yin and Wang (2022) promote that the implementation of artificial intelligence algorithms has demonstrated positive outcomes in the domain of ultrasonic image processing.

On top of this, the "Internet + H2H" (Hospital-to-home) nutritional nursing model demonstrated a higher level of personalization, according to Chen et al., (2022). The IWT algorithm has shown superior performance in the image processing of low-dose perfusion imaging using a 320-slice volume CT. Consequently, it is deemed suitable for potential practical implementation.

The implementation of the Convolutional Neural Network (CNN) algorithm in the processing of 3D ultrasound images has demonstrated significant potential. Additionally, utilizing the CNHM model has proven to be highly advantageous in facilitating the postoperative recovery of patients diagnosed with bladder cancer (Shao et al., 2022).

Nursing Care and Medical Procedures. Zhang and Wang (2022) suggested a combined deep-learning method for holistic care regarding line coagulation in hemodialysis to find out how it affects coagulation and safety in hemodialysis. The utilization of the Data Science Algorithm (DSA) in conjunction with Faster-RCNN has demonstrated a notable enhancement in the efficacy of puncture procedures for patients with Magnetic Hydrodynamic (MHD) conditions (Mi, 2022). The integrated nursing paradigm of medical care and patients in Congenital Esophageal Atresia yielded a significantly positive clinical outcome. It has been shown that the implementation of this intervention leads to a decrease in the rehospitalization rate while also facilitating the prompt identification and management of potential problems with a high level of efficacy (Zhang et al., 2022).

According to Burns et al. (2022), the implementation of a unique algorithm and software by nursing staff has demonstrated the ability to identify acute sickness, exhibiting sufficient sensitivity and specificity accurately. This has resulted in a significant reduction in transfers to the intensive care unit and decreased the time required for clinical intervention in a medical ward.

The findings of Zhao et al., (2022) indicate that the implementation of nursing interventions for patients with diabetic kidney disease (DKD) can effectively contribute to the improvement and management of renal function. Additionally, the utilization of intelligent algorithm-based ultrasound images enables the dynamic detection of changes in renal function levels in patients. Papachristou et al. (2018) point out that predictive models of this nature provide the capability to discern patients

who are at a heightened risk, provide patients with knowledge of their symptomatology, and enhance the precision of pre-emptive and tailored interventions for symptom management.

Studies on tandem colonoscopy have revealed that approximately 20% of adenomas are not detected during the procedure. The utilization of computer-aided quantification (CAQ) yielded a substantial enhancement in the effectiveness of computer-aided detection (CAdE) (Yao et al., (2022)). In the same way, deep learning in conjunction with dermoscopy has demonstrated potential as a diagnostic modality for pigmented neoplasms (PN), leading to enhanced diagnostic accuracy (Yang et al., 2022). The prediction models that rely on baseline data have strong performance, and there is potential to decrease the number of predictors (Verma et al., 2022).

The integration of machine learning-generated predictions into the surgical workflow has the potential to enhance the accuracy of surgical case length estimates, optimize the use of presurgical resources, and reduce patient waiting times, all while ensuring that there is no significant increase in the waiting time experienced by surgeons between consecutive cases (Strömblad et al., et al., 2021). A study conducted by Faro et al. (2023) investigated and compared the efficacy of three interventions within a smoking-cessation program: machine learning recommender (ML recommender), computer tailoring of motivational text messages, standard motivational text-based intervention (standard messaging), and a viral peer-recruitment tool kit (viral tool kit). The findings of this study indicate that viral recruiting could potentially enhance the efficacy of smoking-cessation therapies, in addition to its role in enhancing dispersion.

The predictive model was implemented within the hospital information system to provide real-time support for clinicians' decision-making processes. Machine learning (ML) holds significant potential to aid clinicians in real-time outcome prediction for elderly emergency department (ED) patients with

influenza. Future assessments of the efficacy and influence are crucial (Tan et al., 2021).

In a recent study by Lee et al. (2020), the authors examined the application of machine learning techniques in predicting falls within nursing home settings. The findings indicate that the Random Forest (RF) algorithm has shown significant efficacy in identifying predictive factors associated with falls in nursing care settings. In order to enhance the efficacy of fall management strategies, researchers need to consider both organizational and human considerations.

Therefore, the findings of this review enumerate how, with the help of artificial intelligence, nurses can perform to the best of their capacity in the clinical setting by enabling them to use technologies in a broad range of issues. The review also indicates that AI has the potential to provide cost-efficient methods in data storage and use, the augmentation of human capacities, assistive robots as a means to occupy less specialized skills, and the use of natural language processing and machine learning to accurately render calculations to ensure quality structure in patient care.

The researcher's evaluation encompasses a limited pool of 57 research examining the feasibility and practicality of using artificial intelligence (AI) in nursing. Despite the favorable results seen in patient services, it is important to note that the current body of literature on this topic remains rather small, with just 57 pieces of research available for analysis. This indicates that the area is still in its fledgling phase of development. Hence, it is essential to promote further research endeavors to substantiate the influence of artificial intelligence (AI) in nursing.

The present systematic study has recognized the use of artificial intelligence and its potential application within the nursing domain. The study primarily focused on examining research that explored the use of assistive robots and natural language processing methods within the clinical context. These findings demonstrate the wide range of areas within which artificial intelligence (AI)

is utilized in clinical settings. The existing body of literature suggests that further study is required to understand the implications of AI usage in nursing practice fully. Moreover, government bodies must play an active role in enhancing the standards of AI use and establishing a framework for future recommendations. This study advocates for adopting a collaborative strategy by AI developers in the nursing profession, aiming to implement and research the broader influence of AI on nursing outcomes and other healthcare settings.

Future research should aim to identify certain domains within the nursing field where the presence of artificial intelligence (AI) is most pronounced. This includes investigating the feasibility of using assistive robots to carry out specific tasks, potentially alleviating the burden on nurses. It is also recommended that future studies emphasize the importance of healthcare organizations using artificial intelligence (AI) to maximize the benefits for both healthcare personnel and patients.

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Social Isolation and Mental Health of Young Adults during Quarantine

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The COVID-19 pandemic of 2020 threatened countries worldwide with its severe respiratory consequences, which hastened the global implementation of social isolation measures. Along with governments, universities also enacted in-campus regulations and policies that disrupted the daily social interactions of students. This study aimed to assess the levels of social isolation and mental health of young adults in terms of depression, anxiety, and stress during quarantine in the Philippines. A descriptive-evaluative research design was used in the study. A standardized questionnaire was used to evaluate the respondents' social and mental health. A total of 120 respondents selected purposively participated in the study. Results reveal that 96 respondents (80%) had a low level of social isolation, 20 respondents (16.7%) had a high level of social isolation, and four respondents (3.3%) had a fair level of social isolation. In terms of the mental health of the respondents, 44 (36.7%) had a normal depression intensity, 44 (36.7%) had a normal anxiety intensity, and 54 (45%) had a normal stress intensity. Based on the study's results, further studies may be conducted on the effect of social isolation on the mental health of young adults as a result of the pandemic.

Keywords: *social isolation, mental health, young adults, quarantine*

Stay-at-home orders, quarantine, and social distancing became the global and local trends since the 2019 outbreak of the SARS-CoV-2 coronavirus. According to Clayton Boldt (2020), social distancing policies worldwide revealed “significant reductions in the spread of the virus.” Various community quarantine (CQ) regulations were implemented in the Philippines to hinder the continuing and increased spread of COVID-19 (*Rule of Law in the Time of -19: The Philippines*, 2020). Although the quarantine and social distancing interventions were essential for maintaining physiological health, studies have shown young adults to be susceptible to mental health concerns, including loneliness and isolation (Khan & Kadoya, 2021). The numerous quarantine and social isolation measures compromise the health of the age group, introducing high levels of depression, anxiety, and stress.

Loneliness could devastate an individual's health, as evidenced by a review co-authored by Hawkey and Capitanio (2015). In 2019, Kassandra Alcaraz conducted a study of over 580,000 persons, which further analyzed that social isolation leads to an increased risk of premature mortality in people of all races.

Numerous articles and documents connect social isolation to a higher risk of anxiety, depression, and psychological distress among older people (Hwang et al., 2020; Taylor et al., 2018; Sepúlveda-Loyola et al., 2020). However, there is less information on how quarantine alters the mental health of young adult Filipino students from eighteen to twenty-five-year-olds, especially in the Philippines- specifically inside a Philippine university that implemented novel quarantine rules such as “bubble groups” curfew, outdoor activity, and grocery shopping schedules, and other quarantine or lockdown measures.

Methodology

Research Design

The research approach of the study was quantitative, more precisely a descriptive-

evaluative design. It investigated the interaction in young adult's mental health in terms of depression, anxiety, and stress, as well as social isolation during the COVID-19 pandemic.

Population and Sampling Technique

Purposive sampling was used in the study and aimed to survey 120 college students enrolled within the five months between August 2021 and December 2021. The college students were selected from different degree programs who have experienced social isolation inside the institutional campus during the pandemic. The following tables display the respondents' demographics.

Table 1
Frequencies & Percentage of Sex

Levels	Counts	% of Total	Cumulative %
Female	72	60.0 %	60.0 %
Male	48	40.0 %	100.0 %

A total of 120 students completed the questionnaire. Of those who participated, 72 (60%) were females and 48 (40%) were males.

Table 2
Frequency of Respondents According to Degree Program

Degree Program	Count	% of Total	Cumulative %
Arts and Humanities	5	4.2 %	4.2 %
Business	9	7.5 %	11.7 %
Dentistry	19	15.8 %	27.5 %
Education	4	3.3 %	30.8 %
Health	12	10.0 %	40.8 %
Medicine	3	2.5 %	43.3 %
Nursing	61	50.8 %	94.2 %
Science and Technology	5	4.2 %	98.3 %
Theology	2	1.7 %	100.0 %

Table 2 displays the specific degree programs of the respondents which shows a total of five (4.2%) respondents coming from the College of Arts and Humanities, nine (7.5%) from the College of Business, 19 (15.8%) respondents from the College of Dentistry, four (3.3%) from the College Of Education, 12 (10.0%) respondents from the College of Health, three (2.5%) from the College of Medicine, five (4.2%) from the College of Science and Technology, and two (1.7%) respondents from the College of Theology. More than half of the respondents, 61 (50.8%) were from the College of Nursing.

Instrumentation

A standardized questionnaire was used to evaluate the client's mental and social health. The first section of the questionnaire recorded the respondent's demographic profile, including age, sex, race/ethnicity, year in college and degree program, family and relationship status, living arrangement, and whether or not they were enrolled in online classes from school year 2021-2022. Respondents who met the inclusion criteria proceeded to the next section of the questionnaire; otherwise, they were excluded from further answering the survey. The second section measured the respondents' social health through the Lubben Social Network Scale – Revised (LSNS-R). The respondents' social network frequency, size, closeness, and perception of the assistance they receive from friends and family assess social isolation (Lubben, J. E., 2013). The third section measured the mental health of the respondents. A 21-item survey was the last component of the instrument. It assessed the respondent's negative emotional states of depression, anxiety, and stress.

Data Analysis

Data obtained was analyzed using IBM SPSS. Descriptive statistics determined the respondents' demographic profiles and social isolation, anxiety, depression, and stress levels.

Ethical Consideration

The rules of ethical research were observed in the implementation of this study. The university's Ethics Review Board assessed the research project for compliance. The researchers were mindful of the ethical considerations in maintaining the confidentiality of their respondents' information. The researchers briefed the participants on the study's objectives, why they were chosen, and how their participation contributed to the study. Respondents were allowed to withdraw participation at any time without personal consequence. Access to the participants' information was restricted to the researchers and the adviser.

Results and Discussion

Social Isolation During Quarantine

Table 3 presents the extent of social isolation experienced by the respondents during quarantine. Respondents in the low-level quarantine had the highest counts, comprising 80% of responses, while 16.7% were high level and 3.3% were fair level.

Table 3

Level of Social Isolation During Quarantine

Levels	Counts	% of Total	Cumulative %
High	20	16.7 %	16.7 %
Fair	4	3.3 %	20.0 %
Low	96	80.0 %	100.0 %

Factors contributing to a high level of social isolation, as stated by Veazie et al. (2019), were the lack of a sense of belonging among the respondents, a lack of social engagement, and a deficiency in fulfilling quality relationships. Results from the data above show a low level of social isolation, accounting for 80% of responses. This result conveys that the respondents were supported by friends and family inside the campus during quarantine because they were placed in a bubble system with access to communication with their loved ones. A study by Leng et al. (2021) mentioned that expanding

interactions outside the home is possible while reducing the accompanying rise in epidemic risk by grouping such encounters into private bubbles. Moreover, research results showed that talking, sharing, spending time together, and engaging in activities were good features of a relationship throughout the epidemic (Öngören, 2021). In addition, research by Banerjee and Rai (2020) indicates that even if physical interaction was restricted due to the pandemic, weekly telephone meetings might have reduced anxiety levels and reduced the effects of social isolation. During the lockdown, individuals may have been separated physically, but family members and relatives maintained their virtual presence via electronic means.

Mental Health During Quarantine

Table 4 above displays the results of the extent of mental health of the respondents with depression. Normal level has a percentage total of 36.7%, followed by 20.8% for extremely severe, 18.3% for moderate, 15.0% for mild, and 9.2% for severe.

Table 4
Depression Intensity

Levels	Counts	% of Total	Cumulative %
Normal	44	36.7 %	36.7 %
Mild	18	15.0 %	51.7 %
Moderate	22	18.3 %	70.0 %
Severe	11	9.2 %	79.2 %
Extremely Severe	25	20.8 %	100.0 %

Table 5 displays the results of the extent of mental health of the respondents with anxiety. Normal levels account for 36.7%, followed by 23.3% for extremely severe, 21.7% for moderate, 10.8% for severe, and 7.5% for mild.

Table 5
Anxiety Intensity

Levels	Counts	% of Total	Cumulative %
Normal	44	36.7 %	36.7 %
Mild	9	7.5 %	44.2 %
Moderate	26	21.7 %	65.8 %
Severe	13	10.8 %	76.7 %
Extremely Severe	28	23.3 %	100.0 %

Table 6
Stress Intensity

Levels	Counts	% of Total	Cumulative %
Normal	54	45.0 %	45.0 %
Mild	31	25.8 %	70.8 %
Moderate	17	14.2 %	85.0 %
Severe	10	8.3 %	93.3 %
Extremely Severe	8	6.7 %	100.0 %

The table above displays the results of the extent of mental health of the respondents in relation to stress. The normal level shows the highest account of 45%, followed by mild at 25.8%, moderate at 14.2%, severe at 8.3%, and extremely severe at 6.7%.

According to the findings, the respondents' levels of mental health in terms of depression are generally within the normal range. However, compared to mild (15%) and severe extent (9.2%), the moderate extent (18.3%) and extremely severe extent (20.8%) are larger. The respondents' levels of mental health are largely within the normal range (44%), at least in terms of anxiety. However, compared to mild (7.5%) and severe extent (10.8%), the moderate extent (21.7%) and extremely severe extent (23.3%) are larger. At the same time, the respondents' levels of mental health in terms of stress are generally within the normal level (45%). The next degree is the mild extent (25.8%).

The data presents that as the intensity of stress, anxiety, and depression increases, mental

health declines. As mentioned by MentalHealth.net (2019), statements by researchers discussed that the body's ongoing production of stress hormones has the potential to change how various parts of the nervous system function. Additionally, stressed individuals may struggle to concentrate, acquire new information, or make decisions. The following changes in a stressed individual's personality may be irritability, hostility, impulsivity, problems in communication, social withdrawal, isolation, etc.

Additionally, according to research from the Riverwoods Behavioral Health System (2018), people with higher levels of depression may have trouble appreciating the things they used to like and show changes in their emotions, thoughts, sensations, behaviors, and physical well-being. Withdrawal from social relationships is noticed as well. In contrast, an article by Rao et al. (2021) concluded that there were fewer symptoms of depression and anxiety when control of exercise frequency was applied. Their investigation revealed that resilience and well-coping were preventative measures against the symptoms of stress, anxiety, and depression.

The COVID-19 pandemic was linked in several studies to elevated stress and anxiety levels. Increased anxiety about academic performance (159/195 respondents, 82%), difficulty focusing (173/195 respondents, 89%), disruptions to sleep patterns (168/195 respondents, 86%), and fear and worry about one's own and one's loved ones' health (177/195 respondents, 91% reported negative impacts of the pandemic) were some of the factors that contributed to these elevated levels of negative mental health. Although participants have used either negative or positive coping mechanisms to deal with stress and anxiety, they have also sought out help from others and taken care of themselves (Son et al., 2020).

Additionally significant are traits that protect individuals from pandemic-related mental health disorders (Xiong et al., 2020). The timely

dissemination of accurate and up-to-date COVID-19-related health information from authorities was demonstrated to be associated with lower levels of anxiety, stress, and depressive symptoms in the general population (Wang et al., 2020, as quoted in Xiong et al., 2020). Additionally, utilizing proactive prophylactic measures that lessen the risk of infection, such as consistent handwashing, masks, and decreased social engagement, predicted lower psychological distress levels during the pandemic.

Conclusion and Recommendation

The pandemic had a substantial impact not just on the physical health of an individual but on their mental and social health. Despite these challenges, resilience and adaptation have been seen by many. This study is evidence of this claim as it suggests that the level of social isolation experienced by the respondents during quarantine is low, and the extent of mental health (depression, anxiety, and stress) is normal. These are not the usual responses expected to be observed in a global pandemic and can be counted on humans' capability to adapt and grow in their environment. The university's unique living conditions for in-campus students responding to COVID-19 may be attributable to these findings. Implementing the "bubble" system allowed students to maintain their psychological well-being and engage in social activities in a controlled environment.

With the limitations, this study recommends a correlational study on the above mentioned variables. Exploration of physical, social, spiritual, and environmental factors, their influences on the different levels of social isolation, and their psychological impact on the respondents may also provide more substantial knowledge. Furthermore, socialization in one form or another has to be encouraged in any way possible to maintain holistic well-being, even during the pandemic.

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Breastfeeding Through Quarantine: Lived Experiences of Covid-19 Positive Breastfeeding Mothers

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Early Essential Newborn Care (EENC), widely known as the First Embrace, and its four core steps have been proven to be a life-saving intervention that improves maternal and infant outcomes, breastfeeding rates, and breastfeeding efficacy if implemented in various settings. However, due to the COVID-19 pandemic, its implementation has been set aside due to fear of transmission, despite the repeated efforts of the WHO to promote its safety and many other advantages. Because of this, mothers who tested positive upon delivery were required to be isolated from their newborn babies despite their intention to breastfeed. This study delved into the experiences of COVID-19-positive mothers who were quarantined and separated from their newborns during the supposed initiation phase of breastfeeding and continued to breastfeed after the separation. Informants were selected using a purposive snowball sampling technique. This phenomenological research was conducted with a sample of eight informants, mothers from all over the Philippines, via one-on-one interviews using an online platform. The data gathered were analyzed using the Colaizzi method. Two main themes emerged from the study that reflected maternal experiences despite the mandated separation: *triumphing breastfeeding* and *tribulations in separation*. It is pivotal for healthcare professionals to recognize the positive and negative effects of separation at birth due to COVID-19 and provide standard patient-centered care that is supportive of the breastfeeding mother and baby dyad. Further quantitative studies that explore breastfeeding rates considering the separation are recommended.

Keywords: *breastfeeding, Covid-19, maternal experience, first embrace*

Breastfeeding as a health intervention is pivotal in shaping health outcomes even in the event of the COVID-19 pandemic. According to the World Health Organization, breastfeeding should commence upon birth, even for mothers with suspected or confirmed COVID-19. This entails that mothers who test positive should not be separated from their newborns and instead practice respiratory hygiene whenever they come in contact with continuous breastfeeding to avoid spreading the virus to the infant (Centers for Disease Control and Prevention, 2021). This is facilitated and established through implementing the four core steps of the First Embrace upon Birth (Department of Health, 2020), which, unfortunately, was set aside due mainly to the conflicting information and lack of a better understanding of the disease.

