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ARTS & HUMANITIES

EDUCATION

Common Errors in Narrative Writing Among Grade 12 Students

Cesiel N. Benzal-Guardarama
Giovani P. Mercado
Mary Grace De Guzman
Michael S. Naidas
Leonardo B. Dorado
Rowena Imelda A. Ramos

Adventist University of the Philippines
cesielbenzal@gmail.com

Abstract

Writing is a powerful tool for expressing thoughts, ideas, and emotions. It enables individuals to communicate effectively and engage meaningfully with others. This quasi-experimental study examined the common grammatical and taxonomy-based errors committed by 128 Grade 12 STEM students in narrative writing at a private school in Calabarzon, Philippines. Using quasi-experimental design with control and intervention groups, students completed pretest and posttest writing tasks. Between these assessments, the intervention group received three targeted grammar-focused sessions. The study revealed that the intervention group showed significant improvements in grammatical accuracy, with an average error reduction of $M = 6.32$ ($SD = 8.35$), while the control group experienced an increase of errors, $M = 5.03$ ($SD = 11.51$). This difference was statistically significant ($p < .001$, $\varepsilon = 0.6134$), demonstrating the intervention's effectiveness in enhancing writing performance. Similarly, in taxonomy-based errors, the intervention group showed a greater reduction ($M = -1.03$) compared to the control group ($M = -10.46$), also with a significant difference ($p < .001$, $\varepsilon = 0.563$). These results confirm that structured, teacher-led interventions can meaningfully reduce grammatical and structural writing errors. The findings emphasize the value of targeted instructional strategies in improving students' written communication skills, particularly in academic contexts requiring narrative expression.

Keywords: *common errors, grammatical errors, taxonomical errors, writing*

The adoption of English as the medium of instruction in the Philippines, initiated by President McKinley in 1900, marked a turning point in the nation's education system. This shift facilitated modernization and assimilation into American governance and culture while replacing Spanish and local languages. English remains a critical skill due to its role as a global lingua franca in diplomacy, commerce, and academia (Saeed et al., 2023).

Despite its advantages, Filipinos face significant challenges in mastering English, particularly in writing. Native language interference, particularly from Tagalog, affecting second-language proficiency (Yuan, 2021). Students often rely on their first language's rules when grappling with English grammar, vocabulary, and syntax. Errors such as subject-verb agreement, spelling, and punctuation persist across educational levels, affecting learners' ability to convey complex ideas (Khatter, 2019; Fitrawati & Safitri, 2021). Moreover, rural schools frequently lack quality English resources, exacerbating the proficiency gap (Cabigon, 2015).

Writing plays a central role in developing linguistic competence, fostering creativity, and enabling effective communication (Phommavongsa et al., 2021; Crisianita & Mandasari, 2022). While Artificial Intelligence (AI) offers support in education, over-reliance on AI may hinder critical thinking and originality (Fontanilla et al., 2023). Senior High School (SHS) Filipino students often struggle with grammar, vocabulary, and essay composition due to inadequate topic knowledge and limited exposure to advanced linguistic conventions (Urbano et al., 2021). A survey revealed that only 6 % of Filipinos met their expected writing proficiency, highlighting the need for targeted interventions (Herrera Shaw, 2023).

Research has highlighted common writing errors in Filipino students' compositions, ranging from verb use to punctuation and capitalization (Khatter, 2019; Özkayran & Yılmaz, 2020; Andriani et al., 2022). Grade 12 students particularly face challenges in narrative writing, with many at a basic or developing proficiency level (Callora & Suñas, 2023; Belarmino, 2023). Effective interventions could reduce grammatical errors and improve writing proficiency, which is vital for both academic success and global competitiveness. Such findings underscore the urgency for reforms in the Philippine educational system to strengthen English communication across listening, reading, speaking, and writing skills.

Given these challenges, the researchers aimed to investigate the common errors of the students, particularly grammatical errors and taxonomical errors in writing. They sought to analyze which specific grammatical errors were prevalent among learners. Also, to evaluate whether the intervention was effective in reducing the prevalent errors of the sample participants.

This study generally aims to investigate the common errors of Grade 12 students in narrative writing in a private high school in Laguna and identify the effect of an intervention program to improve their writing skills. Specifically, this study aims to answer the following questions:

1. To what extent do Grade 12 students make grammatical errors in narrative writing during the pretest, and is there a significant difference in these results between the control and intervention groups, in terms of subject-verb agreement, simple tense, preposition, conjunction, punctuation marks, capitalization, spelling, and creativity?
2. To what extent do Grade 12 students commit omission, addition, misformation, and misordering errors during the pretest, and is there a significant difference in these taxonomy-based errors between the control and intervention groups?
3. To what extent do Grade 12 students make grammatical errors in narrative writing during the posttest, and is there a significant difference in these results between the control and intervention groups, in terms of subject-verb agreement, simple tense, preposition, conjunction, punctuation marks, capitalization, spelling, and creativity?
4. To what extent do Grade 12 students commit omission, addition, misformation, and misordering errors during the posttest, and is there a significant difference in these taxonomy-based errors between the control and intervention groups?
5. Is there a significant difference between the results of the pretest and posttest within the control group and intervention groups?

6. What is the effect decreased in error in the grammar and taxonomy of errors in the control and intervention groups?
7. Is there a significant difference in the decreased grammatical and taxonomic errors between the control and intervention groups?

Methodology

This section discusses the methods that the researchers utilized to determine the answers to the research question. Specifically, the research design, population and sampling technique, instrumentation, processes of data collection, statistical analysis of data, and ethical issues are included in this section.

Research Design

This research employed a control group pretest-posttest quasi-experimental design, a widely recognized nonrandomized approach, as cited in Shadish et al. (2001) and based on Campbell and Stanley's (1963) work. The study aimed to test causal hypotheses in cases where random participant assignment is not feasible. Both the control and intervention groups underwent pretest and posttest assessments, with only the intervention group receiving treatment. This study followed a descriptive comparative research design and was conducted in three phases: an initial writing assessment, an intervention, and a final writing assessment. The initial assessment identified students' errors, while the intervention group received three grammar-focused lessons designed to address and correct these errors. A final writing assessment was conducted to evaluate the effectiveness of the intervention and to compare the pre- and post-assessment results (Shadish et al., 2001; Cash et al., 2016).

Population and Sampling Technique

For the participants of the study, there were a total of 128 Grade 12 STEM students from a private school in Laguna during the school year 2024-2025. Participants were distributed across four sections with varying schedules. Convenience sampling was employed in the school based on accessibility, a common approach in educational research for minimizing cost and time (Stratton, 2023; Rahi, 2017, as cited in Golzar et al., 2022). Random sampling was used to assign sections into control and intervention groups, ensuring unbiased data collection (Noor et al., 2022). Sections 1 and 4 formed the intervention group, while Sections 2 and 3 comprised the control group. Both groups underwent pretest and posttest evaluations, with the intervention group receiving targeted lectures addressing errors identified during the pretest. This design fulfilled sample size requirements for quasi-experimental studies, allowing effective assessment of intervention impacts (Gall et al., 1996, as cited in Kwegyir-Afful, 2021; Santiago & Dagdag, 2021).

Instrumentation

The primary instrument for data collection in this study was the participants' written compositions during the pretest and posttest. Each essay, composed of 200–250 words and written under timed conditions, served as the sole data source for identifying and analyzing common writing errors (Sahagun & Daing, 2020; Angelini & García-Carbonell, 2019; Taye & Mengesha, 2024). The researcher documented errors by category using a data collection sheet and applied rubrics to evaluate creativity. To ensure validity, five English language teachers assessed the intervention materials, focusing on user suitability and grammar content. Their expert evaluation provided critical validation for the study tools.