The pandemic caused disruptions in existing systems and endangered breastfeeding methods, from early initiation exclusive to long-term breastfeeding (Busch-Hallen et al., 2020; Lube et al., 2020). Concerns have been raised about the safety and well-being of both the mother and infant, the dangers of illness and death linked to not breastfeeding, the inappropriate handling of baby formula, and the beneficial impact of skin-to-skin contact emphasized by the World Health Organization (2020).

The study measured the virus (Chen et al., 2020) investigated the likelihood of the infection being transmitted intrauterinely. SARS-CoV-2 was negative in all samples, indicating that COVID-19 caused no intrauterine fetal infections at a late stage of pregnancy. However, it was later shown by Ashery et al. (2020) that SARS-CoV2 entrance into the developing embryo might be facilitated by a subgroup of cells in the placenta. Indicating that its ability to infect the placenta, potentially altering its function and crossing it to infect the fetus, may be harmful during pregnancy.

On a similar note, questions have been raised regarding the potential transmission of the SARS-CoV-2 virus from mothers to their infants

or young children during breastfeeding. However, as investigated by the CDC (2020), it is believed that the virus responsible for COVID-19, SARS-CoV-2, is primarily transmitted to newborns through respiratory droplets after birth when they come into contact with infected mothers or other caregivers. In another study by Lubbe et al. (2020), breastfeeding should be promoted, and moms and newborns should receive care together because the SARS-CoV-2 virus cannot be transmitted through breast milk. Instead, data demonstrates that nursing had advantages above any potential hazards during the pandemic and may even have had a chance to protect the baby, as it is believed that the baby can acquire immunity from the mother's breastmilk by ingesting the viral antibodies from the infected mother. Supporting this, a recent study by Pace et al. and Van Kuelen et al. in 2021 found that human milk demonstrated a strong defense mechanism against the virus.

The World Health Organization stated in 2021 that breastfeeding keeps newborns healthy and helps them stay healthy throughout their childhood. Breastfeeding can be highly effective in preventing infectious diseases by enhancing the immune system by transferring antibodies from the mother to the infant. However, mothers who breastfeed or engage in skin-to-skin contact should exercise caution and take necessary measures, similar to all confirmed or suspected COVID-19 cases.

To mitigate breastfeeding challenges, new standard approaches and techniques fitting the new normal should be made (Junio, 2021). Both UNICEF and WHO issued a collective statement in 2020 concerning maternal, newborn, and child health services during the COVID-19 outbreak. The World Health Organization also provided operational guidance to support countries in maintaining access to essential health services, including EINC, while minimizing the risk of COVID-19 transmission. The guidance outlines key principles for delivering essential health services during the pandemic, including prioritizing high-

impact services, implementing infection prevention and control measures, and modifying service delivery methods to reduce the risk of COVID-19 transmission.

Changes in practice and policy have been made within the healthcare system as a result of the rapid development of COVID-19, leading to developments in maternity care policies that limit visitors in hospital wards and neonatal intensive care units, the suspension of important services like parent education or antenatal classes, an increase in antenatal and postnatal telephone or online consultations, and the reconfiguration of care areas to accommodate suspected or confirmed cases (Renfrew et al., 2020; Smith et al., 2021).

The moms revealed the negative impacts of the pandemic on their breastfeeding experience in the study conducted by Badr et al. in 2022. Specifically, difficulties and challenges such as commitment to breastfeeding efforts, pain, worry, and fear of having the virus as a threat. This was supported by a survey conducted in Belgium by Ceulemans et al. (2020) that revealed that over 5,000 pregnant and postpartum women showed anxiety during the recent lockdown, which resulted in maternal depression symptoms. Da Silva et al. (2020) emphasized how the symptoms of maternal depression had become more prevalent during the pandemic. Reduced breastfeeding self-efficacy and confidence result in a shorter amount of time spent nursing. Ensuring additional assistance and support for maternal mental health and well-being is a priority so that they may continue to nurture and nurse their infant.

The researcher's goal is to explore the lived experiences of COVID-19-positive women who gave birth during the pandemic and were made to separate from their newborns. Particularly, the study delves into the phenomenon of breastfeeding despite these mentioned circumstances to raise a better understanding, thereby improving patient outcomes for this population.

Methodology

Research Design

The study employed a qualitative phenomenological design to explore the individual's experience (Neubauer, Witkop, & Varpio, 2009). The researchers also conducted one-on-one interviews, where participants from similar backgrounds or experiences discussed specific topics of interest. This qualitative research approach seeks to understand individuals' attitudes, beliefs, opinions, and ideas to contrast them with lived participation (HERD, 2016). Phenomenology uses a range of strategies, including interviews, discussions, participant observation, action analysis, and interpretation of data. This method is appropriate for determining a less organized and more open-ended approach that encourages informants to provide information about their experiences.

Population and Sampling

Informants were selected via a purposive snowball sampling technique that qualifies the population based on certain characteristics that benefit the study's objective (Etikan, Musa, & Alkassim, 2016). The informants eligible to participate in the study were mothers who gave birth within 6–12 months of the study and met the following inclusion criteria: a) tested COVID-19 positive at birth; b) EINC was not performed during delivery; c) pursued breastfeeding even after separation; and e) resides in the Philippines.

Instrumentation

The researchers used a semi-structured questionnaire that was presented for the interview. One-on-one interviews were applied as the researchers aimed to gather more information by focusing on the breastfeeding mothers' subjective and personal responses. The interview used an online media platform, ZOOM, wherein interactions between the researchers and breastfeeding mothers were made to gather valid and reliable data about their breastfeeding experience and challenges throughout the pandemic.

Data Analysis

Data sets were identified utilizing the 7 steps in Collaizi's method while employing triangulation and bracketing to analyze the responses of the informants. This upholds credibility, safeguards the integrity and validity of the data, and ensures that it is free from researcher bias. Triangulation and bracketing were observed in the proposal process throughout the study. It is a systematic strategy in phenomenological research involving researchers actively leaving aside their repertory of facts, ideas, values, and experiences to focus on the event under investigation (Chan, Fung, & Chien, 2013) as the researcher looks to other literature to validate findings. Member checking was carefully done at the end of the data analysis to validate and confirm the gathered data.

Ethical Considerations

The researchers recognized the vitality of protecting the informants of this study by following relevant ethical guidelines. Various methods were used, including informed consent and voluntary involvement, acknowledgment of the informants' rights to anonymity and confidentiality, and consent for recorded interview sessions, phone conversations, and other communication. The informants were informed that a recorded interview would be made and would only be used for research purposes. The interview videos were

deleted once the data were transcribed, evaluated, and validated. Hence, if the interview may trigger traumatic experiences, a registered psychologist will be present for debriefing and counseling.

The researchers were responsible for protecting the informants from harm, respecting their autonomy, and ensuring their well-being. The principles of beneficence, nonmaleficence, and autonomy were upheld throughout the research process.

Results and Discussion

This study sought to explore the lived experiences of COVID-19-positive breastfeeding mothers during the peak of the COVID-19 pandemic in the Philippines. A total of eight informants from all over the country consented to participate in the study. Based on their responses, their breastfeeding experiences during the COVID-19 pandemic were explained. During the discussion, two main themes emerged about the lived experiences of COVID-19-positive breastfeeding mothers who were isolated from their infants at birth: Triumphant Breastfeeding and Tribulations in Separation.

Triumphant Breastfeeding

Table 1 shows the main theme, triumphant breastfeeding, and its subthemes. Based on the results, triumphant breastfeeding emerged from subthemes of breastfeeding benefits, breastfeeding support, and maternal fulfillment.

Table 1

Subthemes Sample Statements for the Theme Triumphant Breastfeeding

Theme: Triumphant in Breastfeeding		
Subtheme	Informants	Statements
Breastfeeding Benefits	BFM1	"Well, una kasi talagang mahal talaga yung formula... meron kasing bonding nafoform along the way... nakaka-remove sya ng stress and all for the mom."
	BFM2	"Ayun po para sa akin, para po makuha ni baby yung benefits para po sa sanggol."
	BFM3	"Ang breastfeeding kasi para saakin, eto yung posibilidad ng isang nanay na... ibibigay niya yung pinakaimportanteng source uhm source ng nutrition through breastmilk."

[table continues on the next page]

	BFM4	"Important, siya, for the health of the baby."
	BFM5	"Mas better yung breastfeeding kasi ano ahm, isa kasi makakatipid ka tapos hindi po kasi sakitin yung anak ko."
	BFM6	"Breastfeeding is very important for the babies kasi dito nila makukuha yung nutrients, vitamins doon sa growing stage nila lalo na sa mga new-born na zero to six months dapat breastfeeding lang talaga ang binibigay... makatipid din kasi kung breastfeeding."
	BFM7	"Ang laki ng tipid namin di kami bumili ng gatas... diba pag gatas ng ina tal-agang masustansya eh yun panlaban sa allergies infection or parang yung gatas ng ina complete package sya."
	BFM8	"Bilang mother ng apat napakahalaga ng gatas ng ina kasi sa experience ko po sa apat ko pong mga anak, hindi po sila sakitin."
Breastfeeding Support	BFM1	"In-advise naman ako ng OB na magpump ka na lang. In-advise n'ya talaga ako na may mag malunggay capsule two weeks before ako manganak. So ayun, it helps naman, I guess."
	BFM2	"Sa awa ng Diyos, may mga doctor at nurse na nagaasikaso po at may mga gamot din na pinapa-aano sa amin, bigay bilang proteksyon."
	BFM4	"Nagreresearch na talaga ako about breastfeeding ganyan kasi first time mom...buti nalang talaga yung may group kasi yung breastfeeding pinays so dun ako namulat sa importance ng breastfeeding."
	BFM5	"Wala sa isip ko na maano si baby ko, kasi during that time kasi yung OB ko kasi lagi...naga supported gud siya, ayaw kabalaka kay imong baby okay lang..pag sanitize lang mo, di gud na maapektuhan kay naga breastfeed ka...makatabang man jud nang... palibot sa imoha while gi COVID-19 ka na bless lang jud ko kay supportive ang mga akong palibot."
	BFM6	"Habilin ng doctor mask lang ako double mask tapos habang ano every time na gusto ni baby mag latch ipapalatch siya kasi yung lahat ng kailangan na gamot ni baby ay nandun na sa breastmilk."
	BFM7	"Meron kaming family doctor na nagmomonitor everyday tapos sinasabi nya ano mga dapat gawin at pag-ka mag isolate ganon."
Maternal Fulfillment	BFM1	"Nung nahawakan ko na s'ya, ewan ko. Lahat yata ng mentally, physiologically noon, nawala na s'ya. <i>'Di naman s'ya agad-agad pero parang 'Thank you Lord talaga na ito na, nahawakan ko na s'ya'.</i> "
	BFM2	"Yung binigay na po siya sa akin, nahawakan ko na po yung anak ko at least yung gutom na naranasan niya noon na nahiwalay siya sa akin at least natugunan ko yung mga ano nya, yung pagpapasuso bilang nanay, napadama ko sa kanya yung pagmamahal ko sa kanya ng ilang days sya na hindi ko kasama."
	BFM4	Fulfillment naman on my part, na natuloy ko siya despite doon nga sa challenges nga na yun."
	BFM5	"Overwhelming kay nganong daw sa kadugay ninyong...wala nagkita gikan gihatag ug CS pagpanganak sa imohang baby is kanang makahilak jud ka."
	BFM6	Syempre nung first time naglatch siya, sobrang saya namin. Pina-picture ko po nga ng nag-latch siya eh."
	BFM7	"After nung quarantine, na pwedeng-pwede na ako maghawak ayun okay ma everyday nabebreastfeed ko na siya...nung na ano niya na ako naramdaman, mas masarap o mas koportableng dumede sa suso ng ina."

Tribulation in Separation

Table 2 shows the drawn theme, Tribulation in Separation, and its related subthemes. Based on the results, Tribulation in Separation emerged from the subthemes: psychological challenges due to maternal frustration and isolation, physical challenges due to maintaining breastmilk supply, newborn feeding difficulties, and physical barriers.

Table 2

Subthemes, Codes, and Sample Statements from the Theme Tribulation in Separation

Theme: Triumphant in Separation			
Subtheme	Codes	Informants	Statements
Psychosocial Challenges	Maternal Frustration	BFM1	"Nung nagka-COVID ako, nakakainis talaga... Ang dami kong prinepare, diba meron na akong pump, meron na akong ka-en-call, ta's malunggay..normal kasi talaga yung gusto ko pa nga parang nag-prepare ako for normal, nag-exercise pa ako, ganyan ganyan, kaso parang rule ng hospital na pag COVID positive, CS agad, so ayun... yun lang ang regrets kasi diba kung naayon siya sa pinaplano ko or sa 'yunn nga na prepare ko, much better sana.
		BFM 4	"So parang lahat naka-plan ta's biglang nag-positive... sobrang siyang nakakapressure. 'Ma'am, positive ka, 'di ka dapat dito manganak, dito ka sa government hospital. So, sila namili ng doctor, sila namili ng lahat. Sabi ko 'di naman ako nila kilala, di naman nila ako kumbaga nabantayan nung pregnancy."
		BFM6	"Yung worry ko na sana gumaling na yung sipon niya kasi that time sinsipon na siya sabi ng doctor sa akin nahawa mo yata si baby...dumagdag yung anxiety that time iyak na ako ng iyak...paano kung yung baby ko mahawa dahil sa akin."
		BFM7	"Naisip ko yung anak ko 'hindi kaya positive din siya?'.... ramdam ko delikado oo, natatakot ako bilang isang ina na syempre baka kung padedehin ko siya agad sa akin is baka mahawa siya."
		BFM8	"Hindi nagtatanggal ng face mask, saka paglalapit ako sa kanya nakaface shield pa ako para talagang hindi ko mailipat sa kanya."
	Isolation	BFM1	"Hindi ako nakapag-skin-to-skin, hindi ko s'ya mahawakan, hindi ko s'ya nakikita... sa video lang, sa picture lang... umiiyak ako sa husband ko na, sabi ko 'aww, ang hirap naman nito'... masakit for me na hindi ko s'ya hawak, hindi ko s'ya makita, hindi ko s'ya physically."
		BFM2	"Di pa binigay ang baby sa akin... kumbaga, di ko man lang siya nakita that time, nakita ko lang kapanganak deretso didto. So, after ko ma-cleared, dun ko lang siya nahawakan."
		BFM3	"Ikaw na mismo mag-isolate sa sarili mo, na wag mo na hawakan mo siyang si baby, and then iiyak. Syempre napaka ano sa sarili mo, di mo nabibigay ang bonding nung dalawa."
		BFM4	"Nung pagka-deliver, naglagay lang sila, dapat unang yakap, yun yung uso... naglagay lang sila ng towel sa tummy ko, tsaka dun lang nila pinatong ang baby, so di siya skin-to-skin...pinakita lang sa'kin, gender, and all. Tapos kinuha na nila at nilinis."

[table continues on the next page]

	BFM5	“Wala ko kabalo. Mga after ko gi CS gipakita lang nila ang baby sa layo... so akong lang maremember is baga lang buhok sa akong anak, mao lang. Tapos may peklat pa, mao ilang giingon saakoa, na may balat daw.”
	BFM6	“Hindi ko nakita yung face niya or anything yung pag-iyak niya lang narinig ko, dun na ako naiyak.”
	BFM7	“Hindi ko kasama yung baby after kung manganak nakita ko lang siya in just a minute tas inilayo na siya sa akin, syempre nagtataka lang ako sabi ko two days na kaming na confine, nagtataka ako sabi ko ‘bakit si baby di dinadala dito?’.. Pagkalabas ay ano nalang talaga hindi mo na lang hahawakan titingnan mo nalang.”
Maintaining Breastmilk Supply	BFM1	“Sabi ko parang ima-maximize ko yung, yung body ko. Ima-maximize ko yung mga equipment na pwedeng gamitin para makapagproduce ng milk... pump talaga ako every 3 hours that time for the first 14 days na hindi ko s’ya kasama tapos parang someone is giving na lang through bottle tapos yun after 14 days, sobrang happy din na nag-latch talaga s’ya kaagad”.
	BFM2	“Yung baby ko po imbis na hindi man sya makadede sa akin, yung ginawa po ng mga doctor ay sa ibang nanay po sya pinakuhaan ng pang-breastfeed then padidiin sa kanya.”
	BFM3	“I was pumping, so nagpu-pump ako ng breastmilk, sarili ko na, so that time nagstart ako, wala pa akong symptoms... nakita ko sa texture and color ng breastmilk ko, ba’t nag iba ang kulay niya compared doon sa matured milk.”
	BFM5	“Yung personal OB-Gyne ko sabi niya kasi ano wag daw tigilan ang pag-papump ‘para pag nagkita kayo ng baby niyo, mabilis na yung gatas na maibibigay mo.’... nagapangayo mi ug donation sa breastmilk sa akong silingan, sa among nurse kauban sa akong bana sa ilang station, nagapangayo mi ug breastmilk.”
	BFM6	“So nung first 3 days ko sa hospital, walang lumalabas sa akin na milk... Pinump ko siya nang pinump kasi ayaw maglatch sa akin ng baby, as in walang lumalabas na milk. Siguro after 5 days doon lang may lumabas na milk pero sobrang kakaunti lang 1-ounce lang yung lumalabas na milk sa akin.”
	BFM7	Feeling ko masakit pero nung na experience ko na, hindi naman pala. Mas masakit pa nga yung hindi magpasuso eh. Nararamdaman ko yung sakit, yung parang ano siya, ilang oras na talagang ang sakit sakit na n’ya, tumutulo na talaga yung gatas.”
	BFM8	“Bale ang ginawa nagpapump. Tapos actually nagkaroon ako ng Mastitis yung kung baga nabuo yung milk kasi hindi nga ganung kalakas yung pag breastmilk ko using pump... so talagang nag papump lang talaga..gustong gusto niya ng galing talaga sa suso, siguro iba lasa breastmilk sa ano, sa formula.”

[table continues on the next page]

Newborn Feeding Difficulties	BFM4	Walang access through information that time...yung access mu lang talga is yung nurse is sometimes yung nurse eh lalaki pa so yun hehe, yung struggle nung first day nung breastfeeding... di ko kasi siya na ano yung part na salitan sa both breast nag maintain siya dun sa favorite spot niya tapos ako since hindi naman ako yung ano ko mas comfortable for me, dun din ako nag ano."
	BFM6	3 - 4 days na nung nagsama kami, hindi siya nagla-latch... 'di siya dumedede kahit ilang subo ko ng ano, nipple ko... Ang ginawa ko, tyinaga ko lang talaga na ano, ipa-latch lang sa kanya yung nipple ko para lang masanay siya na susuhin yung breast ko... So parang 2 weeks bago siya nag-latch sa akin ngayon, so ang hirap magka COVID-19 tapos nagpapabreastmilk."
	BFM7	Binibigyan ko na siya ng formula kasi para ano lang para matuto siya... ayaw mag bottle sabi ko hala pano yan eh after three months nung panahon na yan ako ay magpapasok na sa work sabi ko sa baby ko 'kailangan matuto ka na magbottle'."
	BFM8	Kasi sakin medyo mahirap eh... kasi ayaw niya umalis, kaya kahit may sakit ah tuloy parin yung pagpapasuso ko sa baby ko... nahihirapan talaga kami na magpasuso sa bote... breast talaga na pure di talaga siya nag formula ayaw niya, actually tinry namin pero sinusuka niya kasi yung sa formula milk."
Physical Barriers	BFM2	"Napakahirap talagang na maging isang positive... naglalabor ka doon na yung feelings mo na kinakabahan ka tapos hinahabol mo yung hininga mo habang nagla-labor ka... ang daming aparato ang nakakabit sayo, minomonitor ka tapos yung sakit hindi mo malaman anong gagawin mo, ang dami mong sakit na nararamdaman, na iniisip, tapos dun sa may delivery room ang hirap kasi naka-oxygen ka pa, naka-face mask ka pa, naka-face shield ka pa, lagyan ka pa nung plastic na iyon."
	BFM3	"So, ang experience ko hirap din eh 'no? Naka-mask ka, bawal ka humawak lagi, yung limited yung exposure mo sa baby mo, malayo man kayo. Ganun talaga mangyayare until 'di ka pa cleared."
	BFM4	Wala kang pang lasa at wala kang pang- amoy, yung sense to taste naman kahit sobrang anghang na triny ko, wala pa rin... So mahirap, kailangan mo kumain kaso magpapa-breastfeed ka eh."
	BFM6	Kailangan naka facemask ka... uso pa yung mga ano eh face shield, hirap kasi mag face shield. So, face mask lang ako tapos habang nagpapabreastfeed."
	BFM7	Wala akong bakuna kaya talaga ako tinamaan ng COVID sa family tapos buntis pa nasa bahay kami naka face mask ako, naka face mask din naman sila at hindi ko talaga hinahawakan si baby bibihira ko hinakahawan siya."
	BFM8	Nakakaawa yung baby, ano nalang precautionary measure nalang yung ginawa para mapafeed lang yung baby... naka wear ng face mask di talaga nagtatanggal tapos doble yung face mask ganoon."

[table continues on the next page]

This study was designed to deepen the knowledge and understanding of the real-life experiences of mothers who were made to separate and not breastfeed their newborns due to the COVID-19 infection. Based on the main themes and statements derived from the informants, it can be concluded that the lived experiences of COVID-19-positive breastfeeding mothers impacted them positively and negatively. It is imperative for healthcare professionals to fully grasp the effects of separation at birth, whether COVID is positive or not, in order to facilitate better and enhance the care and support we afford to breastfeed and mother-baby dyads, allowing more patient-centered, safe, and quality nursing care to the breastfeeding mothers.

Specifically, it is recommended that clinical practice guidelines be reviewed and ameliorated to preserve evidence-based interventions such as the EENC and patient-centered care specifically intent on promoting, supporting, and protecting breastfeeding for dyads who are COVID-19 positive, extending possibly to other dyads with highly communicable diseases where breastfeeding might be in question. It is also important to highlight that the educational preparation of care providers be on par with evidence-based practice and be uniformly cascaded and implemented to avoid gaps and mixed messages in public health. Lastly, a longitudinal study is recommended to assess the long-term effects of separation on the emotional and psychological well-being of breastfeeding mothers and their infants. Another recommendation would be to investigate the experiences of fathers or other primary caregivers who were separated from their infants due to their COVID-19-positive status. This will provide a broader perspective on the impact of separation on the family unit.

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Career Plans and Academic Motivation of Dental Students in a Higher Educational Institution

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Having an insight into dental students' career planning is critical to sustaining and improving the quality of dental education. This study aimed to investigate dental students' career plans and academic motivation in dental higher education in the Philippines. The researchers utilized survey and comparative research to undertake this descriptive quantitative research problem. A total of 60 students completed the survey. Results revealed that 81.7% of the students preferred to work under an established dentist immediately after graduation, while 71.7% planned to pursue a postgraduate program. Financial stability was the highest influencing factor at 81.7%. Results from the Academic Motivation Scale and Self-Determination Index indicate a final index score of +5.45 for all the student respondents. Developing advanced skills and having a higher education in a specialty field can increase the chances of acquiring further financial stability. Results also revealed that respondents have moderately high self-determination, reflecting greater intrinsic motivation. With this information, investigations on this area of student career planning among dental students may be further conducted. This study also recommends that dental institutions help their students realize their career plans.

Keywords: *dental students, career planning, academic planning, Academic Motivation Scale, Self-Determination Index*

Dental healthcare is a crucial part of maintaining the well-being of Filipinos. With the changing demand for dental treatment and the dental healthcare environment, gaining insight into the final year of dental students or graduating dental students' career plans is essential to maintaining and further developing this resource. Understanding the final year of dental students' career planning is essential to maintaining and enhancing the quality of dental education (Li Mei, 2020).

Motivation stimulates behavior and channels it into ways that benefit the organization (Lunenburg, 2011). Motivation is not only essential, but it also serves as a predictor of learning and achievement. Students who are more motivated to learn persist longer, produce higher quality effort, learn more deeply, and perform better in classes and standardized tests. Thus, investigating the academic motivation of dental students will benefit educational institutions in adjusting their teaching methods to reinvigorate students' academic motivation for a better career plan. The researchers assessed the academic motivations of dental students as to whether they are intrinsically or extrinsically motivated when choosing their career plans. For this, the researchers utilized the Academic Motivation Scale by Vallerand et al. (1992).

In the Philippines, dental undergraduates undergo pre-dental training and four years of dental proper education, culminating in a Doctor of Dental Medicine degree. After graduation, they are required to pass the dentist's licensure examination. They are then permitted to work in general practice or pursue post-graduate training. An online survey found that most Filipino dentists setup clinics after graduating (54.5%) or become private employees (33.2%) while the rest work in the government (10.3%) or take up other employment (2%). When dentists specialize, they often consider orthodontics, OMFS, or dental surgery, and endodontics (Dalanon et al., 2017).

Evaluating the career plans of graduating dental students and analyzing the factors influencing their decisions and academic motivation are important

for dental educational systems. Information gathered will help dental educational systems create and maintain a balanced pool of dentists, as graduating dental students comprise the next generation of clinicians (Liyang Zhao, 2014). This study investigates the career plans, influence factors, and academic motivation of final-year dental students in one dental college in Cavite province in the Philippines. This study answers the following research questions:

1. What are the career plans of the respondents in terms of:
 - a. Short-term post-graduation plans
 - b. Specialization
 - c. Work patterns
2. What are the factors influencing dental students' career choices?
 - a. Financial stability
 - b. Gaining professional experience
 - c. Work-life balance
 - d. Working toward career goals
 - e. Family expectations/commitments
3. What are the academic motivations of dental students in terms of the subsets of the Academic Motivation Scale?
4. Is there a significant difference in academic motivation considering the following moderating variables?
 - a. age range
 - b. gender
 - c. socio-economic Status

Methodology

Research Design

This study adopted an explanatory-correlational research design. This nonexperimental quantitative design is when researchers aim to investigate how much the variables are related (Apuke, 2017). In this study, the researchers sought to comprehend and describe how the respondents motivation and several influencing factors, such as financial stability, work-life balance, and family, relate to their chosen career plans.

Population and Sampling Techniques

The respondents for the study consisted of the whole population of 60 dentistry students who were in their final year and included those in their residency. There were 19 male and 41 female students. The respondents were divided into four different age groups. There were 20 respondents belonging to the 20-23 age group. There were 32 in the 24-26 group, 5 in the 27-29 group, and 3 in the 30-year-old and above age group. The majority of the respondents were in the regular age bracket of 24-26, according to their grade level. These were conveniently sampled from the college of dentistry of a private university in the province of Cavite, Philippines.

Instrumentation

The Academic Motivation Scale (AMS), created by Vallerand et al. (1992), measures extrinsic and intrinsic motivation toward education. It is one of the most used instruments for assessing students' academic motivation. The primary construct that is measured is intrapersonal competence. There are several dimensions of motivation, including intrinsic motivation to gain knowledge (IM-to know), intrinsic motivation to achieve goals (IM-to accomplish things), intrinsic motivation to seek stimulation (IM-to experience stimulation), identified extrinsic motivation (IEM), extrinsic motivation with internal regulation (EM-IR), extrinsic motivation with external regulation (EM-ER), and amotivation (AM). The instrument uses a 7-point Likert scale. The scale ranges from 1 (strongly disagree) to 7 (strongly agree).

The Academic Motivation Scale is interpreted through an overall score termed the Self-Determination Index. The goal is to determine an overall summary of the results rather than reviewing the score for each subscale. There are three major motivation factors in the AMS: intrinsic, extrinsic, and amotivation. A higher intrinsic score means higher self-determination, and vice versa. Having a higher extrinsic score means lower self-determination, and vice versa. The higher the

amotivation score, the greater the absence of motivation. The AMS overall score is termed a self-determination index. The statistical mean for each subscale is calculated and used to create an overall score, the Self-Determination Index (SDI). The SDI ranges from -18 to +18. The higher the score, the more intrinsic or self-motivated the participant is.

A self-constructed questionnaire was used to gather information on the career plans of the respondents. Items soliciting the respondents' career preference immediately after graduation as well as future long-term plans were included. Also included are the respondents' perceptions of how their preferences would affect certain factors such as financial stability, professional experience, work-life balance, and family expectations.

The self-constructed questionnaire on career plans, together with the College Version of the Academic Motivation Scale (AMS-C 28), were sent to the respondents via Google Forms after securing approval from the ethics review board of the university. Their responses were collected and prepared for analysis using a spreadsheet application.

Analysis of Data

The statistical analysis of the data was performed using t-tests and analysis of variance, or ANOVA. The overall score from the Academic Motivation Scale, called the Self-Determination Index, or SDI, is calculated using the means for each subscale in the instrument. The SDI ranges from -18 to +18. The higher the score, the more intrinsic or self-motivated the participant is.

Ethical Considerations

The name and residence of each of the respondents were not asked during data collection. However, other essential information, such as their sex, age group, nationality, and combined monthly income, was collected. The data analysis and reporting were done while observing the utmost confidentiality.

Results and Discussion

The survey on the various aspects of the career plans of the respondents yielded different results. On the question of their post-graduation plans, 45 out of the 60 respondents reported that starting their own clinic was possible (22%) and very likely (53%). When asked whether they would consider working under an established dentist, 95% of the respondents answered positively, with only 3 individuals saying it was unlikely. This overwhelming response is in line with the findings in another study where dental students preferred to work under the supervision of someone more experienced to gain experience before venturing into private practice (Knevel et al., 2015).

One career option for dentists after graduation is to work abroad. When asked about this possibility, the majority of the respondents only considered it a likely possibility, although those who responded positively comprised a total of 68%. In other words, many graduates consider working abroad as a viable career option. Although this is not surprising, considering that a dentist's degree earned in the Philippines can lead to a more lucrative practice abroad, one study showed that dental graduates from Australia and New Zealand prefer to work in their own country rather than practice abroad (Li Mei, 2020).

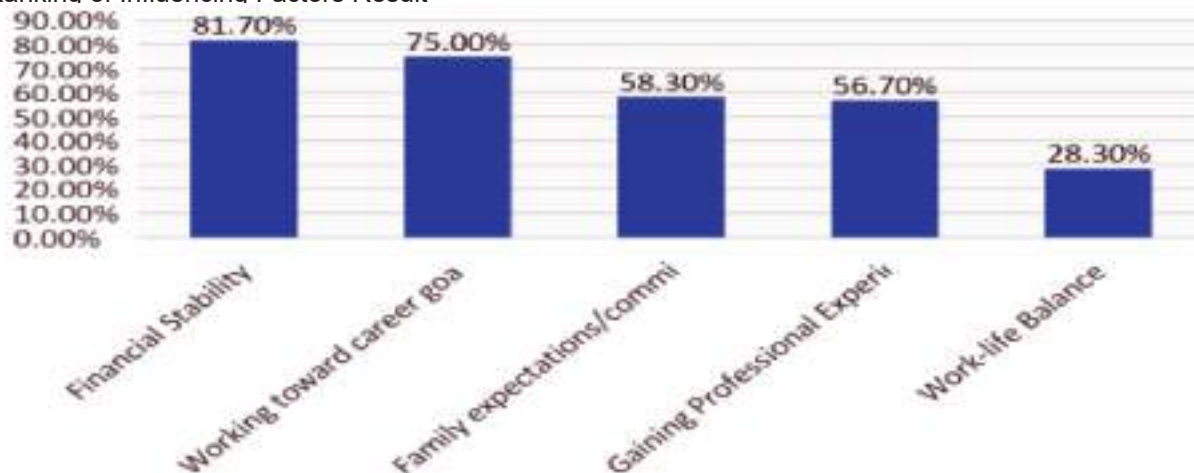
When asked if dental students would consider joining a dental school as teaching staff, more than half of the respondents (61%) answered negatively. Of the 23 respondents who answered positively, nine said it was possible, and only 14 said it was their likely choice. Research shows that for graduates to even consider starting a teaching career, they have to be confident in their knowledge and skills in their field, which are usually gained by working under a mentor in actual practice (Schrubbe, 2004).

One possibility for dental students after graduation is to enter a post-graduate program. This career option seems to be an attractive alternative, drawing a total of 72% of respondents who indicated that they consider taking some related master's degree after graduation. A study by Raftu (2016), however, indicated that only a few dental graduates were willing to continue studying in a post-graduate program.

The final option for graduating dental students is to pursue a specialist's career. When asked about this, 80% of the respondents answered in the affirmative, indicating that this path is included within their many options (Knevel et al., 2015). This option is also compatible with other career paths, such as choosing to work in clinics immediately after graduation, either on their own or under an established dentist, as they can pursue specialization while working part-time.

Figure 1

Ranking of Influencing Factors Result

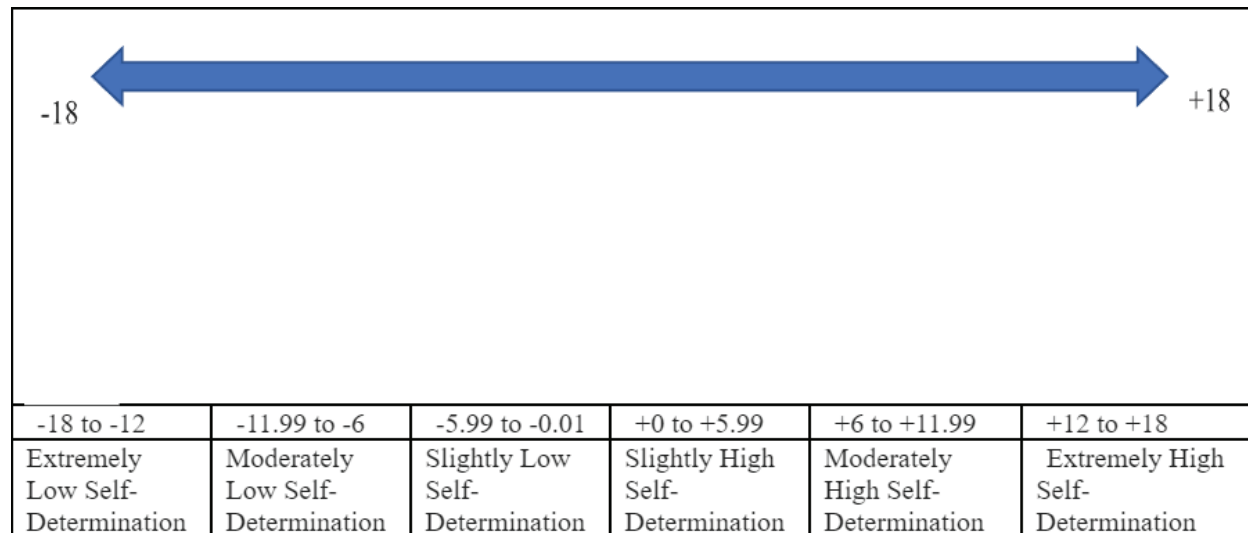


When asked what motivations are behind their planned career paths, the highest influencing factors, according to the respondents, were financial stability, followed by the fulfillment of their career goals, and then meeting family expectations and commitment. Figure 1 presents these results.

The overall score from the Academic Motivation Scale, called the Self-Determination Index, or SDI, is +5.45, calculated using the means for each subscale in the instrument (Table 1). The SDI ranges from -18 to +18. The score of +5.45 translates to a slightly high level of self-determination. T-tests indicate no significant difference in the scores between the sexes. Similarly, ANOVA results show no difference in the SDI across the different family income groups as well as the various age groups of the respondents.

Figure 2

Scoring in the Self-Determination Index



The subscale of the AMS that obtained the highest in the category of intrinsic motivation had to do with the respondents desire to explore new subjects, where curiosity and the prospects of learning new things become the driving force. On the other hand, the measure of extrinsic motivation shows how the pressure from parents or guardians scored highest, revealing the reasons for many of the respondents pursuing careers in dentistry.

These results indicate that final-year dental students' career choices are influenced mainly by financial stability, working toward career goals, and acquiring a full-time job, as well as by family influence. It can also be noted that some dental students are still unsure of the influences that govern their future career plans. This is in line with the conclusion of Rashid (2013), who stated that the graduating dental student's future objectives and professional aspirations were the accomplishment of financial stability, personal gain, and professional experience objectives.

In summary, the data gathered by the researchers shows that for final-year dental students, career choices are influenced mainly by financial stability, working toward career goals, and acquiring a full-time job, as well as by family influence.

A high self-determination index reflects that the respondents have a greater mean intrinsic motivation. Having extrinsic motivation means individuals are motivated by external factors such as gaining rewards and avoiding the negative consequences of failure. Such is an unsustainable source of motivation as it tends to be short-lived, and individuals can quickly become complacent toward goal achievement. It is, therefore, more ideal when individuals have a greater intrinsic motivation towards goal achievement (Cherry, 2020).

Considering the moderating variables such as age, gender, and socioeconomic factors, the statistical data shows that when looking at academic motivation, there is a significant difference within the age groups 20–23 and 24–26 when it comes to introjected extrinsic motivation. The p-value between age groups 20–23 and 24–26 in introjected extrinsic motivation is 0.017, which is less than 0.05 and is of statistical significance. Therefore, the null hypothesis that “there is no significant difference in academic motivations considering modifying variable age” is rejected.

At the same time, there is a statistical difference between males and females in the following areas: intrinsic motivation for accomplishment (p-value 0.019), extrinsic motivation identified (p-value 0.008), extrinsic motivation introjected (p-value 0.011), and extrinsic motivation external regulation (p-value 0.001). Therefore, the null hypothesis that “There is no significant difference in the academic motivations considering modifying variables gender” is rejected.

The statistical data showed that there is no significant difference in academic motivation regarding socioeconomic status. Therefore, the null hypothesis that “there is no significant difference in academic motivations considering modifying variables such as socioeconomic status” is accepted.

Further study may be done to investigate the relationship between a student’s source of motivation and their tendency to want to move abroad and the factors contributing to the desire to live and work abroad. The current study was done because of the researchers’ lack of nationality statistics; further study may be done to investigate the relationship between the academic motivation of dental students and nationality. To improve the self-determination of dental students, programs may be organized where senior students can actively take leadership roles, such as in clinical conferences and other academic activities that may serve as good confidence boosters as well

as self-determination elevators. Lecturers may be encouraged to establish ways through which they foster the self-confidence of college students to enhance intrinsic motivation. This may be helpful in ensuring that the graduates remain self-motivated. Further study may also be done to investigate the relationship between long-term career plans and the academic motivation of dental students, as well as to investigate if there is a difference between career plans and the academic motivation of 1st year dental students and final-year dental students.

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Description of Stress Levels among Nursing Students in West Indonesia

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Adolescence, a transitional phase of life, occurs when one individual needs to get good attention and understanding. It is one's stage in life wherein human beings are not free from stress. This descriptive analysis, a quantitative study, employs survey questionnaires to document the stress level of students in one class at a private tertiary institution in West Indonesia. It uses purposive sampling. It employs the Student Nursing Stress Index questionnaire, consisting of 18 statements that have been modified by Zazirotul with a calculated validity value of > 0.633 . Respondents to this study are thirty-four adolescent freshmen nursing students. Each respondent's answers from the questionnaire are summarized and interpreted as a stress rating, namely: mild stress (18-42), moderate stress (43-66), and severe stress (67-90). Stress levels range from mild to moderate to severe. This study reveals that all respondents experience stress (from mild stress to severe stress levels). Thus, this suggests that respondents should have strategies to cope with and deal with stress to minimize each stress level and be able to manage school activities. Also, it suggests that further study may employ another measurement tool aside from the Student Nursing Stress Index to check students' stress levels and increase the number of respondents.

Keywords: *adolescence, stress level, nursing students, private tertiary institution, West Indonesia*

In this era, many health problems arise. These health problems are not only physical health problems but also mental or mental health problems as well. Mental health problems can occur at all ages, including teenagers. This happens because adolescence is a time when they can still be influenced by the environment and cannot fully overcome their own problems. According to the Ministry of Health of the Republic of Indonesia (Sonang et al., 2019), the age range for late adolescence is: 17-25 years.