Data Gathering Procedures

This study employed a structured approach comprising three phases: initial writing assessment, intervention, and final writing assessment. Using a Research Randomizer, the Grade 12 STEM students were divided into control and intervention groups, with each group completing a 250-word essay on assigned topics under timed conditions. The initial assessment aimed to identify errors using Corder's (1974) Error Analysis process and Krashen's (1982) Surface Strategy Taxonomy (SST), categorizing errors as omission,

addition, misformation, and misordering (Sahagun & Daing, 2020). The intervention group participated in three grammar-focused sessions covering conjunctions, tenses, punctuation, capitalization, and creative writing, while the control group followed their standard curriculum. In the final phase, both groups wrote essays to evaluate the intervention's effectiveness using the same error analysis methods. This systematic process ensured a thorough examination of students' writing progress and error patterns.

Analysis of Data

This study analyzed grammatical and taxonomical errors in the written compositions of Grade 12 students using Corder's (1974) Error Analysis process, which involved collecting data, identifying errors using correction symbols, classifying errors based on linguistic taxonomy, explaining errors, and evaluating them through tables, graphs, and conclusions. Pretest and posttest scores were encoded into MS Excel. Mean and standard deviation were used to describe the extent of grammatical and taxonomy-based errors during the pretest and posttest. To address the issue of non-normality and homogeneity of variance, Mann-Whitney U test was used to compare pretest and posttest scores between control and intervention groups. Wilcoxon rank-sum tests were used to compare pretest and posttest scores within control and intervention groups.

Ethical Considerations

Securing approval from the Ethics Review Board (ERB) and the school administration was the first step. Informed consent was obtained from participants and parents through consent and assent forms. To maintain confidentiality, pseudonyms and coded identifiers (e.g., Student 1, S1) were used, and sensitive documents were securely stored (Arifin, 2018). Data collection was conducted during scheduled class times to ensure participants' safety and comfort, with provisions for declining participation if necessary. Relevant data were gathered and protected, with sensitive materials retained until publication and then securely deleted. The researchers maintained that compliance with ethical standards protected participants and ensured rigorous the research practices (Wa-Mbaleka & Rosario, 2022).

Results

Grammatical Errors in the Pretest Assessment in the Control and Intervention Groups

The results in Table 1 compare grammatical errors between intervention and control groups across various categories, revealing a higher mean number of errors in the intervention group ($M = 15.175$, $SD = 7.259$) compared to the control group ($M = 12.831$, $SD = 6.954$). Among the error categories, punctuation errors had the highest means (4.730 for the intervention group, $SD = 2.974$; 4.169, $SD = 3.039$ for the control group), followed by simple tense errors ($M = 3.254$ for the intervention; $M = 2.277$ for the control). Creativity had the fewest errors, with means of 0.270 in the intervention group and 0.462 in the control group, highlighting variations in error prevalence across categories. This suggests targeted areas for improvement in writing skills (Daing & Sahagun, 2020).

Table 1 revealed that the comparison of initial writing results between the intervention and control groups showed no significant differences in individual grammatical error categories. For subject-verb agreement, the control group had a higher mean ($M = 1.938$) than the intervention group ($M = 1.603$), but this difference was not statistically significant ($p = 0.212$). Simple tense errors were more frequent in the intervention group ($M = 3.254$) compared to the control group ($M = 2.277$), but the difference was also insignificant ($p = 0.055$). Similarly, no significant differences were observed in preposition errors (intervention mean = 1.476, control ($M = 1.138$, $p = 0.148$) or conjunction errors (intervention mean = 0.778, control mean = 0.508, $p = 0.456$). Punctuation, capitalization, and spelling errors also did not differ significantly, though the intervention group had slightly higher means in each category. The total grammatical errors were significantly higher in the intervention group ($M = 15.18$, $SD = 7.26$) compared to the control group ($M = 12.83$, $SD = 6.95$), $p = .040$, indicating a statistically significant baseline difference.

Table 1

Comparison of the Pretest Assessment of Grammatical Errors in the Control and Intervention Groups

		Mean	SD	Median	*U*	Mean Difference	*p*	*t*	Verbal Interpretation
Subject-verb Agreement	Control	1.938	1.749	2.00	1793	7.60e-5	0.212	0.1245	Not Significant
	Intervention	1.603	1.632	1.00					
Simple Tense	Control	2.277	1.933	2.00	1649	-1.000	0.055	0.1946	Not Significant
	Intervention	3.254	2.706	3.00					
Prepositions	Control	1.138	1.356	1.00	1757	-1.70e−5	0.148	0.1421	Not Significant
	Intervention	1.476	1.446	1.00					
Conjunctions	Control	0.508	0.793	0.00	1912	-2.88e−5	0.456	0.0664	Not Significant
	Intervention	0.778	1.276	0.00					
Punctuation Marks	Control	4.169	3.039	4.00	1797	-1.000	0.230	0.1223	Not Significant
	Intervention	4.730	2.974	4.00					
Capitalization	Control	1.477	2.878	0.00	1832	-5.35e−6	0.275	0.1053	Not Significant
	Intervention	1.778	2.667	1.00					
Spelling	Control	0.862	1.184	1.00	1855	-7.28e−5	0.327	0.0940	Not Significant
	Intervention	1.286	1.782	1.00					
Creativity	Control	0.462	0.752	0.00	1773	2.35e-5	0.110	0.1343	Not Significant
	Intervention	0.270	0.447	0.00					
Overall Score	Control	12.831	6.954	12.00	1617	-3.000	0.040	0.2103	Significant
	Intervention	15.175	7.259	15.00					

Taxonomical Errors in the Pretest Assessment

Table 2 presents the results of the initial writing assessment of the students in the taxonomy of errors between the intervention and control groups. The results were based on the findings from the written compositions of the two groups. The analysis of taxonomy errors between intervention and control groups revealed a slightly higher mean in the intervention group (M = 7.7903) compared to the control group (M = 7.4000), with comparable standard deviations (intervention = 3.768, control = 4.054), with comparable variability between the groups. Among the categories, errors in addition were most prevalent (M = 3.7937 in the intervention group, M = 2.4923 in the control group), followed by omission errors (M = 2.5714 in the intervention group, 3.5231 in the control group). Misordering errors were the least frequent, with means of 0.2857 and 0.0615 in the intervention and control groups, respectively. Addition errors, defined by James (1998, as cited in Daing & Sahagun, 2020), occur when unnecessary elements are included, often to compensate for omission errors, which students believed would clarify their writing. These findings underscore the need to address these persistent error types.

Table 2 further shows the comparison of initial writing results for taxonomy errors between the intervention and control groups, which revealed significant differences in three categories. The intervention group had a higher mean for addition errors (3.794) compared to the control group (2.4923), with a significant difference (p = 0.007). Conversely, omission errors were more frequent in the control group (M = 3.5231) than in the intervention group (mean = 2.571), also statistically significant (p = 0.035). Misordering errors were significantly higher in the intervention group (M = 0.286) compared to the control group (M = 0.0615, p = 0.005). However, misformation errors showed no significant difference between groups, with the control group slightly outperforming the intervention group. Both groups had similar

overall mean scores for taxonomy errors (control: M = 7.4; intervention: M = 7.79, p = 0.560), indicating no notable difference in total errors despite the significant differences in specific categories (Daing & Sahagun, 2020).