Mental health problems are certainly a very serious problem for teenagers because they can reduce their quality of life and affect their mental development. Youth is a national asset. According to Choirunissa et al. (2020), in many countries, the government is very concerned about the mental health problems of adolescents. It is stated as an example that in the United States, parents contribute reports regarding their children's mental problems. There are mental problems that cause teenagers to experience difficulties in learning. Teenagers experience depression, resulting in behavioral and emotional problems.

Based on the analogy, it is stated that mental health is not just the absence of mental or mental disorders but rather a picture of the balance between the physical and the soul, which then reflects a picture of a person's personality that reflects maturity in attitude and balance in behavior, which behavior will be accepted by the people around him. (Ayuwatini et al., 2018).

A big problem that needs attention is mental health, especially in children and adolescents. This will indirectly affect the quality of the future for the child or teenager. The results of data collection from Basic Health Research in East Java Province in 2018 found that the mental health problems experienced by those aged over 15 years were symptoms of depression and anxiety. The prevalence of emotional mental disorders is said to be a major psychological problem that must be considered and addressed (Syarofi, 2019).

In Indonesia, people who are in the age category of 15-24 years experience depression by 6.2% of the total population. The experience of having mild depression has the potential to become major depression for people who experience it. The tendency for severe depression also has the potential for these sufferers to self-harm to the point of suicide. Data for suicides in Indonesia reaches 10,000 incidents. Of these incidents, it turns out that around 90% of suicides are caused by depression and anxiety. Of this number, it turns out that 6.9% were students in the category where they had suicidal thoughts, and another 3% had attempted suicide. (Nugroho et al., 2022). This is certainly very unfortunate if it happens and is not immediately addressed because teenagers, in this case, students, are valuable assets for the country.

A report from the Association of Indonesian Psychologists in 2020, based on Basic Health Research records, stated that in Indonesia there was an increase in the prevalence of emotional disorders in people aged 15 years and over. This is reflected in the prevalence of suicide attempts, which is 0.8% for women and 0.6% for men. Likewise, cases of serious mental disorders increased by 7% in 2018. This is monitored through the Healthy Families application managed by the Indonesian Ministry of Health. Law of the Republic of Indonesia No. 18 of 2014 states that mental health is a state of an individual who has ideal physical, mental, spiritual, and social development so that the individual is able to understand their independence to overcome pressure so that they can productively contribute to their environment (HIMPSI, 2020).

Adolescence is a time when individuals need to receive good attention and understanding. This is because teenagers are individuals who have various unique qualities. According to Nita et al. (2020), teenagers have several unique qualities, including: 1) unique needs; 2) unique personalities; 3) unique intelligence, 4) unique talent. Adolescents have basic needs and the ability to develop themselves. Adolescents' personalities are a

totality, which will then shape their attitudes in life. Adolescents also have the potential to develop their intelligence, which in general has potential mental abilities. Teenagers also have the potential to develop unique talents. These uniquenesses have potential that can be developed to the fullest.

In this study, the informants who participated were students who were in the adolescent age category. Teenagers who are currently studying at tertiary institutions are referred to as students. Students, as individuals who study at tertiary institutions, cannot be separated from stress in their activities. According to Damanik, usually one of the successes in education shown by students is their academic achievement. Academic achievement will ideally be successful if the student meets all the demands set by the university where the student is studying. The purpose of education is to form attitudes, knowledge, and skills for learning. Failure to meet these demands will lead to a decrease in performance. One of the causes of failure is when students are unable to solve the problems they face as stressors that make them stressed (Damanik, 2020).

In Indonesia, there are several private universities that provide living facilities, namely dormitories. Dormitories are provided on campus and, in general, also provide guidance and counseling services for students studying at these educational institutions. Ideally, these service facilities can help students overcome problems, especially mental health problems. Students have the potential to have various problems in life on campus and in dormitories—academic, physical, mental, social, and even spiritual. Students need strength or strategies to face these problems. Students must be able to understand their ability to overcome all problems that occur. Students must have good coping strategies to overcome all the pressures they face (Agustiniingsih, 2019). Stress experienced by students is usually expressed in almost the same behaviors, namely: irritability, decreased academic grades, inability to sleep, and less harmonious interpersonal relationships. Individuals respond to stress in different ways. This

is influenced by physical health, age, gender, coping mechanisms, and the severity of the stressors they face (Rosa et al., 2021).

Methodology

Research Design

This type of research is quantitative and uses descriptive methods. Descriptive research is research with methods to describe research results. This type of descriptive research aims to provide a description, explanation, and validation regarding the phenomenon being researched (Ramdhan, 2021). The variables examined in this study are coping strategies and academic stress.

Population and Sampling Technique

The population in this study were students of the Faculty of Nursing majoring in Bachelor of Nursing. The samples were 2nd semester students who were members of the researcher's academic guidance, totaling 34 people. The sampling technique used is purposive sampling. Sampling in this study used a purposive sampling technique, which is a technique for taking a group of subjects based on certain characteristics or characteristics that are considered to have a close relationship with the characteristics or characteristics of a previously known population (Sari & Siswati, 2022).

Instrumentation

The instrument used to collect data in this study is the Student Nursing Stress Index (SNSI) questionnaire, consisting of 18 statements that have been modified by Zaziratul (2021) with a validity value of r count > 0.633 . The instrument in this study was a questionnaire using a Likert scale of 1-5 with scores of 1 (not stressed), 2 (slightly stressed), 3 (sometimes stressed), 4 (stress), and 5 (very stressful). The next step is for each respondent's answer from the questionnaire to be summarized and interpreted as a stress rating, namely: mild stress (18-42), moderate stress (43-66), and severe stress (67-90).

Analysis of Data

Furthermore, the research data were analyzed using a descriptive method where the researcher presented them in the form of a frequency distribution table and summarized them in the form of a narrative. The data that has been obtained is then analyzed using the descriptive analysis method, by describing the facts, which are then described and reviewed with explanations. (Jembarwati, 2020).

Ethical Considerations

The researcher asked permission from the Dean, and after obtaining permission, the researcher prepared a letter of approval to become a research participant. researcher prepared informed consent, which was signed by all respondents. In the statement letter, the respondent stated his willingness to participate as a respondent in the research conducted by the researcher. Researchers apply the basic principles of research ethics: respect for people, beneficence, non-maleficence, justice.

Results and Discussion

This research was conducted on 34 respondents. The results of the descriptive analysis include the characteristics of respondents and stress levels, which are displayed in the form of frequency distributions and percentages as follows:

Demographic Profile

Table 1

Frequency Distribution of Respondent Characteristics

No	Characteristic	Frequency (f)	Percentage (%)
1.	Age 17-25 years	34	100
2.	Gender:		
	Female	6	17,7
	Male	28	82,3
3.	Religion:		
	SDA	32	94
	Non-SDA	2	0,6
4.	Status of residence:		
	Dormitory	24	70,5
	Outsider	10	29,5
Total		34	100%

Table 1 shows that all respondents have characteristics as late adolescents with an age range of 17-25 years (100%). Women dominate the gender characteristics of 28 respondents (82.3%) and 6 people (17.7%) are male. A total of 32 (94%) of the respondents were of the SDA religion, while the remainder (0.6%) were non-SDA. Not all students live in the dormitory, 24 respondents (70.5%) live in the dormitory and 10 other people (29.5%) live outside the dormitory.

Stress Level

The results of processing the description of the stress level variable data on the respondents will be described in table 2.

Table 2*Frequency Distribution of Respondents' Stress Levels*

No	Stress Level	Frequency (f)	Percentage (%)
1.	Mild	20	58,8%
2.	Moderate	12	35,2%
3.	Severe	2	6%
		Total = 34	100%

Legend: mild=18-42, moderate=43-66, severe=67-90

Based on table 2, it shows that 20 people (58.8%) experienced mild stress, 12 people (35.2%) experienced moderate stress, and the remaining 2 people (6%) experienced severe stress.

Cross Data Between Demographic Profile and Stress Levels

When cross tabulation is carried out for the characteristics of respondents with stress levels, the following results are obtained:

Table 3*Cross Tabulation of Age with Stress Levels in Respondents*

Ages	Stress Level			Total	
	Mild (f)	Moderate (f)	Severe (f)	Total (f)	(%)
18 years	1	-	-	1	3
19 years	10	4	1	15	4,1
20 years	9	3	-	12	35,2
21 years	1	3	-	4	11,7
22 years	-	1	-	1	3
24 years	-	-	1	1	3
		Total		34	(100%)

Legend: mild=18-42, moderate=43-66, severe=67-90

Based on the data above, it is evident that the level of stress experienced by respondents is at a mild level of stress, 1 person aged 18 years, 10 people aged 19 years, 9 people aged 20 years and 1 person aged 21 years. For moderate level stress experienced by respondents aged 19 years, there were 4 people, 3 people aged 20 years, 3 people

aged 21 years, and 1 person aged 22 years. For the level of severe stress in respondents aged 19 years, namely 1 person and 1 person at the age of 24 years.

Table 4*Cross-tabulation of Gender and Stress Levels in Respondents*

Gender	Stress Level			Total	
	Mild (f)	Moderate (f)	Severe (f)	Total (f)	(%)
Male	1	4	1	6	17,7
Female	20	7	1	28	82,3
		Total		34	(100%)

Legend: mild=18-42, moderate=43-66, severe=67-90

The data analysis for table 4 is as follows: there is 1 male respondent who has a mild stress level, four are moderately stressed, and one is heavily stressed. Meanwhile, the female respondents who experienced mild stress totaled 20 people, seven people who were moderately stressed, and one person who stated severe stress.

Table 5*Cross Tabulation of Religion and Stress Levels in Respondents*

Religion	Stress Level			Total	
	Mild (f)	Moderate (f)	Severe (f)	Total (f)	(%)
SDA	20	11	1	32	94,2
Non-SDA	1	-	1	2	5,8
		Total		34	(100%)

Legend: mild=18-42, moderate=43-66, severe=67-90

The results of data processing for table 5 show that of the SDA religious respondents, there were 20 people experiencing mild levels of stress, 11 people with moderate levels of stress and 1 person with severe levels of stress. Meanwhile, 1 person who was not a natural resource religion experienced mild stress and 1 person experienced a high level of stress.

Table 6

Cross-tabulation of Residence Status and Stress Level of Respondents

Residence	Stress Level			Total	
	Mild (f)	Moderate (f)	Severe (f)	(f)	(%)
Dormitory	19	5	-	24	70,6
Non-Dormitory	2	6	2	10	29,4
Total				34	(100%)

Legend: mild=18-42, moderate=43-66, severe=67-90

Table 6 shows that the majority of respondents live in dormitories. Of the 24 people living in the dormitory, 19 had mild stress levels and 5 other people had moderate stress levels. For respondents who live outside the dormitory, 2 people have a mild stress level, 6 people have a moderate stress level, and 2 people have a high stress level.

Based on the results of data analysis, it was concluded that the highest level of stress experienced by respondents occurred in respondents aged 19 years with mild levels of stress, while respondents aged 19 years and 24 years had severe levels of stress. According to research conducted by Mamnuah (2021), age is very closely related to tolerance for stress experienced by individuals. Teenagers are said to have a vulnerability to stress. As you get older, the management or coping of stress will get better (Khasanah & Mamnuah, 2021). This study shows that all respondents fall into the category of late adolescents. From the total number of respondents, it was shown that all experienced stress, but at various levels. This shows that respondents who fall into the late teenage age category also experience stress in the hope of developing good coping skills as they get older.

In this study, the number of respondents of female gender had lower levels of stress, this was because the number of research respondents was dominated by women. But according to research conducted by Adryana et al. (2020), women tend to experience stress more easily. This is because

women have character, attitude, are emotional, and are more sensitive to their environment. But according to Smeltzer & Bare (2008) in Khasanah & Mamnuah (2021), that the stress level in both male and female sexes, if it occurs continuously, will result in the potential for disease in adolescents. Therefore, it is necessary for adolescents to have good coping in dealing with stress in their lives.

This study did not look for a relationship between the religion adhered to and the level of stress experienced by respondents. But the research results show that all respondents who have beliefs or religions experience stress. But even though respondents who fall into the teenage age category have varying levels of stress, there is a strategy for managing stress, namely religious coping. Several studies show that religious coping has good effects on an individual's physical and mental health. For individuals who fall into the adolescent age category, the development of their religiosity has entered the reflective-individuative stage, namely that adolescents have begun to be able to account for their faith in a reasonable and logical way (Supradewi, 2019).

The majority of respondents in this study resided in dormitories. All respondents who live in the dormitory or outside the dormitory have varying levels of stress. This is inseparable from the stressors faced both academically and non-academically. The instrument used in this study is based on a modification of the SNSI measurement tool. According to the results of data processing, the stress experienced by respondents came from academic burdens, personal problems, and personal worries. However, it is possible that teenagers who face stress sometimes have a longing for family, a longing for home. Academic stress will be lower if teenagers have closeness with peers (Aulya et al., 2022). Therefore, it is hoped that respondents, whether they live in a dormitory or outside a dormitory, live far from their parents and family or live with their parents and family, must still have maturity in dealing with stress in their lives.

Conclusion and Recommendation

The conclusion of this research is that there is a description of the level of stress experienced by 34 nursing student respondents who are in the late teenage age category, both living in the dormitory and outside the dormitory. Stress levels range from mild, moderate to severe. This is shared by both male and female respondents, both SDA and non-SDA religions. The respondents, in this case, nursing students should be able to have coping strategies in dealing with stress in order to reduce the level of stress they experience. This study recommends that to researchers who are interested in researching stress in nursing students use the SNSI measurement tool without modification by including more complete items.

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Exploratory Factor Analysis of Religious Engagement Among Seventh-Day Adventists in Southern Asia-Pacific: An Outlook for New Dimensions

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This paper aims to explore the dimensions of religious engagement and development using exploratory factor analysis. Despite extensive studies on religious engagement and development, little attention has been paid to finding its latent factors. Existing studies primarily focus on the explanation of its overall construct and fail to account for its underlying dimensions. Data was taken from among the 6919 respondents, Seventh Day Adventists in the Southern Asia Pacific Division (SSD). This is composed of 13 different countries within the territory of the SSD. Construct validity, convergent validity, and discriminant validity were used to explore and assess the new dimensions of religious engagement and development. Purposive sampling methods were used in the gathering of data. Average Variance Extracted (AVE) and the Fornell-Larcker criterion were respectively utilized to ensure the strength of both convergent and discriminant validity. The result shows that religious engagement can be clustered into three dimensions, and these are "religious teaching application," "church ministry training," and "youth empowerment." The Kaiser-Meyer-Olkin-Meyer-Olkin Sampling Adequacy was assessed together with Bartlett's Test of Sphericity and found to be satisfying.

Keywords: *exploratory factor analysis, religious engagement and development, convergence validity, discriminant validity, social support, youth empowerment*

To a certain degree, one's religious engagement can act as a potential indicator of their spiritual state or condition. Religious engagement encompasses a wide spectrum of beliefs, behaviors, and a sense of belonging in connection to aspects of a religious nature. It involves accepting and adhering to religious doctrines, teachings, and philosophy within the framework of his belief system. Therefore, an individual who is deeply involved in religious engagement tends to actively participate in various facets of religious activities.

Religious leaders and institutions across various faith traditions have historically assumed pivotal roles as educators, advocates, intermediaries, and experts, diligently working to facilitate the transition toward enduring and sustainable peace (Smock, 2006). On a global scale, approximately 12% of the population self-identifies as either atheist or agnostic. These figures underscore the enduring impact of religious beliefs and practices on human development while highlighting the complex task of comprehending how these diverse beliefs and practices influence human psychology across the world. (ARDA, 2012).

The bulk of research examining the impact of religious engagement on development can be summarized by its consistent discovery of positive correlations between religious engagement and favorable outcomes in childhood and adolescence. These outcomes include enhanced self-control, improved social skills, and reductions in less desirable issues like internalizing and externalizing problems (refer to Bornstein et al., 2017 for more details).

Religious engagement is discerned through participants' narratives detailing their interactions with religion or spirituality, particularly within the framework of their efforts to find meaning in their experiences with brain tumors and survivorship. This involvement encompasses a wide range of aspects, extending beyond religious identity and active participation (Park et al., 2017).

A meta-analysis study that explores connections between religion, spirituality, and the well-being of cancer patients, encompassing physical (Jim et al., 2015), mental (Salsman et al., 2015), and social health (Sherman et al., 2015), indicates that it is imperative, at a minimum, to integrate the consideration of patients' religious and spiritual needs into comprehensive cancer care.

Religious leaders and other parties have an interest in classifying religious engagement into several factors. Measures of religious engagement are typically categorized into one of four domains, as outlined by DeHaan, Yonker, and Affholter in 2011 (cited in King & Boyatzis, 2015): religious attendance, religious behaviors, salience of beliefs, and religious exploration. Specifically, religious attendance pertains to the regularity with which an individual participates in formal religious services or gatherings within their faith community.

The purpose of this study is to find another dimension, by performing an exploratory factor analysis, of religious engagement. This would give another viewpoint by classifying indicators into clusters.

Methodology

This is a cross-sectional study for which data was taken from 13 different countries under the territory of the Southern Asia Pacific Division with 6919 Seventh-Day Adventist respondents. Data was taken from the website of The Association of Religion Data Archives. The sampling procedure was conducted randomly. Five churches were selected at random from each conference or mission. The survey was conducted in 2017.

The data underwent analysis through an exploratory factor analysis technique. The analysis process commenced with the selection of variables to be included, proceeded to the identification of factors, and culminated in the attribution of names to these factors. Subsequently, an evaluation of factor validity was carried out. The derived factors were

assessed for their convergent and discriminant validity using the plugins of AMOS developed by Gaskin and Lim (Gaskin and Lim, 2019).

For item selection in the analysis, the Kaiser-Meyer-Olkin's (KMO) overall measure of sampling adequacy is to be used, which is considered acceptable if the value exceeds 0.6, and also Bartlett's test of sphericity, which must yield a significant result.

The determination of the number of factors was guided by both eigenvalues and the rotated factor loadings. Direct Oblimin method for this purpose is employed. Factors were identified based on criteria where eigenvalues exceeded one (1.0) and factor loadings exceeded 0.50. The direct oblmin method was employed to determine the factor structure. When assigning names to these factors, the first and second highest factor loadings serve as guiding clues.

Results

Inclusion of Indicators

In the initial round of exploratory factor analysis, it is observed that the Kaiser-Meyer-Olkin (KMO) measure falls below the requisite threshold. It is an occurrence previously regarded as a common phenomenon. Hence, this suggests that certain initially included indicators should be excluded from the analysis.

Upon examination of the diagonal values in the anti-image correlation matrix, it was observed that several indicators displayed correlations below the threshold of 0.5. Consequently, these indicators were excluded from the analysis. As a result of this culling process, all remaining 9 variables were deemed suitable for further analysis, as indicated by the Kaiser-Meyer-Olkin (KMO) value of 0.856 and the statistical significance of Bartlett's test of sphericity ($p < 0.01$), as illustrated in Table 1.

Table 1

KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.856
Bartlett's Test of Sphericity	Approx. Chi-Square	27217.864
	df	36
	Sig	.000

The communalities signify the extent to which each variable's variance is accounted for by its respective factor. They range from 0.764 to 0.853, except for one indicator, "My local church has a program for preparing young people to become leaders," which exhibits a commonality of 0.726.