Table 2

Comparison of the Pretest Assessment of Taxonomy of Errors in the Control and Intervention Groups

		Mean	SD	Median	*U*	Mean Difference	*p*	*t*	Verbal Interpretation
Omission	Control	3.523	2.46	3.00	1612	1	0.035	0.213	Significant
	Intervention	2.571	1.53	2.00					
Addition	Control	2.492	1.99	2.00	1492	-1	0.007	0.247	Significant
	Intervention	3.794	2.78	3.00					
Misformation	Control	1.323	1.57	1.00	1972	2.77E-05	0.834	0.021	Not Significant
	Intervention	1.161	1.24	1.00					
Misordering	Control	0.062	0.24	0.00	1680	-8.34E-04	0.005	0.18	Significant
	Intervention	0.286	0.55	0.00					
Overall Score	Control	7.4	4.05	7.00	1894	-5.79E-04	0.56	0.06	Not Significant
	Intervention	7.79	3.77	7.00					

Grammatical Errors in the Posttest Assessment in the Control and Intervention Groups

Table 3 below shows the comparison of grammatical errors between the intervention and control groups after the intervention. It revealed significant improvements in the intervention group across most categories, except creativity. Subject-verb agreement errors were significantly lower in the intervention group (M = 1.413) compared to the control group (M = 2.923) with $p < .001$). Similarly, errors in simple tense (M = 0.984 vs. M = 1.338), prepositions (M = 1.111 vs. M = 2.508), and conjunctions (M = 0.984 vs. M = 1.662) were significantly reduced in the intervention group ($p < .001$ for all categories). Punctuation, capitalization, and spelling errors also showed notable decreases in the intervention group. The total error count was significantly lower for the intervention group (M = 8.857) compared to the control group (M = 17.862, $p < .001$), demonstrating the intervention's effectiveness in enhancing grammatical skills.

Table 3

Comparison of Posttest Grammatical Errors in the Control and Intervention Groups

		Mean	SD	Median	*U*	Mean Difference	*p*	*t*	Verbal Interpretation
Subject-verb Agreement	Control	2.923	2.4	2.00	1214	1	<.001	0.407	Significant
	Intervention	1.413	1.444	1.00					
Simple Tense	Control	1.338	1.122	1.00	1707	5.66E-05	0.09	0.167	Significant
	Intervention	0.984	0.907	1.00					
Prepositions	Control	2.508	1.993	2.00	1092	1	<.001	0.467	Significant
	Intervention	1.111	1.193	1.00					
Conjunctions	Control	1.662	1.241	2.00	1373	1	<.001	0.329	Significant
	Intervention	0.984	0.942	1.00					
Punctuation Marks	Control	5.492	3.623	5.00	952	3	<.001	0.535	Significant
	Intervention	2.619	1.879	3.00					

{table continues on the next page}

Capitalization	Control	2.523	2.974	2.00	1193	1	<.001	0.417	Significant
	Intervention	0.841	1.096	0.00					
Spelling	Control	1.154	1.349	1.00	1636	3.19E-05	0.034	0.201	Significant
	Intervention	0.683	0.964	0.00					
Creativity	Control	0.262	0.443	0.00	1967	3.04E-05	0.607	0.039	Not Significant
	Intervention	0.222	0.419	0.00					
Overall Score	Control	17.862	8.678	18.00	778	9	<.001	0.62	Significant
	Intervention	8.857	3.999	9.00					

Taxonomical Errors in the Pretest Assessment

Table 4 shows that the final writing assessment results reveal significant differences in taxonomy errors between the intervention and control groups. The intervention group demonstrated fewer omission errors (M = 1.619 vs. 3.969), addition (M = 2.333 vs. M = 5.246), and misformation (M = 0.794 vs. 2.031), all of which were statistically significant ($p < .001$). A similar pattern was observed in misordering errors. The total error count across all categories was significantly lower in the intervention group (M = 5.048) compared to the control group, reflecting a $p < .001$. These findings highlight the intervention group's significant improvements in reducing errors across all categories, underscoring the effectiveness of the intervention in addressing taxonomy errors and enhancing writing proficiency.

Table 4

Comparison of Posttest Taxonomy Errors in the Control and Intervention Groups

		Mean	SD	Median	*U*	Mean Difference	*p*	*t*	Verbal Interpretation
Omission	Control	3.969	3.00	3.00	696	2.00	<.001	0.66	Significant
	Intervention	1.619	1.17	2.00					
Addition	Control	5.246	4.00	4.00	1026	2.00	<.001	0.499	Significant
	Intervention	2.333	1.769	2.00					
Misformation	Control	2.031	2.00	2.00	807	1.00	<.001	0.606	Significant
	Intervention	0.794	0.986	1.00					
Misordering	Control	0.692	1.00	1.00	1382	3.84E-05	<.001	0.325	Significant
	Intervention	0.302	0.528	0.00					
Overall Score	Control	11.938	10.00	10.0	553	5.00	<.001	0.730	Significant
	Intervention	5.048	2.831	5.00					

Comparison of Pretest and Posttest Errors Within the Control and Intervention Groups

The comparison of pretest and posttest results in the control group revealed significant improvements in grammatical errors (Table 5) across several categories. Simple tense errors showed a notable reduction ($p < 0.001$, $\varepsilon = 0.776$), as did punctuation errors ($p < 0.001$, $\varepsilon = 0.65$) and spelling errors ($p = 0.044$, $\varepsilon = 0.349$). However, no significant differences were observed in subject-verb agreement ($p = 0.354$, $\varepsilon = 0.154$), prepositions ($p = 0.146$, $\varepsilon = 0.242$), or creativity ($p = 0.559$). Conjunction errors did not significantly improve ($p = 0.063$), with a slight increase indicated by a negative effect size. Capitalization errors showed a marginally significant decrease ($p = 0.051$) with moderate improvement. Overall, there was a significant increase in grammatical errors in the control group (MD = –10.00, $p < .001$, $\varepsilon = –0.728$), indicating a worsening of writing performance from pretest to posttest.

Table 5

Comparison of Pretest and Posttest Grammatical Errors Within the Control Group

		Mean	SD	Median	*W*-Statistics	*p*	MD	ε	Verbal Interpretation
Subject-Verb Agreement	Pretest	1.938	1.749	2.00	517	0.115	-1	-0.25	Not Significant
	Posttest	2.508	1.993	2.00					
Simple Tense	Pretest	2.277	1.933	2.00	1039	0.048	0.5	0.301	Significant decrease
	Posttest	1.662	1.241	2.00					
Prepositions	Pretest	1.138	1.356	1.00	16.5	<.001	-4.5	-0.981	Significant increase
	Posttest	5.492	3.623	5.00					
Conjunctions	Pretest	0.508	0.793	0.00	93.5	<.001	-2	-0.847	Significant increase
	Posttest	2.523	2.974	2.00					
Punctuation Marks	Pretest	4.169	3.039	4.00	1707	<.001	3	0.805	Significant decrease
	Posttest	1.154	1.349	1.00					
Capitalization	Pretest	1.477	2.878	0.00	504	<.001	1.5	0.797	Significant decrease
	Posttest	0.262	0.443	0.00					
Spelling	Pretest	0.862	1.184	1.00	60	<.001	-3.5	-0.93	Significant increase
	Posttest	3.969	2.437	3.00					
Creativity	Pretest	0.462	0.752	0.00	15	<.001	-4.5	-0.984	Significant increase
	Posttest	5.246	3.877	4.00					
Overall Score	Pretest	12.831	6.954	12.0	283	<.001	-10	-0.728	Significant increase
	Posttest	22.815	11.055	21.0					

Table 6 shows the data comparing the pretest and posttest results of the control group in terms of taxonomy errors. In omission it showed a significant increase ($p < .001$), and a mean difference of (MD=2), which suggests a substantial increase in taxonomy errors, particularly in omission ($MD = 2.00$, $p < .001$, $\varepsilon = 0.869$). A negative MD indicates error growth, not reduction ($\varepsilon = 0.869$), similarly, addition ($p = 0.001$), the mean difference of -1.5, indicates an improvement, with a moderate to strong effect size($\varepsilon = -0.504$). Additionally, both misformation and misordering also showed a highly significant difference with the same p-value ($p < .001$), and its effect size ($\varepsilon = 0.991$). Finally, the control group's overall result of the taxonomy of errors was highly significant p-value ($p < .001$), which indicates a strong overall increase in the taxonomy of errors from pretest to posttest. Thus, the null hypothesis was rejected.

Table 6

Comparison of Pretest and Posttest Taxonomy of Errors Within the Control Group

		Mean	SD	Median	*W* Statistics	MD	*p*	ε	Verbal Interpretation
Omission	Pretest	2.4923	1.993	2.00	1388	2	<.001	0.869	Significant decrease
	Posttest	0.6923	0.660	1.00					
Addition	Pretest	1.3016	1.583	1.00	355	-1.5	<.001	-0.504	Significant decrease
	Posttest	2.3333	1.769	2.00					
Misformation	Pretest	0.0635	0.246	0.00	0	-1	<.001	-1.000	Significant decrease
	Posttest	0.7937	0.986	1.00					

{table continues on the next page}

Misordering	Pretest	2.9841	2.413	2.00	1320	3	<.001	0.991	Significant decrease
	Posttest	0.3016	0.528	0.00					
Overall Score	Pretest	6.8095	3.321	6.00	1520	3	<.001	0.661	Significant decrease
	Posttest	4.1270	2.661	4.00					

Table 7 presents a comparative analysis of pretest and posttest results for grammatical errors in the intervention group. Statistically significant improvements were observed in four categories: simple tense ($p < 0.001$, $\varepsilon = 0.776$), punctuation marks ($p < 0.001$, $\varepsilon = 0.65$), spelling ($p = 0.044$, $\varepsilon = 0.349$), and overall performance ($p < 0.001$, $\varepsilon = 0.738$). Capitalization showed a marginally significant reduction in errors ($p = .051$, $\varepsilon = 0.331$), suggesting modest improvement. ($p = 0.051$) with a medium effect size, while subject-verb agreement (SVA), prepositions, creativity, and conjunctions did not show significant changes. Notably, conjunctions ($p = 0.063$) had a negative effect size, indicating a slight increase in errors.

The results underscore the positive impact of structured intervention, particularly on areas with previously higher error frequencies. Despite minimal changes in SVA, prepositions, and creativity—likely due to lower initial error rates—these aspects still warrant targeted attention. The overall reduction in grammatical errors supports the rejection of the null hypothesis and aligns with findings from Wornyo (2016), Pawlak (2023), and Utami and Mahardika (2023), reinforcing the value of direct, teacher-led interventions over purely technology-driven methods in enhancing grammatical competence.

Table 7

Comparison of Pretest and Posttest Grammatical Errors Within the Intervention Group

		Mean	SD	Median	*W*-Statistics	*p*	MD	ε	Verbal Interpretation
Subject-Verb Agreement	Pretest	1.603	1.632	1.00	651	0.5	0.354	0.154	Not Significant
	Posttest	1.413	1.444	1.00					
Simple Tense	Pretest	3.254	2.706	3.00	1368	2.5	<.001	0.776	Significant decrease
	Posttest	0.984	0.907	1.00					
Prepositions	Pretest	1.476	1.446	1.00	672	0.5	0.146	0.242	Significant increase
	Posttest	1.111	1.193	1.00					
Conjunctions	Pretest	0.778	1.276	0.00	307	-0.5	0.063	-0.32	Significant increase
	Posttest	0.984	0.942	1.00					
Punctuation Marks	Pretest	4.730	2.974	4.00	1181	2.5	<.001	0.65	Significant decrease
	Posttest	2.619	1.879	3.00					
Capitalization	Pretest	1.778	2.667	1.00	689	1	0.051	0.331	Significant decrease
	Posttest	0.841	1.096	0.00					
Spelling	Pretest	1.286	1.782	1.00	638	1	0.044	0.349	Significant increase
	Posttest	0.683	0.964	0.00					
Creativity	Pretest	0.270	0.447	0.00	182	7.91E-05	0.559	0.12	Significant increase
	Posttest	0.222	0.419	0.00					
Overall Score	Pretest	15.175	7.259	15.00	1591	6.5	<.001	0.738	Significant increase
	Posttest	8.857	3.999	9.00					

Table 8 presents statistically significant reductions in key error types following the intervention: omission ($p < .001$, $\varepsilon = 0.5852$), addition ($p = 0.003$, $\varepsilon = 0.463$), and misformation ($p = 0.048$). No statistically significant difference was found in misordering errors (MD = –0.016, $p = .912$, $\varepsilon = –0.024$), indicating

stability in this category. The overall error count across all categories yielded a highly significant p-value (< .001), reflecting a substantial reduction in the taxonomy of errors from pretest to posttest. These results suggest that the intervention effectively enhanced learners' grammatical performance across multiple dimensions.

The strong effect sizes indicate that targeted strategies had a meaningful impact, contributing to improved accuracy and reduced errors. Consequently, the null hypothesis was rejected. These findings align with Pawlak (2023), whose research emphasized the power of structured grammar learning strategies in strengthening both explicit and implicit grammatical knowledge—further validating the effectiveness of the intervention used in this study.

Table 8

Comparison of Taxonomy of Errors Before and After the Intervention Within the Intervention Group

		Mean	SD	Median	*W* Statistics	MD	*p*	ε	Verbal Interpretation
Omission	Pretest	2.571	2.00	1.532	1177	1	<.001	0.5852	Significant
	Posttest	1.619	2.00	1.170					
Addition	Pretest	3.794	3.0	2.783	1127	1.5	0.003	0.4630	Significant
	Posttest	2.333	2.00	1.769					
Misformation	Pretest	1.161	1.00	1.244	746	0.5	0.048	0.3218	Significant
	Posttest	0.774	1.00	0.982					
Misordering	Pretest	0.286	0.00	0.551	227	-9.71e-6	0.912	-0.024	Not Significant
	Posttest	0.302	0.00	0.528					
Overall Score	Pretest	7.790	7.00	3.768	1299	3	<.001	0.6278	Significant
	Posttest	5.032	5.00	2.851					

Comparison of Changed in Grammatical and Taxonomy Errors Between the Control and Intervention Groups

Table 9 indicates that the data highlights significant differences in grammatical errors between intervention and control groups across most categories, except creativity. Subject-verb agreement errors improved notably in the intervention group (M = 0.19, p = 0.009) compared to the control group (M = -0.98). Simple tense errors also showed significant improvement in the intervention group (M = 2.27, p = 0.016) compared to the control group (M = 0.94). Prepositions and punctuation errors recorded highly significant improvements in the intervention group (prepositions: $p < .001$, $\varepsilon = 0.42$; punctuation: $p < .001$, $\varepsilon = 0.4271$). Overall, the intervention group (M = 6.3175, SD = 8.345) demonstrated fewer grammatical errors and greater consistency than the control group (M = -5.0308, SD = 11.505, $p < .001$, $\varepsilon = 0.6134$), highlighting the effectiveness of the intervention in improving grammatical accuracy.