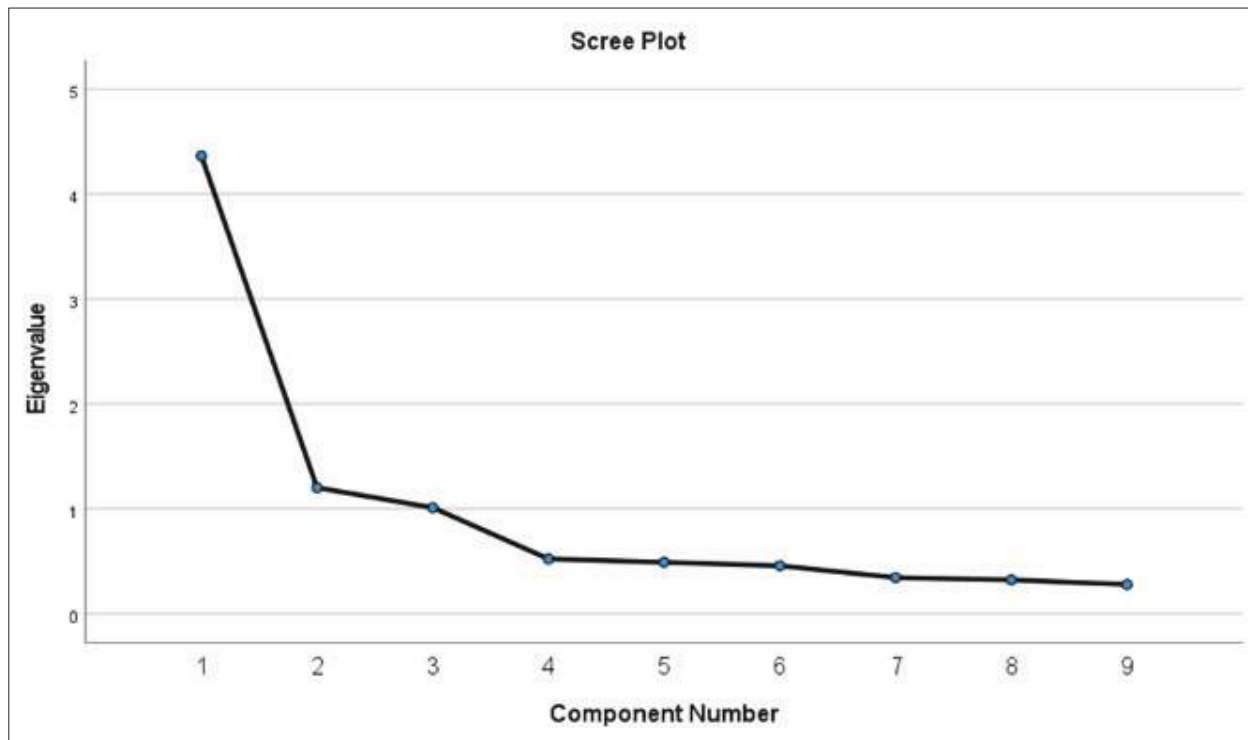
The analysis encompasses a comprehensive set of variables, which include "I apply what I learn from Sabbath School lessons to my daily life.", "I apply what I learn from the bible to my daily life", "I apply what I learn from Ellen White's writings to my daily life.", "My local church offers training on nurturing and disciplining church members.", "My local church offers training on conflict resolution and reconciliation.", "My local church offers training on Christ's method of evangelism", "Youth and young adults are actively involved in carrying out the mission of my local church.", "Youth and young adults play an important role in decision-making in my local church." and "My local church has a program for preparing young people to become leaders".

Number of Factors

As revealed in the scree plot below, three factors can be used to explain the religious engagement of Southern Asia-Pacific since the eigenvalue of the first three factors is greater than 1.

Figure 1

Number of Components of Religious Engagement



In Table 2 below, the rotation sum of squared loadings for the first factor is 24.666. This means that the first latent factor of religious engagement explains 24.666% of the variance of religious engagement. The second and third latent factors have rotation sums of squared loadings of 24.351 and 24.086, respectively. The total variance that explains the three factors is 73.103. This indicates that 73.103% of the religious engagement can be explained by the three latent factors.

Table 2*Total Variance Explained*

Components	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.365	48.499	48.499	4.365	48.499	48.499	2.220	24.666	24.666
2	1.203	13.362	61.860	1.203	13.362	61.860	2.192	24.351	49.017
3	1.012	11.243	73.103	1.012	11.243	73.103	2.168	24.086	73.103

In the rotated component matrix as shown below, the first latent factor indicates the loading between an absolute value of .764 to .853 as indicated in Table 3. The second latent factor shows a loading between .769 and .834. The third latent factor indicates a loading between .726 and .846.

Table 3*Rotated Component Matrix*

Variables	Components		
	1	2	3
I apply what I learn from Sabbath School lessons to my daily life.	.853	.143	.219
I apply what I learn from the Bible to my daily life.	.814	.131	.249
I apply what I learn from Ellen White's writings to my daily life.	.764	.248	.114
My local church offers training on nurturing and disciplining church members.	.178	.834	.201
My local church offers training on conflict resolution and reconciliation.	.101	.802	.171
My local church offers training on Christ's method of evangelism	.219	.769	.167
Youth and young adults are actively involved in carrying out the mission of my local church.	.205	.170	.846
Youth and young adults play an important role in decision-making in my local church.	.172	.173	.808
My local church has a program for preparing young people to become leaders.	.231	.297	.726

Names of Factors

Looking at the results in Table 3, the first latent factor is composed of the variables "I apply what I learn from Sabbath School lessons to my daily life," "I apply what I learn from the Bible to my daily life," and "I apply what I learn from Ellen White's writings to my daily life."

The second latent factor is composed of variables: "My local church offers training on nurturing and disciplining church members," "My local church offers training on conflict resolution and reconciliation," and "My local church offers training on Christ's method of evangelism."

The third latent factor is composed of variables "youth and young adults are actively involved in carrying out the mission of my local church," "youth and young adults play an important role in decision-making in my local church," and "my local church has a program for preparing young people to become leaders."

The first latent factor captures the practical application and relevance of religious teachings in shaping one's daily life and behavior. As a result, the first latent factor can be named RELIGIOUS TEACHING APPLICATIONS.

The second latent factor reflects the emphasis on equipping individuals with the necessary

knowledge and tools to actively participate in and contribute to the life and ministry of the church. Therefore, the second latent factor may be named church ministry training.

The last but not least latent factor reflects the recognition of the importance of youth and young adults as respected contributors to the church community, with efforts being made to empower them, provide opportunities for their active participation, and cultivate their leadership skills. Thus, the third latent factor may be named youth empowerment.

Validity of Factors

To test the validity of latent factors of religious engagement, a confirmatory factor analysis was executed. There are two different aspects of validity within the factor validity framework. There is convergent validity and discriminant validity. Convergent validity suggests the strength of the correlations among variables within the same latent factor.

To measure the strength of the relationship among the variables in the same latent factor, composite reliability (CR) with a threshold of .700 and average variance extracted (AVE) with a threshold of .500 are used. All three factors

of religious engagement have adequate composite reliability and average variance extracted. Religious Teaching Applications (AVE = .620), Church Ministry Training (AVE = .586), and Youth Empowerment (AVE = .597) have respectively, composite reliability of .829, and .816. The convergent validity table is shown below.

Table 4*Convergent Validity*

	Composite Reliability (CR)	Average Variance Extracted (AVE)	Maximum Shared Variance (MSV)
Religious Teaching Applications	.829	.620	.398
Church Ministry Training	.808	.586	.375
Youth Empowerment	.816	.597	.398

Discriminant validity also indicates that in a latent factor, no variables have a significant relationship with other variables in another latent factor. To indicate that no variables in one latent factor have strong relationships with another variable in the other latent factors, the Fornell-Larcker criterion is used. The table below is the Fornell-Larcker criterion. The numbers in the diagonal are the square root of the average variance extracted. While in the off-diagonal are the correlations between the latent factors. Fornell-Larcker criterion conditions that the square root of AVE of the latent factor should be greater than its correlation with the other latent construct. Hence, by considering Table 5, the AVE of any latent factor is greater than its correlation with other latent factors, and hence they are satisfied with the Fornell-Larcker criterion.

Table 5*Discriminant Validity*

	Religious Teaching Applications	Church Ministry Training	Youth Empowerment
Religious Teaching Applications	.788		
Church Ministry Training	.519	.766	
Youth Empowerment	.631	.613	.772

Discussion

There are nine variables, or items, being considered in this study. They are “I apply what I learn from Sabbath School lessons to my daily life,” “I apply what I learn from the bible to my daily life,” “I apply what I learn from Ellen White’s writings to my daily life,” “My local church offers training on nurturing and disciplining church members,” “My local church offers training on conflict resolution and reconciliation,” “My local church offers training on Christ’s method of evangelism,” “Youth and young adults are actively involved in carrying out the mission of my local church,” “Youth and young adults play an important role in decision-making in my local church,” and “My local church has a program for preparing young people to become leaders.”

The result introduced by DeHaan, Yonker, and Affholter in 2011 (cited in King & Boyatzis, 2015) is that religious engagement is categorized into four categories, namely, religious attendance, religious behaviors, salience of beliefs, and religious exploration. Which is almost completely different from this paper’s output.

In this study, new dimensions are being discovered as latent factors or constructs for religious engagement. Together, they collectively accounted for 73.103% of the variance in religious engagement as

measured in combination. These new dimensions are the following: religious teaching applications, church ministry training, and youth empowerment. Although there are several ways of presenting latent factors of religious engagement, as has been mentioned by Dehaan, Yonker, and Affholter, the respondents of this study were adolescents. Respondents to this study are Seventh-day Adventists within the territory of the Southern Asia Pacific Division.

According to the findings of Richert and Saide, approximately 32% of the global population identify as Christian, while 22% identify as Muslim, 14% as Hindu, and 7% as Buddhist. The remaining are aligned with diverse religious groups (Richert and Saide, 2020). If this were the dataset employed in the study, the outcomes might also have varied.

The outcomes of convergent and discriminant validity in this study not only supported but also reinforced the assertion of the three latent factors. In this specific context, the statistical analysis involved the utilization of AMOS plugins developed by Gaskin and Lim (Gaskin and Lim, 2019).

Conclusion and Recommendation

It is deemed necessary to consider dimensions of religious engagement to easily break down the concept behind religious engagement. Latent factors of religious engagement in this study were found to be “religious teaching application,” “church ministry training,” and “youth empowerment.”. It should be noted that once the latent factors of religious engagement have been extracted, several benefits can be realized.

It allows a deeper understanding of the structure. It can also enhance the predictive power of forecasting and analysis of future trends associated with religious engagement. Understanding latent factors such as “religious teaching application,” “church ministry training,” and “youth empowerment” can significantly enhance decision-making by ultimately guiding forward to a more effective approach. Finally, the foremost benefit of looking for latent factors is ‘dimensionality reduction’. In this

study, the nine items under religious engagement were reduced to three latent constructs.

Regrettably, it must be acknowledged that there has been a limited effort to uncover the latent factors influencing religious engagement. This study is only focused on the Seventh-Day Adventist respondents in the territory of Southern Asia and the Pacific. It is recommended that a greater portion of the Seventh-Day Adventist population be included in the study.

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Effects of Adventist Education Experience and Attitude of Church Leaders and Members on Spiritual Well-Being Among Seventh-day Adventists in the Southern Asia-Pacific Division: Mediated by Religious Activity Engagement

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Spiritual well-being has been identified as a crucial factor for general health that should be taken into consideration. This paper aims to determine the mediation effects of religious activity engagement on the influence of Adventist education experience and the attitude of church members on the spiritual well-being of Seventh-day Adventists in the Southern Asia-Pacific Division (SSD). Data was gathered from among the 5672 respondents among Seventh-day Adventists in SSD, which is composed of 12 different countries. In the collection of data, purposive sampling methods were used. The findings from the correlation analysis indicate that being exposed to Adventist education, engaging in religious activities within the Adventist Church, and experiencing positive attitudes from fellow church members are associated with an increased level of spiritual well-being among Seventh-day Adventists. The result indicates that the effects of Adventist education experience and attitude on the spiritual well-being of Seventh-day Adventists are partially mediated by religious activity engagement. This means that the direct effects of both Adventist education experiences and the attitudes of church members on spiritual well-being are substantial. Adventist education experience and attitude contributed 5.6% to the variance in religious activity engagement. Adventist education experience, attitude of church members, and religious activity engagement account for 10.3% of the variance in spiritual well-being. These findings shed light on the importance of fostering pastors' positive attitudes and active engagement in religious activities to promote spiritual well-being within the Adventist community.

Keywords: *Structural Equation Modeling, religious activity engagement, Adventist education experience, attitude, spiritual well-being*

Well-being is extremely important to human beings (Chou et al., 2016). Fisher's spiritual well-being model (2010) emphasizes two key dimensions of spiritual well-being: religious well-being and existential well-being. Religious well-being is associated with one's relationship with a higher power or religious beliefs, while existential well-being is related to a sense of life's purpose and meaning. Fisher's model is often used to measure and assess spiritual well-being.

There are different definitions of spiritual well-being. It is a concept that encompasses a sense of connection, purpose, and meaning in life, a deeper understanding of one's values and beliefs, and is often tied to one's spirituality or religious beliefs. It involves a sense of inner peace, contentment, and harmony with oneself and the world. Spiritual well-being can be manifested in the current condition of spiritual health and quality of life, just as a person's appearance and breath reflect his or her physical health. It can be demonstrated by his or her love, care, mercy, performance, awareness, inspiration, and self-sacrifice (Insel & Roth and Ellison, as cited in Pong, 2022).

LeBlanc and Slaughter (2012) found out in their interview with students that they desire their Christian education experience to challenge them to grow spiritually and further help them learn how to apply their faith in "real-world" contexts. This means that these students still want to improve their Christian education experience and believe that access to and interaction with godly professors will challenge them to grow spiritually in a discipling model.

The Seventh-day Adventist (SDA) was characterized as a conservative, strict denomination by social scientists (Lawson, as cited in McBride et al., 2021). Adventists believe in the inspiration of the Bible and worship on the seventh day. Adventists also place a strong emphasis on higher education (McBride et al., 2021). SDAs' spiritual wellbeing is a matter of being connected with God, who is perceived as close and responding to prayers,

and as accessible in different situations, either in nature or in prayers. SDAs' spiritual wellbeing was predicted best by less frequent experiences of spiritual dryness, which is a specific form of spiritual crisis (Büssing & Dienberg, as cited in Büssing et al., 2021).

Christian colleges and universities aim to shape students to have a biblical worldview that affects their actions. Some studies have investigated the role of Christian education in the well-being of adults. The study conducted by Dangel and Webb in 2017 showed there was a positive connection between psychological wellbeing and a sense of spirituality.

The attitude of church leaders and members may affect the religious engagement of church members and further affect the spiritual well-being of the members. Kato et al. (2015) stated that a positive life attitude indeed has protective effects on the health and well-being of an individual.

There is a significant gap of information in the research about the spiritual well-being among SDAs and how it is being affected by several factors, such as Christian education, the attitude of church members, and their involvement in church activities. The gap in this relationship is crucial since it is a way of nurturing church members. There is limited research conducted among SDAs due to the belief that they are already spiritually well. Thus, this study was conducted to provide concrete evidence of this claim or otherwise. According to Stewart et al. (2019), few studies evaluated the details of the Christian experience to determine their negative or positive contributions to wellbeing.

Thus, this study determined the effects of Adventist education experience and attitude of church leaders and members on spiritual well-being among Seventh-day Adventists in the Southern Asia-Pacific Division, taking into consideration religious activity engagement as a mediator variable. Specifically, it addressed the following: 1) describe the Adventist education experiences,

attitude of SDA leaders and co-members, religious activity engagement, and their spiritual well-being; 2) degree of relationship among variables; 3) predictors of spiritual well-being; and 4) mediating effects of religious activity engagement on Adventist education experience, attitude, and spiritual well-being.

Methodology

This study used a cross-sectional descriptive-correlational design. The inclusion criteria consisted of the church members of the Seventh-day Adventist (SDA) in the Southern-Asia Pacific Division. Data was gathered from among the 5672 church members, which are composed of 12 different countries. This study was represented by the following countries: the Philippines (41.7%), Bangladesh (11%), Cambodia (.2%), Indonesia (28.6%), Lao PDR (.5%), Malaysia (3.9%), Myanmar (7.6%), Singapore (.7%), Sri Lanka (2.2%), Thailand (2.2%), Timor-Leste (1.1%), and Vietnam (1.4%). A purposive stratified sampling approach was used within the divisions to ensure variance in church size and location. However, during the data management, respondents with more than 50% missing responses were removed from the analysis.

The SDA Global Church Member survey questionnaires were used in this study and were content-validated by the experts in the field. The following scales in the SDA Global Church members survey questionnaires were utilized in this study: Adventist Education Experience (20 items), Attitude of Church Leaders and Members (8 items), Spiritual Well-Being (8 items), and Religious Activity Engagement (18 items). These scales were composed of 20 items.

The study was composed of males (41.8%) and females (56.3%), while 1.9%, or 106, did not declare their sexual orientation. For their employment, of the 5672 respondents, 10.9% were employed in

the past by the SDA church, 20.2% were employed, 66.8% were not employed by the SDA church, and 2.4% did not indicate their employment. During the time of data gathering, the respondents were married (48.3%), single (39.9%), divorced (1.7%), separated (2%), widowed (3.1%), living together, not married (1.7), and the 3.2% did not indicate their marital status.

The respondents to the study were assured of confidentiality and anonymity. The study protocol and the questionnaire were submitted to the Institutional Ethics Review Committee. A consent form was given to the respondents, and they were allowed to withdraw anytime they wanted.

Statistical tools such as mean, standard deviation, Pearson correlation, multiple regression, and structural equation modeling were used with the assistance of SPSS version 28 and Smart PLS.

Results

Table 1 presents the descriptive statistics of Adventist education experience, attitude of church leaders and members, religious engagement, and spiritual wellbeing of the SDA respondents. The results revealed that the Adventist education experience of the respondents is good (mean = 3.53, SD = 0.57). This indicates that the respondents perceive their Adventist educational journey favorably, with a low degree of variation in their assessments. This suggests that the SDA educational system has been largely effective and satisfying for the respondents. Among the items of Adventist education experience, the following items were rated the highest: R52.20. Adventist education makes one a better Adventist (R52.19. Adventist schools, colleges, and universities provide an environment that makes one feel closer to God; and R52.6. Adventist education provides a solid foundation in the Fundamental Beliefs of the Church).

Table 1*Descriptive Results of the Variables Under Study*

	Min	Max	Mean	Std. Deviation	Interpretation
Adventist Education Experience	1.00	5.00	3.53	.57	Good
Attitudes of Church leaders and members	1.50	5.00	3.87	.54	Good
Religious Engagement	1.00	7.00	4.12	1.22	Moderate Involvement (Once a Month)
Spiritual well-being	1.00	5.00	3.62	.68	High

The attitude of church leaders and members is good (3.87, SD=.54). This indicates that, on average, the respondents have favorable opinions regarding the attitudes of their church leaders and fellow congregants. This means that the respondents perceived a supportive and encouraging community within the SDA church. The top items with the highest mean include Q29.24. *I have not been sexually abused by an authority figure in the church* (Q29.8). *The pastor(s) and lay leaders in my church work together well as a team* (Q29.2). *My pastor cares about me, and* Q29.3. *Other people in my church care about me.*

However, when it came to their religious activities' engagement, it was only moderate (mean = 4.12, SD = 1.22). This suggests that, on average, respondents engage in religious activities approximately once a month. The higher standard deviation indicates more variability in this aspect of their religious practices, suggesting that some respondents may be more actively engaged while others are less engaged. This observation could have implications for strategies aimed at increasing the frequency of religious engagement among SDA members. Among the items in religious activity engagement, the following items were rated the highest: Q25.1. *Attended church services.*; Q25.2. *I attended Sabbath School and* Q25.4. *I attended a small group organized through my church.*

The overall level of their spiritual well-being is rated high (mean = 3.62, SD =.68) by the respondents. This indicates that, despite the moderate level of religious engagement, respondents still perceive a strong sense of spiritual wellbeing. It implies that SDA individuals are experiencing a positive sense of spiritual fulfillment, possibly due to factors beyond the frequency of religious activities, such as personal reflection, prayer, or spiritual connection in other aspects of their lives. The three highest-rated items on the spiritual wellbeing scale include the following: Q41.3. *I more often have a sense of gratitude* (Q41.2. *Because of spiritual changes I've been through, I've changed my priorities;* Q41.1. *I have grown spiritually).*

Table 2*Relationship Between Variables*

Variables		
Religious Engagement and Spiritual Wellbeing	Pearson Correlation	.169**
	Sig. (2-tailed)	.000
	N	5672
Adventist Education Experience and Spiritual Wellbeing	Pearson Correlation	.290**
	Sig. (2-tailed)	.000
	N	5672
Attitude of Church leaders and members and Spiritual Wellbeing	Pearson Correlation	.079**
	Sig. (2-tailed)	.000
	N	5672

As presented in Table 2, religious engagement is correlated with spiritual well-being, with a correlation coefficient of .169, $p = .000$. The correlation coefficient of 0.169 suggests a positive but relatively weak correlation between religious engagement and well-being. In other words, as religious engagement increases, well-being tends to increase, but the relationship is not very strong. In this context, it means that there is strong evidence to suggest that the relationship between religious engagement and well-being is not due to chance.