Table 9

Comparison of Change in the Grammatical Errors Between Control and Intervention Groups

		Mean	SD	Median	*U*	MD	*p*	ε	Verbal Interpretation
Subject-Verb Agreement	Control	-0.98	2.87	-1.00	1501	-1.00	0.009	0.2672	Significant
	Intervention	0.191	1.96	0.00					
Simple Tense	Control	0.939	2.31	1.00	1544	-1.00	0.016	0.2462	Significant
	Intervention	2.27	3.04	2.00					

{table continues on the next page}

Preposition	Control	-1.37	2.45	-1.00	1188	-2.00	<.001	0.42	Significant
	Intervention	0.365	1.85	0.00					
Conjunction	Control	-1.15	1.49	-1.00	1439	-1.00	0.003	0.2974	Significant
	Intervention	-0.21	1.6	0.00					
Punctuation Mark	Control	-1.32	4.9	-1.00	1173	-3.00	<.001	0.4271	Significant
	Intervention	2.111	3.6	2.00					
Capitalization	Control	-1.05	4.39	-1.00	1331	-2.00	<.001	0.3499	Significant
	Intervention	0.937	3.06	0.00					
Spelling	Control	-0.29	1.75	0.00	1599	-1.00	0.029	0.219	Significant
	Intervention	0.603	2.04	0.00					
Creativity	Control	0.2	0.89	0.00	1889	5.97E-05	0.396	0.0774	Not Significant
	Intervention	0.048	0.63	0.00					
Grammatical Error	Control	-5.03	11.5	-5.00	792	-12	<.001	0.6134	Significant
	Intervention	6.318	8.35	6.00					

The comparison of taxonomy errors between the intervention and control groups showed statistically significant reductions across all categories for the intervention group. Addition errors significantly decreased in the intervention group ($M = 1.4603$) compared to the control group ($M = -2.754$, $p < .001$, $\varepsilon = 0.533$), highlighting the intervention's strong effectiveness. Omission ($M = 0.9524$ vs. $M = -0.446$, $p = 0.005$) and misformation ($M = 0.3871$ vs. $M = -0.708$, $p < .001$) errors also showed substantial improvement, following similar trends in misordering ($M = -0.0159$ vs. $M = -0.631$, $p < .001$). Overall, the intervention group demonstrated a significant reduction in taxonomy errors ($M = -1.0323$ vs. $M = -10.462$, $p < .001$, $\varepsilon = 0.563$), confirming the intervention's profound positive impact on reducing taxonomy errors and improving writing accuracy.

Table 10

Comparison of Change in Taxonomy Errors Between Control and Intervention Groups

		Mean	SD	Median	*U*	MD	*p*	*ε*	Verbal Interpretation
Omission	Control	-0.446	3.553	-1.00	1467	-1.000	0.005	0.284	Significant
	Intervention	0.9524	1.736	1.00					
Addition	Control	-2.754	4.441	-2.00	956	-4.000	<.001	0.533	Significant
	Intervention	1.4603	3.431	1.00					
Misformation	Control	-0.708	2.067	-1.00	1203	-1.000	<.001	0.403	Significant
	Intervention	0.3871	1.633	0.00					
Misordering	Control	-0.631	0.675	-1.00	1258	-1.000	<.001	0.386	Significant
	Intervention	-0.0159	0.852	0.00					
Taxomony	Control	-10.462	10.000	-11.00	881	-10.000	<.001	0.563	Significant
	Intervention	-1.0323	5.663	0.00					

Discussion

In this study, the results clearly demonstrate the positive impact of the intervention on reducing grammatical and taxonomical errors among students in the intervention group. The study found that intervention significantly improved grammatical and taxonomical accuracy among students. Initially,

both groups committed errors in punctuation, simple tense, and subject-verb agreement. However, after the intervention, the outcome of the study showed an improvement in students' performance in grammar (Wornyo, 2016). They also significantly reduced taxonomy errors. Likewise, the intervention group showed consistent progress, while the control group showed mixed results. The intervention's success in enhancing overall writing proficiency was highlighted, demonstrating the positive impact of the intervention on students' writing skills. Moreover, according to London (2022), students who received intervention through varied learning activities showed notable improvements in grammar accuracy compared to their pre-test scores. Thus, it emphasizes the importance of targeted, structured programs in improving students' writing proficiency and the value of continuous support and tailored interventions (Cuyos et al., 2024). It also provides students with meaningful grammar practice, fostering greater accuracy and proficiency in language use (Pham & Huyen, 2021). In addition, constructive teaching methods significantly improved students' grammatical accuracy (Wornyo, 2016), and structured interventions enhance both explicit and implicit grammatical knowledge (Pawlak, 2023).

This study recommends the implementation of targeted writing and grammar intervention programs in education, teacher training, and performance monitoring policies. It suggests that curriculum developers design customized learning modules, structured writing programs, and collaborative learning activities. Educators should receive feedback and professional development, while students should engage in active practice and peer collaboration. Likewise, Teachers should focus on identifying and addressing challenges in grammar structure, utilizing targeted error analysis to develop effective instructional strategies and enhance language proficiency (Islam & Mufidah, 2022). Furthermore, future studies should include longitudinal evaluations, considering variables like socio-economic background, learning environment, and teaching styles, and incorporating innovative approaches like technology or gamification.

References

Andriani, L., Syihabuddin, S., Sastromiharjo, A., & Anshori, D. (2022). The role of writing process components and cognitive components in improving the quality of narrative. *International Journal of Learning Teaching and Educational Research, 21*(12), 88–106. https://doi.org/10.26803/ijlter.21.12.5

Angelini, M. L., & García-Carbonell, A. (2019). Enhancing students' written production in English through flipped lessons and simulations. *International Journal of Educational Technology in Higher Education, 16*(1). https://doi.org/10.1186/s41239-019-0131-8

Arifin, S. R. M. (2018). Ethical considerations in qualitative study. *International Journal of Care Scholars, 1*(2), 3033. https://doi.org/10.31436/ijcs.v1i2.82

Belarmino, R. A. (2023). Writing proficiency in English and academic achievement of the Grade 7 students of Father Julian C. Rago Memorial National High School: Bases for a Proposed Instructional Enhancement in English. *Zenodo (CERN European Organization for Nuclear Research)*. https://doi.org/10.5281/zenodo.7569079

Cabigon, M. (2015). State of English in the Philippines: Should we be concerned? British Council.

Callora, I. J. O., & Suñas, W. P. (2023). The writing competence of senior high school students in the public schools in Alamada, Cotabato. *Zenodo (CERN European Organization for Nuclear Research)*. https://doi.org/10.5281/zenodo.7646848

Cash, P., Stanković, T., & Štorga, M. (2016). Experimental Design Research: Approaches, Perspectives, Applications. Springer.

Corder, S. P. (1974). The significance of learners' errors. In *J. C. Richards (Ed.), Error Analysis: Perspectives on Second Language Acquisition* (pp. 19-27). London, England: Longman

Crisianita, S., & Mandasari, B. (2022). The use of small-group discussion to improve students' speaking skills. *Journal of English Language Teaching and Learning, 3*(1), 61–66. https://doi.org/10.33365/jeltl.v3i1.1680

Cuyos, A. N. ., Madidis, E., Dela Peña, D., Bula, M. C., Nibalvos, M. N., & Omaña, E. (2024). Navigating Grammatical Errors Among Filipino Tertiary Students: Implication for Linguistic Competence. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE), 1*(8), 62-81.

Fitrawati, F., & Safitri, D. (2021). Students' grammatical errors in essay writing: A pedagogical grammar reflection. *International Journal of Language Education, 5*(2), 74. https://doi.org/10.26858/ijole.v5i2.16128

Fontanilla, J.B., Bautista, K. H., Lactao Jr. M.,Villacorte M.A., & Santos, R., (2023). *Educators' Perspectives on the Impact of Artificial Intelligence on Writing Competence. 6*. 29-34

Golzar, J., Tajik, O., & Noor, S. (2022). Convenience sampling. ResearchGate. https://doi.org/10.22034/ijels.2022.162981

Herrera Shaw S. (2023, April 17). Local, international tests show urgent need to improve quality of education. Philippine Daily Inquirer. https://opinion.inquirer.net/162422/local-international-tests-show-urgent-need-to- improve-quality-of-education

Hwang, G., Xie, H., Wah, B. W., & Gašević, D. (2020). Vision, challenges, roles and research issues of Artificial Intelligence in Education. *Computers and Education Artificial Intelligence, 1*, 100001. https://doi.org/10.1016/j.caeai.2020.100001

Islam, S., & Mufidah, P. N. (2022). An Analysis of Grammatical Error on Students' Writing. *International Journal of English Education and Linguistics (IJoEEL), 4*(1), 1–13. https://doi.org/10.33650/ijoeel.v4i1.3826

Khatter, S. (2019). An analysis of the most common essay writing errors among EFL Saudi female learners (Majmaah University). *Arab World English Journal, 10*(3), 364-381. https://doi.org/10.24093/awej/vol10no3.26

Krashen, S. D. (1982). Principles and practice in second language acquisition. *Pergamon Press*. https://www.sdkrashen.com/content/books/principles_and_practice.pdf

Kwegyir-Afful, E. (2021). Effects of an engaging maintenance task on fire evacuation delays and presence in virtual reality. *International Journal of Disaster Risk Reduction, 67*, 102681. https://doi.org/10.1016/j.ijdrr.2021.102681

London, N. R. F. (2022). Using differentiated learning activities to improve student's grammatical competence. *East Asian Journal of Multidisciplinary Research, 1*(6), 1017–1032. https://doi.org/10.55927/eajmr.v1i6.696

Noor, S., Tajik, O., & Golzar, J. (2022). *Simple Random Sampling. 1*. 78-82. 10.22034/ijels.2022.162982.