The Adventist education experience is correlated with the well-being of the respondents ($r = .290$, $p = .000$). The correlation coefficient of .290 suggests a stronger positive correlation between the Adventist education experience and spiritual well-being compared to the previous correlation. This means that the better the Adventist education experience, the more well-being tends to increase, and the relationship is stronger. Religiosity is also positively correlated with spiritual well-being ($r = .183$, $p = .000$). The results indicate that as religiosity increases, spiritual well-being tends to increase.

Lastly, the attitude of church leaders and members matters to improving the spiritual well-being of church members ($r = .079$, $p = .000$). The correlation coefficient of .079 suggests a relatively weak positive correlation between the attitude of church leaders and members and the spiritual well-being of church members. However, it's important to note that this correlation is weaker than some of the previous ones mentioned. In summary, these correlations suggest that religious engagement, the Adventist education experience, religiosity, and the attitude of church leaders and members are all positively associated with spiritual well-being. The strength of these relationships varies, with the Adventist education experience showing the strongest correlation with well-being.

Table 3

Correlation Analysis Between the Exogenous and the Moderator Variables

Variables		
Adventist Education Experience and Religious Engagement	Pearson Correlation	.169**
	Sig. (2-tailed)	.000
	N	5672
Attitude of Church leaders and members and Religious Engagement	Pearson Correlation	.290**
	Sig. (2-tailed)	.000
	N	5672

The results in Table 3 reveal the correlation analysis between Adventist education experience and the attitude of church leaders and members toward religious engagement. These variables were significantly correlated at the 0.000 level. The correlation coefficients of .150 for Adventist education and religious engagement and .184 for the attitude of church members and leaders indicate a high degree of positive correlation between attitude and religious engagement.

These results suggest that a positive Adventist education experience and favorable attitudes from church leaders and members are influential factors contributing to increased religious engagement among church members. This result can guide efforts within the Adventist community to prioritize and enhance Adventist education experiences, as well as foster positive attitudes among church leaders and members. By doing so, there is a potential to positively impact and strengthen the religious engagement of Seventh-day Adventist church members. This information can be valuable for educational institutions, church leadership, and the community at large in promoting a more spiritually engaged and connected Adventist community.

Table 4*Regression Analysis on the Predictors of Spiritual Well-being*

Model	Unstandardized Coefficients		Standardize the coefficients	t	Sig.	R-Square Change
	B	Std. Error	Beta			
(Constant)	1.661	.136		12.249	.000	
Adventist Education Experience	.329	.015	.272	21.355	.000	.084
Religious Engagement	.066	.007	.118	9.117	.000	.016
Attitude of Church leaders and members	.075	.018	.053	4.143	.000	.003

$F(3,5668) = 216.88$ $p = .000$ $p = .000$ $R^2 \text{ Total} = .102$

The regression analysis reveals that among Seventh-day Adventists, three factors significantly predict spiritual well-being. Adventist education experience (8.4% variance accounted for): Individuals who have experienced Adventist education tend to report higher levels of spiritual well-being. This means that individuals who have had an Adventist education experience are more likely to report higher levels of spiritual well-being compared to those who have not had this experience. For every unit increase in this experience, spiritual well-being is expected to increase by 0.329 units.

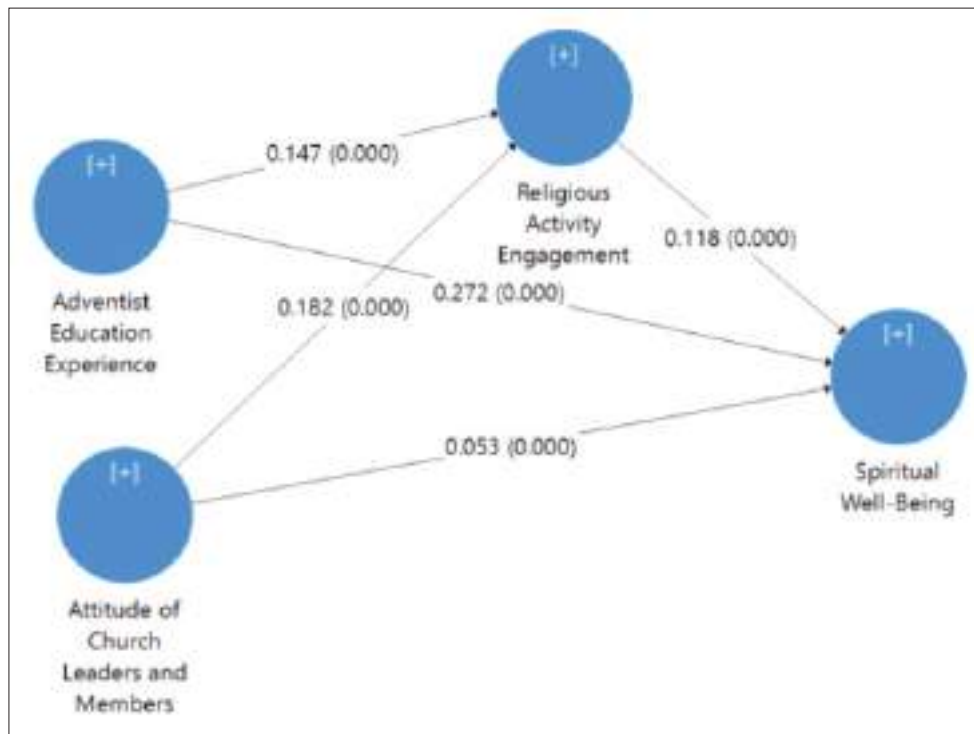
Another significant predictor is religious engagement, which accounts for only 1.6% of the variance in spiritual well-being. Active participation in religious activities positively affects spiritual well-being, with a beta coefficient of 0.066. Religious engagement refers to an individual's active participation and involvement in religious activities and practices.

The attitude of church leaders and members (0.03% variance accounted for) is the last significant predictor of spiritual well-being. While a more positive attitude from church leaders and members slightly correlates with higher spiritual well-being (0.075 coefficient), this factor has the smallest impact. The analysis suggests that the

attitude of church leaders and members accounts for a very small portion of the variance in spiritual well-being, only 0.03%. This indicates that the attitude of church leaders and members has a limited impact on an individual's spiritual well-being. The coefficient of 0.075 shows a positive relationship, meaning that a more positive attitude from church leaders and members is associated with slightly higher levels of spiritual well-being. However, this effect is relatively weak compared to the other predictors. Overall, the regression model provided is $Y = 1.661 + 0.329X_1 + 0.066X_2 + 0.075X_3 + e$, where Y represents spiritual well-being, X_1 is Adventist education experience, X_2 is religious engagement, and X_3 is the attitude of church leaders and members. The model allows us to predict an individual's spiritual well-being based on these predictors. The constant term of 1.661 represents the expected level of spiritual well-being when all predictors are at zero. In summary, the results indicate that Adventist education experience has the most substantial influence on spiritual well-being among Seventh-day Adventists, followed by religious engagement, while the attitude of church leaders and members plays a relatively minor role in explaining variations in spiritual well-being.

Figure 1

Structural Equation Model: Analysis of Mediating Effects of Religious Activity Engagement in the Influence of Adventist Education Experience and Attitude of Church Leaders and Members on Spiritual Well-Being



Legend: AE – Adventist Education Experience, RA – Religious Activities Engagement, RW – Religious Well-Being, At – Attitude of Leaders and Church Members, S – Significant

Mediation analysis was performed to assess the mediating effects of religious activity engagement on the relationship between Adventist education experience and spiritual well-being. The results (see Figure 1) have shown that the effect of Adventist education experience on spiritual well-being was significant (H1: $\beta = .272$, $t = 19.85$, $p = .000$). With the presence of the mediating variable Religious Activity Engagement, the effect of Adventist Education Experience on Spiritual Well-Being became significant ($\beta = .290$, $t = 21.114$, $p = .000$). The indirect effect of Adventist education experience on spiritual well-being via religious activity engagement was also found to be significant ($\beta = .019$, $t = 6.879$, $p = .000$). This result confirms that the relationship between Adventist education experience and spiritual well-being is partially mediated by religious activity engagement.

Similarly, a similar analysis was performed to evaluate the mediating effects of religious activity engagement on the impact of the attitudes of church leaders and members on spiritual well-being. The results in the above table indicated that the effect of the attitude of church leaders and members on spiritual well-being was significant (H1: $\beta = .053$, $t = 3.576$, $p = .000$). With the enclosure of religious activity engagement, the effect of the attitude of church leaders and members on spiritual well-being became more significant ($\beta = .074$, $t = 5.022$, $p = .000$). The indirect effect of the attitude of church leaders and members on spiritual well-being through religious activity engagement was also found to be significant ($\beta = .021$, $t = 7.821$, $p = .000$). This infers that the impact of the attitude of church leaders and members on spiritual well-being is again partially mediated by religious activity engagement.

Discussion

Ellen G. White (2018) emphasized Christian education as it encompasses more than just the imparting of academic knowledge. It involves the holistic development of an individual—body, mind, and spirit. Christian education, according to Ellen G. White, includes the integration of faith and learning, character development, service and mission, physical health, and preparation for the life hereafter. It is evident in this study that the church member's education experience was perceived as good. Christian educational experience also includes opportunities for involvement in various other "activities," including religious activities (McMaster, 2013).

Furthermore, the attitudes of church leaders and members were rated as good. Attitudes are linked to people's affect, behavior, and cognition (Eagly & Chaiken, as cited in Dunaetz & Priddy, 2013). In this study, the church members were cared for by their co-church members and leaders. They worked together as a team and have not experienced being abused.

Other results revealed that the engagement of church members in religious activities was moderate, which means that they were engaged only once a month. Several studies were conducted (Fordyce, Eryilmaz, Tkach, & Lyubomirsky, as cited in Eryilmaz, 2015) to investigate the relations between religious activities and the subjective well-being of high school students. It was found that religious activity engagement has been considered an aspect of a meaningful life and was considered a strategy to increase the well-being of an individual. However, there has been little empirically validated evidence found between religious activities and well-being in the context of subjective well-being-increasing strategies. Thus, the findings of the present study make an important contribution to the related literature.

On the other hand, the spiritual well-being of the church members was high. This result confirms the study conducted in the Philippines among

Filipino adolescents by Entegro and Del Castillo (2021). Their findings revealed that, in general, Filipino adolescents' spiritual well-being is positive. They live in harmony within their relationships in the personal, communal, environmental, and transcendental domains, which were all highly rated.

According to Nainggolan and Ma (2022), spiritual formation is identical with spiritual wellbeing. Francis and Penny (2016) showed in their study that young people who engage in spiritual activities are more likely to have a strong correlation between spiritual wellbeing and positive attitudes. Krause and Ironson (2019) found that spiritual perception leads to greater hope and a sense of contentment.

This study focused on the mediation effects of religious activity engagement on the influence of Adventist education experience and the attitude of church members on the spiritual well-being of Seventh-day Adventists in the Southern Asia-Pacific Division (SSD). Findings indicated that the effects of Adventist education experience and attitude on the spiritual well-being of Seventh-day Adventists are partially mediated by religious activity engagement. The study was able to establish that Adventist education experience, the attitude of pastors, church leaders, and members, and religious activity engagement are significant predictors of spiritual well-being.

In conclusion, the result of the study determines the significant effect of Adventist education experience, engagement in religious activities, and positive attitudes from church members on the spiritual well-being of Seventh-day Adventist church members. The correlation analysis highlights the associations between these factors, while the structural equation model reveals that Adventist education experience and attitude exert direct effects on spiritual well-being, with religious activity engagement partially mediating these effects. The collective influence of Adventist education experience, attitude of church members,

and religious activity engagement accounts for a noteworthy portion of the variance in spiritual well-being among Seventh-day Adventists. The findings emphasize the importance of cultivating positive attitudes among pastors and encouraging active participation in religious activities to enhance spiritual well-being within the Adventist community.

Several recommendations were made to enhance spiritual well-being within the Seventh-day Adventist community: Adventist education should be promoted to the Seventh-day Adventist community. Since there is association between Christian education and spiritual well-being, there is a need to prioritize and strengthen Adventist educational programs. Adventist institutions should focus on providing comprehensive and impactful educational experiences that contribute positively to the spiritual development of church members.

It is recommended to encourage active participation of members in religious activities organized within the Adventist Church. This may involve Adventist youth programs, health, family, and women ministries, spiritual retreats, and other community religious activities that promote a sense of religious engagement among Seventh-day Adventists.

The result of this study showed a positive correlation between attitudes from pastors, church leaders, and fellow church members that efforts should be directed towards promoting a positive and supportive community environment. This may involve implementing initiatives to foster a culture of acceptance, encouragement, and positive interactions within the Adventist community.

A collaborative initiative can be considered between educational institutions, church leaders, and community members to create a holistic approach to spiritual development for church members. The Seventh-day Adventist community can work towards creating an environment that nurtures spiritual well-being, ultimately fostering a stronger and more connected community.

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Models of Counseling: The Relationship Between Theology and Psychology in the Field of Pastoral Counseling

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This study determined the relationship between theology and psychology in pastoral counseling. The relationship between theology and psychology as it pertains to pastoral counseling has generated diverse views and arguments. The various proposals on whether the two disciplines could be integrated or not have led to confusion, diverse proposals, and disagreement among professional and non-professional counselors. Those who adhere to the integration view hold that theology and psychology are useful tools in pastoral counseling. The integration of these two fields helped form clinical pastoral care and Christian counseling models. Separationists, however, do not see the relationship between theology and psychology and believe that these operate in separate and unrelated fields. This led to the formation of the Levels of Counseling and Biblical Counseling Models. Using a qualitative and analytical approach, this paper addressed the widening polarization of the two opposite views of integration and separation. The research found that while there are inherent weaknesses in each model, each has their own unique and useful contributions to the area of pastoral counseling. The eclectic and syncretistic utilization of the strengths of these models would enhance the skill, effectiveness, and efficiency of pastoral counselors and make their ministry more relevant. It is recommended that further study be done to determine in detail the eclectic and syncretistic adaptation of both theology and psychology in the counseling process and how each contributes to the well-being of the counselee. Both professional and non-professional counselors will discover the harmony and contributions of their respective fields to a holistic counseling approach.

Keywords: *pastoral counseling, integration view, separation view, clinical pastoral care model, counseling models*

Pastoral counseling has been considered one major area in pastoral ministry (Patton, 2002). Authors in the field of pastoral education agree that pastoral counseling is important in the caring ministry of pastors. Pastors are oftentimes considered frontliners whenever their constituents experience tragic events in their lives that cause emotional trauma and pain (Pierre & Reju, 2015). These traumatic experiences, when not properly addressed, may add to grief, sadness, distress, and even depression among people. Thus, pastors are considered a vital part of the team who minister to the emotional and spiritual needs of the people in their community.

Effective pastoral counseling requires skills, tools, and the appropriate approach to be relevant and responsive to the counselee's needs. The application of counseling principles and techniques and the utilization of contributions from various related fields are generally helpful in dealing with the emotional and spiritual needs of individuals (Pulaski, 2004). The field of psychology primarily deals with the behavioral, mental, and psychological health of people. As a scientific approach to address human problems, it claims objectivity in its procedures, processes, and outcomes (Fucks, 2003).

However, pastoral counseling faces a challenge on how to deal with the diverse views regarding the roles of theology and psychology. There are other challenges on whether theology and psychology complement each other in this aspect of pastoral care. Non-professional counselors, including clergies, utilize biblical and theological principles in dealing with their clients' emotional and spiritual needs. Professional counselors, on the other hand, use the concepts of psychology heavily in their approach. It seems clear that failure to view and assess the roles, scope, functions, and contributions of these two disciplines in relation to counseling would only widen the gap towards dichotomy and polarization.

In one view that considers the Bible sufficient to address humans' emotional and spiritual needs (Ganschow, 2019), ministerial practitioners

consider psychology as too secular as it has been influenced by humanism and rationalism of the nineteenth century. Thus, psychology is perceived as anthropocentric in scope and orientation. As a result, the line dividing theology and psychology has been drawn almost without or very little meeting point in between (MacArthur, 2005). The principle of *Sola Scriptura* has been misconstrued as the denial of anything not written in the Bible.

Things changed in the middle of the 20th century as some schools integrated psychology and theology into counseling (Hunsinger, 1995). Christian scholars from known schools and associations began to promote the integration view for counseling. A counterreaction ensued and resulted in further polarizing the different opposing views.

The basic vertical and horizontal lines that polarize the different views regarding the use of theology and psychology in pastoral counseling are based on the integration and separation views. Between these two lines are the different models showing the relationship between theology and psychology in the field of pastoral counseling. The integrationists view theology and psychology as complementary, where each has something to contribute to the area of counseling. The Separationists see a limited meeting point between the two fields and believe that theology and psychology work in two different spheres and that any working relationship between the two is either non-attainable or too limited in scope. Some adherents of this view consider psychology purely scientific and objective, while theology is based on faith and thus subjective. However, within the integration and separation views are models that show the degree of usefulness of either theology or psychology and their relationship in the counseling process (Munson, 2017).

The Integration View

The integrationist view considers both the Bible and psychology as useful in counseling. Theology and psychology are geared toward the same goal – to understand human nature, its problems, and its

solutions. The combination of scientific insight and divine revelation is deemed important in addressing human needs (Pascual, 2023). What divides the integration view is the degree of authority accorded to each of these fields. Which of the two, theology or psychology, takes precedence in the counseling process? If conflicts arise between theology and psychology, which of the two has the final say?

Counselors' viewpoints vary on the degree of authority with which theology and psychology function in the field of counseling. One perspective considers theology valuable in counseling, but it is more psychology-focused (Munson, 2019). Although this integrationist view considers humans as integrated beings and therefore the treatment should be holistic, there is more emphasis in psychology than theology. The objective and empirical nature of psychology elevate it to a higher level of authority, and the Bible takes a subsidiary and complementary role in the process (Keller, 2010). This dichotomized approach is not helpful because human problems are psychologically and spiritually linked. Psychology, which is considered to be based on general revelation and empirical knowledge, should be augmented with special revelation that is faith oriented.

Other adherents of integration view the opposite perspective in the relationship between psychology and theology. While psychology offers valuable contributions to address human needs, divine revelation takes the upper hand in the counseling process (McCarron, 2004). This understanding is rooted in the premise that science cannot adequately explain and deal with the issues pertaining to human nature and problems. The objective claims of psychology and science fall short of fully addressing the real problems and conditions of humans. They view psychology as theoretically loaded, with its premises founded in philosophy and assumptions. Only the divine revelation has a satisfactory answer to the real root of the problem, which is the reality and presence of sin. It is theology that makes counseling relevant to the counselee since

psychology cannot deal with the problem of sin as it is too human centered. However, this school of thought sees some benefits from psychology; thus, using and applying its principles is beneficial if it is in line with the biblical narrative of human origin, fall, and redemption (Mack, 2020).