Özkayran, A., & Yılmaz, E. (2020). Analysis of higher education students' errors in English writing tasks. *Advances in Language and Literary Studies, 11*(2), 48. https://doi.org/10.7575/aiac.alls.v.11n.2p.48

Pawlak, M. (2023). Grammar learning strategies: Towards a pedagogical intervention. *Language Teaching Research Quarterly, 39*, 174–191. https://doi.org/10.32038/ltrq.2024.39.12

Pham, V. P. H., & Huyen, T., DO. (2021). The Impacts of Task-based Instruction on Students' Grammatical Performances in Speaking and Writing Skills: A quasi-experimental study. International Journal of Instruction, 14(2), 969–986. https://doi.org/10.29333/iji.2021.14255a

Phommavongsa, K., Xaysetha, S., & Phomchaleun, S. (2021). The common grammatical errors in writing narrative essays of students at the youth resource center, Savannakhet. *Jurnal Penelitian Humaniora, 22*(1), 1-13. https://doi.org/10.23917/humaniora.v22i1.11501

Rahi, S. (2017). Research Design and Methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Sciences, 06*(02). https://doi.org/10.4172/2162-6359.1000403

Saeed, K. M., Ahmed, A. S., Rahman, Z. M., & Sleman, N. A. (2023). How social support predicts academic achievement among secondary students with special needs: The mediating role of self-esteem. Middle East Current.

Sahagun, M. L. T., & Daing, C. A. (2020). Common Errors Committed by Grade 11 Students in Writing English Essays: Basis for the Development of Strategic Intervention Material. 10.13140/RG.2.2.13930.06086.

Santiago, J. G., & Dagdag, J. D. (2021). The effect of mother tongue-based multilingual education on the Science achievement and metacognitive learning orientations of Ilocano grade 3 pupils: Implications for policy and practice. *Journal of Research Policy & Practice of Teachers & Teacher Education, 11*(2), 46–58. https://doi.org/10.37134/jrpptte.vol11.2.4.2021

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2001). Experimental and Quasi-Experimental designs for generalized causal inference.

Stratton, S. J. (2023). Population Sampling: Probability and Non-Probability Techniques. *Prehospital and Disaster Medicine, 38*(2), 147–148. ssdoi:10.1017/S1049023X23000304

Taye, T., & Mengesha, M. (2024). Identifying and analyzing common English writing challenges among regular undergraduate students. *Heliyon, 10*(17), e36876. https://doi.org/10.1016/j.heliyon.2024.e36876

Urbano, C. M., Gumangan, M. A., Gustilo, L., & Capacete, M. P. A. (2021). Reading and Writing Needs of Senior High School Students: The Case of Filipino Students in the Philippines. *Modern Journal of Studies in English Language Teaching and Literature, 3*(1), 140–166. https://doi.org/10.56498/31202154

Wa-Mbaleka, S., & Rosario, A. (2022). The SAGE Handbook of Qualitative Research in the Asian Context. SAGE

Wornyo, A. A. (2016). Attending to the grammatical errors of students using constructive teaching and learning activities. *Journal of Education and Practice, 7*(7), 23–32. http://files.eric.ed.gov/fulltext/EJ1095256.pdf

Yuan, Y. (2021). Influence of native language transfer on senior high school English writing. *Theory and Practice in Language Studies, 11*(2),170. https://doi.org/10.17507/tpls.1102.08

EDUCATION

Proficiency in the Four Basic Mathematical Operations Among Junior High School Students: Assessment and Intervention Plan

Evelyn V. Donaire **Rowena Imelda A. Ramos**
Leonardo B. Dorado **Abraham P. Racca**

Adventist University of the Philippines
2054339@aup.edu.ph

Abstract

This study investigated the proficiency levels of junior high school students in the four basic mathematical operations—addition, subtraction, multiplication, and division—across various grade levels. The results indicate a generally low level of proficiency, with most students classified with low proficiency in all operations. Notably, subtraction and division emerged as the weakest areas, particularly for Grade 8 students, who demonstrated the lowest performance. The study highlights significant variations in performance across grade levels, with Grade 9 students performing better than their Grade 8 counterparts, especially in multiplication and division. The data reveals inconsistencies in students' performance, even within operations where they showed relatively better proficiency, such as addition and multiplication. These findings underscore the importance of addressing foundational gaps in basic arithmetic skills to prevent long-term academic difficulties. In response to the identified gaps, the study proposes the "Math Mastery: Subtraction & Division Blitz" intervention program, specifically designed to target the challenges faced by Grade 8 students in mastering subtraction and division. The program combines structured learning with high-energy, bootcamp-style drills, aiming to improve accuracy, speed, and real-world application of these operations. By emphasizing interactive learning tools, peer collaboration, and practical scenarios, the intervention seeks to increase student engagement and proficiency. The study concludes that early, targeted interventions are crucial for bridging the proficiency gap and ensuring students' readiness for more advanced mathematical concepts.

Keywords: *junior high school students, subtraction, division, proficiency levels, intervention program*

Mathematics is a multifaceted discipline that plays a significant role in academic success and daily life. The four basic operations—addition, subtraction, multiplication, and division—serve as the foundation for mathematical understanding and problem-solving. A lack of proficiency in these operations can hinder students' ability to progress in mathematics and other subjects requiring quantitative reasoning.

One of the major challenges in education is that many junior high school students struggle with basic math operations. In the 2022 Program for International Student Assessment (PISA), the Philippines ranked 77th out of 81 countries in mathematics, with an average score of 355—well below the OECD (Organization for Economic Cooperation and Development) average of 472. While this represents a slight improvement from the 2018 score of 353, the country still ranks among the lowest globally in math proficiency in the 2022 results of the Program for International Student Assessment (PISA) (Chi, 2023).

Despite extensive research in math education, limited studies focus on the mastery of basic arithmetic operations among secondary school students. This gap leaves educators without concrete data on students' proficiency levels, making it difficult to design effective interventions. This study aims to assess the proficiency levels of junior high school students in the four basic mathematical operations and propose an intervention plan based on the findings.

The purpose of this research is to evaluate the proficiency level of junior high school students in performing addition, subtraction, multiplication, and division in a government school. The results will serve as the basis for an intervention program. Specifically, this study seeks to answer the following research questions:

1. What is the proficiency level in the four basic math operations among junior high school students who participated in the study?
2. Is there a significant difference in proficiency levels based on sex and grade level?
3. Based on the results, what intervention program can be proposed?

Achieving proficiency in these fundamental operations is essential for students' academic progress. Studies suggest that early mastery of arithmetic skills influences students' ability to succeed in more advanced mathematical concepts (Davis-Kean et al., 2021). Additionally, research highlights the importance of teaching these operations using various representations, including symbolic and graphical methods, to enhance students' understanding (Fauziyah & Jupri, 2020).

Understanding the cognitive development of students is critical in addressing difficulties in mathematical operations. Research indicates that instructional methods should foster both procedural fluency and conceptual understanding (Domingo et al., 2021). Moreover, students' mathematical abilities develop at different rates across grade levels, necessitating adaptive curricula that cater to their evolving needs (Devlin et al., 2022).

Several factors, such as socio-economic background, spatial ability, and executive function, influence students' math performance (Johnson et al., 2022; Kim et al., 2021). Effective interventions should account for these differences to provide targeted support. For example, students from disadvantaged backgrounds may require additional instructional strategies to overcome learning barriers.

To improve proficiency in basic math operations, various intervention strategies can be implemented. Digital tools and adaptive learning technologies have shown promising results in enhancing student engagement and performance (Shin et al., 2020). Personalized learning platforms that adjust task difficulty based on students' progress can provide immediate feedback, fostering better understanding.

Tiered intervention models, such as Response to Intervention (RTI), have also proven effective. Multi-tiered Systems of Support (MTSS) can help identify students needing additional assistance and provide targeted interventions to prevent them from falling behind (Vaughn et al., 2021). Additionally, integrating gamification in math instruction has been shown to improve student performance, particularly for those struggling with traditional methods (Chen et al., 2019).

Emphasizing early intervention is crucial in addressing learning gaps before they become significant obstacles. Studies show that early numeracy programs focusing on number sense and basic operations

can lay a strong foundation for future success in mathematics (Clements et al., 2022). By implementing early, targeted interventions, educators can help students build essential skills and reduce the need for more intensive support later in their academic journey.

This research aims to provide a clearer understanding of junior high school students' proficiency in basic mathematical operations and propose an effective intervention plan to address learning gaps. By identifying areas of difficulty and implementing targeted strategies, educators can support students in achieving mathematical competency, ultimately improving their academic performance and future opportunities.

Methodology

The methodology of this study was detailed to provide a clear framework for understanding how data on junior high school students' proficiency in basic mathematical operations was collected and analyzed. By presenting a systematic approach, this methodology section aimed to illustrate how the research objectives were met and the insights gained regarding students' mathematical competencies across different grade levels.

Research Design

This study examined junior high school students' proficiency in basic mathematics operations and grade-level differences using a quantitative descriptive research design. This approach mirrored previous research, such as Davis-Kean et al. (2021), which focused on early numeracy skills and their later academic impact. The design allowed systematic and objective measurement of students' mathematical abilities without manipulating variables. Data was collected through validated teacher-made tests assessing addition, subtraction, multiplication, and division skills, akin to Berger et al. (2020). This method identified patterns and disparities in math proficiency among students during the 2024-2025 academic year, providing insights into their current competence in mathematics at the junior secondary level.

Population and Sampling

The study population included all students who were in their seventh, eighth, ninth, and tenth grades in a government school during the school year 2024-2025. This method was used because it investigated how well students understood mathematical operations as they entered different levels of junior high school, like Little et al. (2022), who examined developmental pathways for reading and arithmetic from primary to secondary schools. The number was determined by looking at the current enrollment figures to ensure coverage of every part of this institution.

Instrumentation

The researchers developed a teacher-made test consisting of 40 items: 10 items each for addition, subtraction, multiplication, and division. The test was content-validated by three mathematics experts to ensure accuracy, clarity, and alignment with the Department of Education curriculum standards. The instrument was pilot-tested with 20 students from a neighboring school, and necessary revisions were made to improve clarity and reliability. The final version of the test yielded a Cronbach's alpha reliability coefficient of 0.82, indicating good internal consistency.

The Department of Education grading system served as the basis for classifying students' performance into categories: Beginning (74% and below), Developing (75–79%), Approaching Proficiency (80–84%), Proficient (85–89%), and Advanced (90% and above).

Data Gathering Procedure

The study gathered data systematically and ethically to ensure accuracy and reliability. Before data collection, an official permit was obtained from the school administration, and coordination with mathematics department heads and teachers ensured that the process did not interfere with regular classes. Informed consent forms were distributed to students and their guardians, clearly outlining the study's

purpose, voluntary participation, and confidentiality assurances. Only students who returned signed consent forms were included in the study.

Due to logistical constraints, data collection was delegated to a trained field assistant with relevant experience and familiarity with the research setting. The assistant received detailed instructions on the study's objectives, data collection procedures, and ethical guidelines to ensure consistency. Regular communication was maintained to oversee the process and address any challenges.

On the designated data collection days, the researcher or a trained assistant visited each participating class, provided instructions, and allotted 30 minutes for students to complete the questionnaire. Completed forms were collected and sealed immediately to maintain confidentiality. Data collection took place over two weeks, covering students from Grades 7 to 10. Once all responses were gathered, the researcher reviewed them for completeness and accuracy before proceeding with data entry and analysis.

Data Analysis

The data analysis employed in this study involved a combination of descriptive and inferential statistical methods to examine the proficiency levels of junior high school students across the four basic math operations: addition, subtraction, multiplication, and division. Descriptive statistics, including mean, median, and standard deviation, provided an overview of the students' performance (Field, 2018), while the Kruskal-Wallis H test was used to assess differences in proficiency across grade levels (Kruskal & Wallis, 2017). This non-parametric test was suitable given the non-normal distribution of the data, and it revealed significant differences in performance between grade levels for all operations. Post-hoc pairwise comparisons and the Games-Howell test (Games, 2019) further identified where the significant differences lay, specifically highlighting Grade 9 as the peak performance group. Additionally, the Mann-Whitney U test was employed to analyze gender differences, showing no significant disparities between male and female students across the operations (Mann & Whitney, 2020). Effect sizes were also reported, providing insight into the practical significance of the findings (Cohen, 2013). Overall, the analysis robustly addressed both the variations across grade levels and gender, offering a clear statistical framework for understanding the performance distribution of students in basic math operations.

Ethical Considerations

The study will ensure that informed consent is obtained from all participants and their guardians, emphasizing voluntary participation and confidentiality. Only students who return signed consent forms will be included in the study. The data collection process will be handled with strict adherence to ethical guidelines, with the privacy of all participants being respected throughout the study. Regular communication with the field assistant will ensure that ethical standards are upheld at all stages of data collection.

Results

Proficiency Levels in the Four Basic Math Operations of Junior High School Students

Table 1 reveals hows the students' proficiency levels in addition, subtraction, multiplication, and division—varies significantly, with most responses falling within the nearly proficient and low proficient categories. In addition, operation performance is relatively stronger, as seen in item Q5, where 76.5% of students answered correctly (Proficient), but consistency is lacking, with items like Q1 and Q6 at just 28.7% (Low Proficient). Multiplication shows moderate performance, with most items hovering in the nearly proficient range, such as Q16 at 59.7% and Q21 at 56.1%. However, Q18 dips to 29.0%, reflecting uneven understanding within this domain.

In contrast, subtraction and division reflect lower overall performance, with several items classified as low proficient or not proficient. Notably, Q14 (Subtraction) scored 23.9% and Q25 (Division) only 13.9%, the lowest in the entire dataset. While some division items approach the nearly proficient threshold, such as Q22 at 60.3%, the majority remain below 50%. Overall, the results indicate that while some areas show promise, a large portion of students are not yet consistently demonstrating proficiency across core arithmetic skills.