The Separation View

The separation view sees the dichotomy and inconsistency between theology and psychology, thus making them separate disciplines when applied to the counseling process. The main argument for their separation is the differences between the paradigms on which each of these fields is based. While theology is based on Scripture, psychology, according to Myers, is "the science of behavior and mental processes" (Myers, 2010). The plain objectivity and scientific method claimed by psychology allow it to function independently and separately in the counseling process. Such objectivity criticizes the subjective nature of theology, which, accordingly, is based on faith. Psychology has its own approach to a person's psychological, emotional, and relationship issues, while theology deals with the spiritual problems of a person. Several authors coined the term "The Levels of Explanation Model" as one dimension of the separation view (Munson, 2017). If theology and psychology are separate disciplines, then they deal with different issues. In other words, they only have a very limited relationship or even non-connection with each other.

Another area of the separation view focuses on the divine revelation as the tool for the counseling process. Known as the Biblical Model of Counseling, it asserts that the divine revelation has the final say in addressing the needs of the counselee. The focus is on sin as the cause of human suffering and pain. Sin has brought about emotional and spiritual problems. Bible study, preaching, and exhortation are key solutions to the healing process. The principles and techniques in psychology are considered irrelevant because they do not address the problem of sin as the culprit for human woes (Powlison, 2010).

Given the issues involved in the relationship between theology and psychology in the field of pastoral counseling, the widening gap between the two disciplines should be addressed. By examining the features of the different models, the paper aims to point out the mediating factors that will bring together their strengths and thus be used in pastoral counseling. This paper aims to determine if there is a relationship between theology and psychology and the roles and functions these fields contribute to pastoral counseling. It also proposes a model that is eclectic in nature.

Methodology

This paper utilized qualitative methods to investigate the strengths and weaknesses of the different models of counseling. The approach is syncretistic, which means bringing together the positive elements and contributions of each counseling model to find an avenue where both theology and psychology complement each other in the counseling process.

Results and Discussions

This research shows that theology and psychology have their respective contributions to the field of pastoral counseling. The different models of pastoral approaches to counseling show both positive and negative concepts with regards to their role in doing pastoral counseling. The analysis of each model shows that a syncretistic understanding and application of these models bear a positive result; that is, all models have something to offer and contribute. This is in line with the biblical injunction saying, "But test them all; hold on to what is good" (1 Thessalonians 5:21, NIV). Additionally, situations and cases differ from each other. A person may suffer behavioral changes, psycho-emotional problems such as personal disorders and psychoses, conflicts, and issues with self-esteem. These sample cases require a variety of counseling approaches. In other words, when it comes to treatment, one size may not fit all, so a

balance of theology and psychology seems more productive towards positive results.

An Evaluation of Each Model and Their Contributions to the Field of Pastoral Counseling.

The chart below from Munson's book, "The Art of Pastoral Counseling," shows the four quadrants where the four models of counseling belong.

Figure 1

The Art of Pastoral Counseling



The Level of Explanation Model. David Myers' view of the Levels of Explanation Model gives a detailed explanation of its presuppositions. First, theology and psychology are two separate disciplines that should retain their distinctive voices. Thus, psychology, apart from theology, must be allowed to follow its own methodology in doing its procedure. The criticism of Myers' view is its failure to explain in detail how his proposed methodology will work in a purely descriptive nature of science without the "ought to do" principle that pertains to remedial action. But supposing that Myers will accommodate the prescriptive element in his methodology, it will enter the realm of morals and values in which theology has something to offer (Johnson, 2010).

As part of the separation view, the level of explanation model adheres to the dualism principle in that the integration of theology and psychology is only possible in a very limited scale in the counseling process. With the view that human

life has different aspects and dimensions, the two disciplines, theology and psychology, deal with different aspects of humans, utilize different methodologies, and ask diverse questions.

The Levels of Explanation Model claims that the spiritual nature of theology limits its approach to human spirituality, his relationship to God, and the problem of sin. It is far different from the realm of psychology, where the focus is on the function of the human brain, emotional issues, and human relationship with his social environment. The complementarity between the two fields is not even an issue because they are distinct from each other. The purely scientific approach of the Levels of Explanation Model makes it operate distinctively from theology (Myers, 2010).

While it is true that these two disciplines have differences, it appears that these variations do not necessarily negate their relationship and complementation. Both theology and psychology have their common denominator and meeting points. When addressing human issues and problems, both theology and psychology recognize human emotion (e.g., fear, anger, anxiety, sadness, depression), pain, suffering, and the quest for life's meaning.

Several arguments seem to negate the separation of these two disciplines in the counseling process. Since humans were created by God as whole beings, the approach to resolving human issues should be holistic. The Greek philosophy of dualism, where the body and soul are two separate entities, seems to contradict the biblical narrative

of creation, when man was created in the image of God as a unified and whole person.

Secondly, while both theology and psychology recognize the physical, mental, and emotional suffering of humans as life's realities, the contribution of theology to how sin brings pain and suffering among humans seems to make the process of counseling more responsive to the emotional and spiritual needs of the counselee. Psychology informed by theology is likely to offer a more relevant approach to humanity's post fall condition.

Counseling is both descriptive and prescriptive. The movement from a descriptive to a prescriptive process seems to provide the meeting point between psychology and theology. While empirical science can be useful in identifying and describing the cause and presence of a certain condition, the task of prescribing appropriate actions falls within the realm of morals, values, and faith. This is where theology plays a significant role in the well-being of the counselee.

The Levels of Explanation Model has several strengths and contributions to the field of pastoral counseling. In many instances, those who suffer from personality disorders and psychoses benefit from this approach. The identification of the underlying process in dealing with human emotional and behavioral problems is very helpful to the counseling process. The lower, middle, and higher levels of explanation point to the underlying process, either biological, interpersonal, cultural, or social. Table 1 illustrates this in detail.

Table 1

The Levels of Explanation Model

Level of Explanation	Underlying process	Example
Lower	Biological	Depression is, in part, genetically influenced. Depression is influenced by the action of neurotransmitters in the brain
Middle	Interpersonal	People who are depressed may interpret the events that occur to them too negatively. Psychotherapy can be used to help people talk about and combat depression.
Higher	Cultural and social	Women experience more depression than do men. The prevalence of depression varies across cultures and historical time periods.

Understanding the nature of depression objectively and scientifically, for example, helps the counselor apply the appropriate treatment. The study of the genetic factor and the action of the neurotransmitter in the brain help the pastoral counselor explain why his patient interprets the events and circumstances around him too negatively. Through the benefit of the Levels of Explanation Model, the counselor might determine if therapeutic communication, psychotherapy, or cognitive behavioral therapy fits best in each condition of the counselee.

The second contribution of the level explanation model is the pastoral counselor's awareness of his limitations. Referral is necessary if the counselee needs to be prescribed drugs or psychological techniques to deal with his psycho-emotional problems.

Thirdly, the Levels of Explanation Model promotes cooperation and teamwork among mental health professionals and non-professionals in the treatment process. In the healing process, the services of pastoral counselors, psychologists, and psychiatrists are needed depending upon the case and severity of the problem that a counselee experiences.

The Biblical Counseling Model. The Biblical Counseling Model belongs to the Separation View but is opposed to the position that the Levels of Explanation Model holds. It has strong criticism against using psychology and a high level of distrust in psychological methodology. This model is a reaction against using psychological theories and methodology instead of theology. Adherents of the Biblical Counseling Model maintain the separation between theology and psychology and favor the use of the former (Barnes, 1998). Table 2 summarizes the differences between the Biblical Counseling Model and the Level of Explanation Model.

Table 2

Comparison Between Biblical Counseling and Level of Explanation Models

Biblical Counseling Model	Levels of Explanation Model
Theology is good; psychology is bad.	Psychology is the right approach to dealing with human problems.
Theology is the appropriate tool to address human problems. Psychological insights should be used with caution.	Psychology is the appropriate approach to human problems. Theology is subjective, while psychology is objective and scientific.
The cause of human problems is sin or supernatural forces like demon possession.	The causes of human problems is either genetic, the activities of the neurotransmitter in the brain, or cultural or social factors.
The solution to the human problem is to follow the biblical teachings and trust in the divine Being.	The solution to human problems is psychological therapy and drugs.

The Biblical Counseling Model presents a negative view against the use of psychology, its principles, theories, and methodology. Psychology has been considered human-centered and primarily based on human philosophy. The presupposition of humanism becomes the foundation of psychology, so it is not in harmony with the divine revelation. The high view of biblical inspiration and the humanistic nature of psychology led some adherents of the Biblical Explanation Model to view the role of psychology in pastoral counseling with suspicion.

The second row presents the claim that theology is the right tool to address human problems. Psychology should be used with great caution. The Biblical Counseling Model rejects the claim of psychology that it is subjective and based only on faith and that psychology is objective and based on reason. Rather, the Biblical Counseling Model

is based on divine revelation and is thus authentic, while psychology is based on human reason and presuppositions that are faulty and unreliable.

In the third row, the basic premise of the Biblical Counseling Model points to sin as the real cause of human problems. The Bible reveals that sin has opened the door for human suffering and pain, and these include emotional and spiritual problems. Sin has separated humanity from God. Evil supernatural forces are always active, bringing suffering to humanity. With the causes of human suffering attributed to sin and evil supernatural powers, adherents of Biblical Counseling Model consider psychology of little help in addressing human problems and issues.

Finally, the solution to human emotional and spiritual problems is to follow the divine will revealed in the Bible and trust in the divine Being. Since human problems are spiritual, psychology plays little role in addressing human issues.

The Biblical Counseling Model has several strengths that negate the extreme views of the Levels of Explanation Model. It promotes a high view of inspiration that gives primacy to the Bible as an authoritative source of divine revelation. The place of the Bible in pastoral counseling is essential because its counsels are considered to have come from the Author and Sustainer of life itself. Secondly, it guards against subscribing to humanism and secularism as frameworks in pastoral counseling. In the absence of divine revelation, any counseling process and methodology will be based on a human-centered approach with human ideas and presuppositions as its guiding principles. Such an approach seems inconsistent and a deviation from Christian faith.

The third contribution of the Biblical Counseling Model is the awareness that sin really affects humanity. In the post-modern setting where sin, its existence, and effects are categorically denied, this model promotes the understanding that there are moral absolutes that, when violated, lead to human pain and suffering.

Lastly, the positive side of the Biblical Counseling Model is its emphasis on the prescriptive aspect of pastoral counseling. While the Levels of Explanation Model focuses more on the descriptive side, this model places more weight on the prescriptive and practical aspects of the resolution of the problem. Integrating these positive sides and strengths of the Biblical Model into the methodology and process of pastoral counseling seems to make the approach more relevant and responsive to human emotional and spiritual problems.

The Clinical Pastoral Care Model. The Clinical Pastoral Care Model belongs to the Integration View. This model agrees that both theology and psychology have their contributions to counseling methods and processes. This model views both theology and psychology as dealing with the same aspects of humanity, namely, human nature, its problems and issues, and their solutions.

Unlike the Levels of Explanation model, which dichotomizes humanity into distinct aspects, the Clinical Pastoral Care Model recognizes a holistic approach to dealing with human emotional and spiritual problems. It sees human beings as integrated people and promotes holistic treatment. In other words, diagnosing the problem is not only psychological but spiritual as well. This model views psychology as based on general revelation, which is something to be examined empirically, while theology is founded on special revelation.

The main issue in the evaluation of the Clinical Pastoral Care Model is the question of priority. While both theology and psychology are utilized in the process, which one takes precedence over the other? Should psychology be informed by theology, or is it the other way around? Most adherents of this model consider psychology to be the wholesale approach to counseling, while the Bible occupies the supplemental or supportive role. Modern psychological principles are interspersed with Bible references. In other words, the Clinical Pastoral Care Model draws more insights from psychology than theology (Munson, 2017). If there is a conflict

between theology and psychology, the Clinical Pastoral Care Model allows psychology to hold sway.

The main criticism of this model has to do with the Christian understanding of Scripture as divinely inspired. The argument is that if the Bible is the divine revelation, should Christian counselors then place it on a secondary level or as a supporting document for psychological approaches? The common belief in Christianity is that since the Bible is divinely inspired, it is the authoritative source and the final authority in matters of Christian beliefs and practices. The Clinical Pastoral Care Model is a reaction against the Levels of Explanation Model, which does not see theology as having a connection with psychology. Rather, both theology and psychology play an important role in the counseling method and process.

The Clinical Pastoral Care Model also considers human beings as integrated and holistic, with all their interrelated aspects. Thus, it promotes a holistic approach to dealing with human psychological, emotional, and spiritual problems. This is in harmony with the biblical teaching that man is a whole being created in the image of God.

Lastly, this model promotes the use of Scripture in pastoral counseling. It recognizes Bible verses as useful and effective in dealing with the issues of human emotional pain, suffering, and spiritual problems.

The Christian Counseling Model. The Christian Counseling Model is another approach belonging to the Integration View. It agrees with the concept of the Clinical Counseling Model that man is a whole being, integrated in all aspects, and a holistic and integrated approach to counseling is necessary. But unlike the Clinical Counseling Model, the Christian Counseling Model considers the Bible to be the dominant authority in doing pastoral counseling. This model criticizes psychology as theory driven even though it gives room for the use of psychological techniques and approaches (Keller, 2010).

The Christian Counseling Model adheres to the concept that when dealing with the psychological, emotional, and spiritual problems of humanity, it is necessary to address the root cause of those problems. Adherents of the model do not consider philosophy and human reason as adequate responses to the issue. Secularism and science offer no satisfactory answers to the question. Only divine revelation can account for human pain and suffering. For this reason, theology takes precedence over psychology. In other words, divine revelation in the Scriptures offers authoritative solutions to human emotional and spiritual issues.

The Christian Counseling Model considers the Bible as the divinely inspired book, the final authority in faith and practice. It shows the limitations and flaws of human reasons and approaches to understanding the nature of humans and the solutions to human pain and suffering.

The Christian Counseling Model recognizes the effects of sin in human nature and experiences, which post-modernism and secularism strongly reject. Thus, the Christian Counseling Model provides a vigorous reaction against the basic premise of humanism.

The Christian Counseling Model emphasizes the importance of following the teachings of Scripture as infallible guides to Christian living. Obedience to the divine will provides the solution to human woes and sufferings.

Conclusion and Recommendation

Theology and psychology both have their contributions to pastoral counseling. A holistic approach gives room for each field to perform its roles and functions in the counseling process. The eclectic and syncretistic utilization of the strengths of each model would enhance the skill, effectiveness, and efficiency of pastoral counselors and make their ministry more relevant to the present needs of their counselees.

This paper proposes an eclectic model as a more effective and responsive approach to pastoral counseling. It is thus recommended that those who are engaged in pastoral counseling ministry, both professionals and non-professionals, be made aware and trained on how to utilize the strengths and contributions of each of the four models in various situations and cases of their counselees. The eclectic model proposes that both professional and non-professional counselors be part of the team and not compete against each other. Theology and psychology can have common aims and purposes, helping individuals to move on during their emotional, mental, and spiritual problems while at the same time helping the counselee to find meaning, direction, purpose, and hope in their lives.

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Students' Attitude and Behavior in Worship in Relation to Academic Achievement in an Indonesian Adventist Institution

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The objective of the study is to find out the students' attitudes and behaviors toward worship and their relationship to academic achievement. Descriptive statistics showed that students with excellent, good, and mediocre academic achievement believe that worship is an important and meaningful aspect of life, which gives them inner peace and makes life happy and joyful. However, low-performing students perceive the worship program as a burden, an activity that annoys them. The multiple regression result showed a p-value less than 0.05, indicating that both attitude and behavior are significant predictors of academic achievement, with coefficients of 0.4657 and 0.3439, respectively. The multiple R-squared of 0.6771 indicates that the model was able to explain about 68% of the variance in academic achievement. The adjusted R-squared value of 0.646 indicates that the model fits the data well. Results imply that worship programs should be developed to cater to the needs of the local Seventh-day Adventist education institutions, and further study may be conducted with the national and international faith-based education institutions in other areas of Indonesia. The study also recommends that the institutions pay attention to students with low academic achievement who are also not interested in spiritual programs. They must be carefully nurtured, as their problem might go beyond academic and spiritual reasons.

Keywords: *attitude in worship, behavior in worship, academic achievement*

Christians believe that the foundation of all knowledge and wisdom is the One and only God, as it is written in Proverbs 9:10, "The fear of the Lord is the beginning of wisdom, and the knowledge of the Holy One is understanding." However, it has been observed that an area of education that needs more attention in research and investigation is spirituality, as it is vital to human overall well-being (Okunlola, Odukoya, Olowookere, Omonijo, & Anyaegbunam, 2021).

Other research and studies found that, as a vital aspect of education, spirituality needs to be fully researched as it is part of the most important aspect of human wellbeing and development (Kitjaroonchai & Kitjaroonchai, 2017). The study from Glass and Westmont (2014) about spirituality, belongingness, and academic success also shows that spirituality followed by commitment, whether affective, advanced, or normative, will always have an impact on academic achievement. The level of student spirituality is also found to be significantly affected by students' performance, including learning performance and academic achievement (Murrar et al., 2020). Mooney (2010), in his study about religion, college grades, and satisfaction among students, found that students who attend spirituality services weekly and those who are more observant of their religious traditions also report having better grades and being more satisfied at college.

People with a high level of spirituality generally show positive attitudes such as being responsible, tolerant, and committed to their work and colleagues. Spirituality can be measured by the act of worship, such as the frequency of someone visiting and doing spiritual tasks in a church or participating in spiritual activities. In essence, the level of spirituality of students in schools is expected to improve their academic performance. Students with a high level of spirituality will perform work behaviors that are different from those who have a low level. (Pearce, Uecker, & Denton, 2019).

This study investigated issues about worship and the academic performance of the students in

a faith-based Christian higher education institution run by the Seventh-day Adventist Church in Indonesia. Two measures of spirituality—attitude in spiritual service and commitment behavior in daily observance of school worship programs—and one measure of students' academic achievement were used to find out the relationship between students' spirituality and academic achievement, based on the concept of measuring spiritual commitment developed by Albert Winseman (2002).

Methodology

Research Design

Descriptive statistics were used to measure students' attitudes and behaviors in worship. Four elements of attitude considered important for one's well-being are aspects of worship, purposefully meaningful worship, and worship as a medium that gives inner peace and happiness. Seven elements of commitment to worship characterized by students' behavior and action are personal worship and prayer, attending, participating, singing, and taking responsibility in the worship program, and proactive protection of the program from unwanted behavior.

Multiple regression was used to analyze the influence of attitude and behavior as independent variables on academic achievement as the dependent variable.

Population and Sampling Procedures

Regular dormitory students from a selected Adventist university in Indonesia are the population of the study. A purposive sampling method of 30 students was carefully selected by a team consisting of two dormitory deans and a university senior lecturer. The selected samples are students whose academic achievements are classified as follows: 13% of students with academic performance passed, another 13% with excellent academic achievement, 33% with fairly good academic achievement, and 40% performing well in their academic achievement.

Instrumentation

As a tool for data gathering, a questionnaire was formulated and modified based on the criteria “measuring spirituality, attitude, and behavior about their academic achievement by Albert Winseman,” which was then distributed to the selected respondents after the questionnaire had been piloted by a group of ten students. The final questionnaire was verified by the dormitory deans, academic dean, and registrar personnel. A senior university lecturer conducted the survey to guide the student participants during the questionnaire distribution and data collection.

The Likert scale measures the components of attitude and behavior. Using SPSS 26, the reliability test of the internal consistency of the questionnaire showed Cronbach’s alpha of 0.937 for attitude, 0.931 for behavior, and 0.82 for the overall 12 items of academic achievement, attitude, and behavior.

Analysis of Data

The data gathered was analyzed through Microsoft Excel Data Analysis version 365. The students’ attitudes, behaviors, and academic achievement were assessed using the mean and standard deviation. A multiple regression analysis with the given variables and the regression equation for predicting academic achievement (GPA) based on attitude and behavior are written as follows:

$$\text{GPA} = b_0 + b_1 * \text{Attitude} + b_2 * \text{Behavior} + e$$

where GPA is the dependent variable, attitude and behavior are the independent variables, b_0 is the intercept, b_1 is the regression coefficient for attitude, b_2 is the regression coefficient for behavior, and e is the error term.

Ethical Considerations

Before the administration of the questionnaire, consent was secured for voluntary participation before the respondents answered the research questions, and responses were not associated with their identity. The data was handled with confidentiality.

Results and Discussions

Table 1 shows the results of the mean and standard deviation of academic achievement, GPA, students’ attitude in worship, and students’ behavior in worship.

Table 1
Descriptive Statistics

Summary of Descriptive Statistics									
GPA				Attitude			Behavior		
n	Mean	Stdev	Interpretation	Mean	Stdev	Interpretation	Mean	Stdev	Interpretation
4	3.6875	0.1159	excellent	3.3125	0.55434	very important	3.5000	0.5774	very important
12	3.2325	0.1265	good	3.3333	0.80716	very important	2.9286	0.8072	important
10	2.8380	0.1573	fairly good	2.7750	0.78572	important	2.7589	0.8297	important
4	2.3325	0.1008	barely passed	2.0000	1.02062	quite important	2.0357	0.7682	quite important

The Attitude in Worship

Students with excellent academic achievement ($M_{\text{gpa}} = 3.69$; $SD = 0.12$) show a very high rating on attitude in worship ($M = 3.31$; $SD = 0.55$). The good academic achievement students ($M_{\text{gpa}} = 3.23$; $SD = 0.84$) also show a very high rating on attitude in worship ($M = 3.33$; $SD = 1.02$). These two groups believe that worship has a meaningful purpose in their lives, is an important aspect of life, and gives inner peace and makes life happy.

While students with mediocre academic achievement ($M_{\text{gpa}} = 2.84$; $SD = 0.16$) still consider worship an important aspect of their lives ($M = 2.78$; $SD = 0.79$), low-performing students ($M_{\text{gpa}} = 2.33$; $SD = 0.10$) give a low rating on their attitude toward worship ($M = 2.00$; $SD = 1.02$). They perceive the worship program as a burden, an activity that annoys them, and won't enjoy or be happy with it.

The Behavior in Worship

Students with excellent academic achievement show an even higher rating on behavior in worship ($M = 3.50$; $SD = 0.58$); however, students with good academic achievement show a lower rating on commitment in worship when compared to their rating for attitude ($M = 2.93$; $SD = 0.91$).

Students with mediocre academic achievement and low-performing students give low ratings on their commitment to worship ($M = 2.74$; $SD = 0.83$; and $M = 2.04$; $SD = 0.77$). They attended worship to avoid punishment and avoid or won't take part in leading or taking responsibility in the worship program.

Attitude and Behavior in Worship in Relation to Academic Achievement

The results of the multiple regression analysis are presented in Tables 2 and 3. The regression coefficients are statistically significant, with p-values less than 0.05, indicating that both attitude and behavior are significant predictors of academic achievement.

Table 2

Model Summary and Regression

Multiple R	R Square	Adjusted R Square	Standard Error	Observations
0.8229	0.6771	0.6463	0.2992	30

Table 3

Regression Coefficients

	Coeff.	StEr	t Stat	P-value
Intercept	2.080	0.3893	5.344	4.45e-05 *
attitude	0.4657	0.0897	5.194	7.29e-05 *
behavior	0.3439	0.0780	4.405	0.000368 *

The coefficient for attitude is 0.4657, which means that a one-unit increase in attitude is associated with a 0.4657-unit increase in GPA, holding behavior constant. Similarly, the coefficient for behavior is 0.3439, which means that a one-unit increase in behavior is associated with a 0.3439 unit increase in GPA, holding attitude constant. Thus, the regression equation is $GPA = 2.080 + 0.4657 \text{Attitude} + 0.3439 \text{behavior} + e$.

The multiple R-squared value of 0.6771 indicates that about 68% of the variance in GPA can be explained by the model. The adjusted R-squared value of 0.646 indicates that the model fits the data well and is not overfitting.

Amtu, et al. (2020); Ariani (2022); Pawar, (2019); Ullah et al., (2019) believe that the effect of students' spiritual attitudes and behavior in achievement may continue beyond their university's life but also may affect their behavior in the future workplace, which in turn develop into intrinsic moral orientation with a direct effect on hardworking, productivity and satisfaction.

The study was conducted among students in private higher education institutions of Seventh-day Adventist church in Indonesia, their worship programs are conducted in the form of morning and evening worship, regular midweek prayer meetings on Wednesday, and Sabbath program on Friday evening after sundown, and Saturday

Sabbath school program, Divine Worship and Youth program until sundown. Attending all worship programs is mandatory for students who live in the dormitories.

The respondents are also limited to randomly selected samples consisting of 13% of students who barely passed, another 13% with excellent academic achievement, 33% with fairly good academic performance, and 40% who perform well. Their opinions and evaluation are strongly related to the needs of the local and church institutions, therefore any suggestions and development of worship programs and education processes based on this study would greatly influence the needs of the local Seventh-day Adventist Church and education institutions.

Conclusions and Recommendations

Statistically, the regression test showed significant p-values less than 0.05, indicating that both attitude and behavior are significant predictors of academic achievement (GPA). The multiple R-squared value of 0.6771 indicates that about 68% of the variance in GPA can be explained by the model, and the adjusted R-squared value of 0.646 indicates that the model fits the data well and is not overfitting.

The study commended the institution for its effort to keep spirituality as one of the most important aspects of education and prepare very good worship programs for students, which in turn help the students achieve good academic performance. A proportion of small special students who are not interested in spiritual activities and also show low academic achievement must be carefully nurtured, as their problem might be beyond academic and spiritual reasons.

The researcher recommends that further study be conducted on the national and international faith-based education institutions in another area of Indonesia where national and multinational institutions operate.

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Religious Coping of Theology Students

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University students may experience challenges and difficulties in their academic pursuits. Given the stressful situation, students need to find coping strategies. This qualitative study, using a purposive sampling technique, documents the strategies employed by university students to cope with life's issues. It was attended by 26 respondents from the School of Theology at a private university in West Indonesia. The respondents answered open-ended questions with exploratory descriptives. The study reveals the significance of coping through religious beliefs, faith, and trust in God. Further, it reveals that despite the issues with finances, fervent prayer and belief in God are the emerging themes as coping strategies. This study concludes that religious coping in difficult times assists in the survival of theology students by lessening their stress. Further study can be done on whether religious coping may also be applied to students from other departments.

Keywords: *religious coping, Theology students, strategies, Indonesia*

In general, early adulthood is a time when a person will face a period of adaptation to situations with different life patterns from adolescence. According to Putri (2018), everyone will experience a period where developmental tasks will start from childhood and end in old age. In the situation of early adulthood, this is the period when a person has completed his growth period and then prepares himself to accept his position in society along with other adults. In this period of development, there are developmental tasks that must be completed so that it will prepare for a happy life in the future. One of the developmental tasks that must be completed is adaptation to the many problems or obstacles encountered by using good coping.

This research will examine how students who have passed adolescence and are entering the early adulthood development period use coping skills to face life during college. According to the general definition, students are people who are pursuing higher education at a university. According to Republic of Indonesia government regulation number 30 of 1990, students who are registered and studying at certain universities. Likewise, according to Sarwono (1978), quoted by Kurniawati & Baroroh (2016), students are individuals who are studying and are officially registered at a tertiary institution where their age ranges from 18-30 years. In more detail, it is stated that students are individuals who will one day become educated graduate candidates and, in the future, are expected to become intellectual candidates who are useful for society. The term student refers to individuals who are currently undergoing higher education at certain universities. In this research, the students in question are people who are majoring in theology.

Theology students are individuals who are undergoing Christian education at a Christian college, in this case students who are studying at the Indonesian Adventist University. Students at the Faculty of Philosophy majoring in Theology are prepared to become dignified and moral evangelists

with high intellectual integrity. Therefore, students are equipped with an understanding of human development and growth, as well as the development of the church, so that it becomes an inseparable unit in the evangelization of the Christian religion. For this reason, students are educated in depth in order to gain knowledge and prepare themselves for the present and future (Simatupang, 2021).

In general, students majoring Theology theology have the motivation to study Theology in order to be able to carry out God's call to become pastors. But there are also some of them who are not called by God but rather because of other factors, for example: pressure from parents and family, invitations from friends and no interest in other majors. Ideally, before entering the department, students have God's calling and understand God's will to serve in evangelism. The student will truly understand what God wants in his life. If this is understood, then the student will be motivated and have high enthusiasm by prioritizing this calling. Lie Seng Cuan said that vocation must be a source of inspiration and the driving force of a dream. If every student majoring in theology has a special calling, then a special person will also be formed. Call, or in Greek, it is called *Ekkaleo*, is an action, an act in which God calls people in darkness to light. God makes His own people, who will then proclaim God's deeds (Ine Rahayu Purnamaningsih, 2021). Along with taking education, it is possible that in this process students will experience many problems in personal, social, and even spiritual life. This will affect academic achievement so that it can affect its services in the future. It takes good coping to be able to overcome it.

Students are one of the age groups who are vulnerable to experiencing stress and the effects of these conditions. Throughout the educational process at the university, students will encounter many lecture demands. One of the things that is a source of stress for students is the demand to complete their studies within the set time limit. The incidence rate for students who experience stress

during education globally in the world reaches 38-71%, in Asia, it is 39.6-61.3% and in Indonesia, it reaches 36.7-71.6%. Through human instincts, we can naturally deal with stress or other situations that can cause pressure in our lives. This is called coping. Coping is an effort to overcome, reduce, and tolerate pressure that can burden one's life. Meanwhile, stress management is a human coping mechanism for dealing with stress. Stress coping mechanisms are different for each individual. This ability is based on experience, personality, and the surrounding environmental conditions (Ayuwatini et al., 2018).

Nowadays, especially after going through the pandemic, students are faced with problems and are then required to face them toughly. Competition in achieving achievements, demands and course assignments, and adaptation to the social environment on campus are some of the problems that must be faced. Financial problems and being away from parents and family can be additional problems that must be faced. Rahmi said that the responsibilities that must be carried out as a student are stressful. Students who are expected to be useful for the nation and state in the future really need to have good mental health. The American Psychological Association (1992) has determined that mental health is viewed as "biopsychosocial-spiritual". This means that humans are seen as mentally healthy from a physical, psychological, social and spiritual perspective. For some students, it may not be easy to adapt to facing problems in their lives, which will cause stress (Rahmi, 2021).

According to Aisyah et al. (2020) when teenagers enter early adulthood, spiritual development will influence their attitudes and perspectives in facing problems. It is hoped that spiritual development leads to positive things so that it will form good values or attitudes as well. Based on this, it can be concluded that fulfilling spiritual needs and efforts to increase religious or spiritual coping have benefits for students in facing their life problems.

One form of coping in stress management is religious coping, where a person will use strategies based on belief, religion, faith, and power from God. Various studies have shown that religious coping has a positive effect on a person's physical and mental health, even when the individual is under stress. This is because individuals use their religious beliefs to face and solve the problems they face. It is at that time that the individual will feel his closeness to God. Pargament (1998), as the main researcher on religious coping, states that there are 3 forms of religious coping, namely: self-directing, deferring, and collaborative. A form of self-directing religious coping in which individuals are helped to solve their problems, thus they will perceive themselves as people who have been given the ability by God to solve their problems. For the defending strategy, the individual depends on God, where there will be a sign that tells the individual how to solve the problem. Collaborative strategies are referred to as psychoideas, where individuals and God jointly solve the problems they face (Supradewi, 2019).

The same opinion quoted from Ayuwatini et al. (2018) states that another form of coping strategy to reduce stress is through the religion one adheres to. Through a religion that is believed to be expected to provide guidance, direction, and even hope to adherents of that religion. Religion teaches good things, including worship and prayer. Through worship and prayer activities, it is hoped that the individual will be able to cope when facing problems in life that cause him to become stressed because of hope.

The curriculum applied to students of the Philosophy faculty majoring in Theology at the Adventist University of Indonesia. Apart from theory or face-to-face learning in class, these students are also required to take part in activities outside the classroom, namely externships or forms of service practice in churches, as well as several months of internship programs in the regions. where students will be guided to become future pastors. Before

students practice off campus, they are equipped with qualified theories. In general, students majoring in theology are students who are also studying while working, or are known as labor students. This research is intended for students majoring in theology. The aim of this research is to find out how religious coping is portrayed by students majoring in theology.

Methodology

Research Design

The method used in this research is qualitative. According to Sujarwedi, qualitative research is research that produces descriptive data from observations of the speech, writing and behavior of informants. The purpose of qualitative research is to produce in-depth descriptions of real social phenomena. Furthermore, descriptively, it will be described and concluded comprehensively as valid information (Sujarweni, 2020). This research uses a transcendent phenomenological approach, namely a descriptive approach that focuses on the general experience of informants, where the researcher must eliminate assumptions or personal perceptions. The concept of phenomenology is the root of qualitative research, which focuses on abstract and symbolic data from an event with the aim of understanding the symptoms that arise (Sari & Siswati, 2022).

Population and Sampling Technique

The informants in this research were 26 students from the Faculty of Philosophy majoring in Theology, semester 4. The students involved in this research were aged between 18 and 24 years. According to Hurlock, a developmental psychologist named Hurlock (2001), as quoted by Hakim (2020), after adolescence, the next stage will be entering the early age of young adulthood, namely the age range of 18-24 years. Sampling in this study used a purposive sampling technique, which is a technique for taking a group of subjects based on certain characteristics or characteristics

that are seen as having a close relationship with the characteristics or characteristics of the previously known population.

Instrumentation

The researchers used open-ended questions with exploratory descriptives, namely describing the religious coping strategies of Theologia students in dealing with stress in their lives while in college. From the questions asked, the researcher then conducted in-depth interviews with the aim of obtaining as much information as possible to enrich the data in draw research conclusions.

Analysis of Data

The analytical method used in this research uses Colaizzi's 1978 theory methodology with the principle of processing and analyzing general data that has been transcribed into data that is more systematic, measurable and structured so that it then has a meaning that can be deduced from the complex to the simple. The stages are as follows: collecting data from in-depth interviews with informants, transcribing in transcript form, coding stage, grouping codes, concluding meaning in categories, validation stage, and final conclusions that form themes (Fiantika, F.R., 2022).

Ethical Considerations

The researcher asked permission from the Dean, and after obtaining permission, the researcher prepared a letter of approval to become a research informant. Researchers prepared informed consent signed by all informants. In the statement letter, the informant stated his willingness to participate as a respondent in the research conducted by the researcher.

Results and Discussion

Distribution of Participants

The research was conducted on 26 students of the Faculty of Philosophy majoring in Theology. The distribution is presented as follows:

Table 1*Data of Informants*

No.	Informant Initials	Age	Gender	Informant Code
1.	AMS	20	Male	I.1
2.	APT	20	Male	I.2
3.	BG	24	Male	I.3
4.	CSJN	19	Male	I.4
5.	CS	18	Female	I.5
6.	WN	21	Male	I.6
7.	ESA	21	Male	I.7
8.	FAY	21	Male	I.8
9.	F	24	Male	I.9
10.	GATR	20	Male	I.10
11.	GOM	24	Male	I.11
12.	GAST	21	Male	I.12
13.	JB	21	Male	I.13
14.	JCG	22	Male	I.14
15.	JJE	19	Male	I.15
16.	JMH	21	Male	I.16
17.	LAM	21	Male	I.17
18.	MGCS	19	Male	I.18
19.	RP	24	Male	I.19
20.	MJM	22	Male	I.20
21.	NAH	19	Male	I.21
22.	NT	20	Male	I.22
23.	YB	22	Male	I.23
24.	RHS	21	Male	I.24
25.	YKR	21	Male	I.25
26.	RBF	22	Male	I.26
Total:			26	

From the frequency distribution of informants in table 1, it is evident that almost all of the informants are male (25 people) and 1 informant is female. All informants were coded from Informant 1 (I.1) to Informant 26 (I.26).

Description of Religious Coping in Theology Major Students?

The researcher conducted an exploration of the informant to get a descriptive picture of the difficult situation the informant was facing, which caused

the informant to become stressed and how the informant was coping religiously.

Exploration of Difficult Situations Facing Informants and Causing Informants to Experience Stress

Based on thematic analysis of 26 informants on the question "What difficult situations make you uncomfortable and even feel stressed?", 36 codings were obtained that had the same keywords. Codes that have the same keywords are then grouped into categories. Of the 36 codes obtained at the keyword coding stage, there are 12 coding categories with similar meanings. The next stage is to group categories that have similar meanings. From the 12 categories, 4 themes of difficult situations faced by students can be obtained. The four themes are: 1) Problems of life on campus, 7 responses (19.4%); 2) Difficulty in learning, 8 responses (22.7%); 3) Financial problems, 19 responses (47.2%); and 4) Hours Work Demands on the Ground, 4 responses (11.2%). The results of the thematic analysis can be seen in Table 2.

Table 2*Thematic Analysis of Difficult Situations Causes of Stress*

Theme	n (%)
1. Problems of Life on Campus:	7 (19.4%)
-Difficulty making close friends	2
-Limited social time	3
-Disappointed in other people	1
-Dispute	1
2. Difficulty in Learning:	8 (22.2%)
-Difficulty understanding lecture material	4
-Lots of assignments	3
-Less time to study	1
3. Financial Problems:	17 (47.2%)
-High tuition fees	6
-Not getting financial aid	4
-Difficulty meeting daily needs	5
-Working while studying	2
4. Demand for working hours on the Ground	4 (11.2%)

Exploration of Religious Coping in Overcoming Problems

Based on the thematic analysis of 26 informants on the question "How to solve problems by using religious power", 45 codes were obtained that had the same keywords. Codings that have similar keywords are then grouped into categories. Of the 45 codes obtained at the keyword coding stage, there were 8 coding categories with similar meanings. The next stage is grouping categories that have similar meanings, from 8 categories, 2 religious coping themes can be obtained by students. The two themes are: 1) Belief in God, 31 responses (68.9%) and 2) Belief in religion, 14 responses (31.1%). The results of the thematic analysis can be seen in table 3.

Table 3

Thematic Analysis of Religious Coping

Theme	n (%)
1. Belief in God	31 (68.9%)
-Pray more actively	10
-Fast	4
-Midnight meditation	2
-Surrender	6
-Reading the Bible	9
2. Belief in Religion	14 (31.1%)
-Participate in all convention events at campus	8
-Involved in ministry in the church (singing, Master Guide, Deacon)	4
-Reading the writings of the Spirit of Prophecy	2

In this study, the highest response was obtained for the most difficult situations that caused discomfort and even stress for informants coded in the statement, namely: high tuition fees, resulting in a theme, namely: financial problems. Meanwhile, the highest response for religious coping was coded in the statement: pray more actively, resulting in a theme, namely: belief in God.

In general, when a person faces a pressing problem or situation, he or she will practice religion. According to (Akbar, 2021) religious coping is an individual's strategy of using the beliefs they have to face problems in their life. This religious coping is very relevant for students. The results of research conducted by Utami, quoted by Akbar, stated that when students positively use religious coping, the students will have a positive outlook when facing very difficult problems in their lives. This is because the individual truly surrenders to God. Hoping with true faith that God will be involved to overcome difficult problems in his life.

Research conducted on adolescents who live in dormitories about how religious coping strategies are for coping with stress. Of the 180 respondents who were involved in this study, it was shown that the use of religious coping had a greater effect on stress. Stress coping variables have an effect on handling stress in adolescence (Alundari et al., 2023).

Conclusion and Recommendation

The conclusion of this study is that informants, namely students majoring in Theology, use religious coping when facing difficult times in their lives, especially when studying at universities. The informants uses the power of religion and belief in God to overcome their problems. Expect God to play a role in solving the problem. Religious coping is the most commonly used strategy, in which informants pray to seek help from God through the religion they believe in.

The advice that can be given is that informants should be able to maintain and improve their religious coping in order to reduce the stress they experience. Suggestions for future researchers to be able to research more about religious coping by using religious coping measuring tools that are in accordance with the principles of recognized religions.

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