Table 1

Students Performance in the Four Basic Math Operations

Operation Item		N	Correct Response	%	Proficiency Level
Addition	Q1	310	89	28.70%	Low Proficient
	Q2	310	193	62.30%	Nearly Proficient
	Q3	310	192	61.90%	Nearly Proficient
	Q4	310	120	38.70%	Low Proficient
	Q5	310	237	76.50%	Proficient
	Q6	310	89	28.70%	Low Proficient
	Q7	310	175	56.50%	Nearly Proficient
Subtraction	Q8	310	170	54.80%	Nearly Proficient
	Q9	310	125	40.30%	Low Proficient
	Q10	310	164	52.90%	Nearly Proficient
	Q11	310	89	28.70%	Low Proficient
	Q12	310	165	53.20%	Nearly Proficient
	Q13	310	109	35.20%	Low Proficient
	Q14	310	74	23.90%	Not Proficient
Multiplication	Q15	310	176	56.80%	Nearly Proficient
	Q16	310	185	59.70%	Nearly Proficient
	Q17	310	146	47.10%	Low Proficient
	Q18	310	90	29.00%	Low Proficient
	Q19	310	167	53.90%	Nearly Proficient
	Q20	310	168	54.20%	Nearly Proficient
	Q21	310	174	56.10%	Nearly Proficient
Division	Q22	310	187	60.30%	Nearly Proficient
	Q23	310	107	34.50%	Low Proficient
	Q24	310	142	45.80%	Low Proficient
	Q25	310	43	13.90%	Not Proficient
	Q26	310	152	49.00%	Low Proficient
	Q27	310	135	43.50%	Low Proficient
	Q28	310	156	50.30%	Nearly Proficient

Scoring System: highly proficient = 90%-100%; proficient = 75%-89%; nearly proficient = 50%-74%; low proficient = 25%-49%; not proficient = 0%-24%

Table 2 presents the proficiency levels of junior high school students in the four fundamental operations in mathematics: addition, subtraction, multiplication, and division. The data includes the number of test items per operation, mean scores, standard deviations, and the distribution of student proficiency levels based on their performance (Field, 2018).

As will be shown in Table 2, all four operations—, subtraction, and division—fall within the low proficiency level while addition and multiplication were categorized and with nearly proficiency level. Among these, multiplication showed the highest mean score of 3.57 (SD = 2.25), indicating the most favorable performance. Addition followed closely, with a mean score of 3.53 (SD = 1.42). Most students (153) were classified as Nearly Proficient, while only a small number (17) reached the Proficient level. This indicates that while students had a moderate grasp of addition, mastery was not yet achieved.

Table 2

Proficiency Levels on the Four Basic Math Operations

	Number of Items	Mean	SD	Not Proficient	Low Proficient	Frequency Nearly Proficient	Proficient	Highly Proficient	Level of Proficiency
Addition	7	3.53	1.42	25	115	153	17	0	Nearly Proficient
Subtraction	7	2.89	1.52	58	140	98	12	2	Low
Multiplication	7	3.57	2.25	71	95	48	64	32	Nearly Proficient
Division	7	2.97	1.88	87	105	77	39	2	Low

Scoring System: 0.00–1.68 = Not Proficient, 1.69–3.43 = Low Proficient, 3.44–5.18 = Nearly Proficient, 5.19–6.23 = Proficient, and 6.24–7.00 = Highly Proficient.

In contrast, subtraction had the lowest mean score (M = 2.89, SD = 1.52) of 2.89 (SD = 1.52). A significant portion of students (140) fell under the Low Proficient category, and 58 were classified as Not Proficient, highlighting subtraction as the most challenging operation for students. Similarly, the Division recorded a mean score of 2.97 (SD = 1.88), placing it in the low proficiency range. The proficiency distribution shows that a considerable number of students were either Not Proficient (87) or Low Proficient (105), indicating that many struggled with this operation.

Overall, the results suggest a need for targeted interventions in basic numeracy, particularly in subtraction and division, where students' foundational understanding appears weakest. While some students are beginning to demonstrate emerging proficiency, the majority remain below the expected competency level, underscoring the importance of enhanced instructional support.

Comparison of Proficiency Levels in Terms of Gender

Table 3 presents the comparison between male and female junior high school students' performance in the four fundamental mathematical operations: addition, subtraction, multiplication, and division. The analysis includes descriptive statistics—mean, median, and standard deviation (SD)—as well as the results of the Mann-Whitney U test, a non-parametric test used to determine whether there are significant differences between two independent groups (Mann & Whitney, 2020).

Table 3

Gender Differences in Proficiency Across Four Basic Mathematical Operations

Four Basic Operations	Sex	N	Mean	Median	SD	Mann-Whitney U	p
Addition	Male	108	3.71	4.00	1.39	9704	0.102
	Female	202	3.44	4.00	1.43		
Subtraction	Male	108	3.07	3.00	1.68	9951	0.195
	Female	202	2.79	3.00	1.42		
Multiplication	Male	108	3.45	3.00	2.37	10323	0.431
	Female	202	3.63	3.00	2.19		
Division	Male	108	2.73	3.00	1.93	9588	0.075
	Female	202	3.10	3.00	1.84		
Total	Male	108	13.9	13.0	6.03	10,866	0.956
	Female	202	13.9	12.5	6.26		

{table continues on the next page}

Across all four basic mathematical operations, both male and female students exhibited comparable levels of proficiency. The results of the Mann-Whitney U tests revealed that none of the observed differences in mean scores between the two groups reached statistical significance, as all p-values exceeded the conventional threshold of 0.05. In addition, male students obtained a slightly higher mean score (M = 3.71) than females (M = 3.44), but the difference was not statistically significant (U = 9704, p = 0.102). A similar pattern was observed in Subtraction, where males scored marginally higher (M = 3.07) than females (M = 2.79), yet this difference also lacked significance (p = 0.195). In contrast, female students outperformed males in multiplication (M = 3.63 vs. M = 3.45), but this too was not statistically significant (p = 0.431).

In the case of Division, female students again had higher mean scores (M = 3.10) compared to males (M = 2.73), with the resulting p-value (p = 0.075) approaching significance, suggesting a possible trend that may warrant further exploration. When total scores across all operations were considered, both male and female students recorded an identical mean score of 13.9, with no significant difference detected (p = 0.956).

These findings indicate that although minor variations in performance exist between genders, such differences are not statistically meaningful. Thus, gender does not appear to be a significant factor influencing proficiency in basic mathematical operations among the students in this sample.

Proficiency Among Grade Levels

Table 4 presents the comparison of students' performance across grade levels (Grades 7 to 10) in the four fundamental operations: addition, subtraction, multiplication, and division. The Kruskal-Wallis H test was used to determine if there were statistically significant differences among the grade levels (Kruskal, W. H., & Wallis, W. A., 2017). This non-parametric test is suitable for comparing more than two independent groups, especially when the data is not normally distributed. The table includes the mean, median, standard deviation, chi-square statistic (X^2), degrees of freedom (df), significance level (p), and effect size (ε^2).

Table 4

Grade-Level Differences in the Proficiency of the Four Basic Mathematical Operations

Four Basic Operations	Grade Level	N	Mean	Median	SD	X^2	df	p	ε^2
Addition	7	91	3.73	4.00	1.375	22.7	3	<.001	0.0733
	8	68	3.04	3.00	1.085				
	9	75	3.95	4.00	1.413				
	10	76	3.33	3.00	1.612				
Subtraction	7	91	2.96	3.00	3.000	20.7	3	<.001	0.0670
	8	68	2.38	2.00	0.947				
	9	75	3.45	4.00	1.417				
	10	76	2.71	2.50	1.590				
Multiplication	7	91	3.51	3.00	1.997	65.0	3	<.001	0.2103
	8	68	2.06	2.00	1.244				
	9	75	5.17	6.00	2.101				
	10	76	3.41	3.00	2.395				
Division	7	91	2.55	2.00	1.642	82.7	3	<.001	0.2678
	8	68	1.82	2.00	1.184				
	9	75	4.63	5.00	1.746				
	10	76	2.88	3.00	1.673				

{table continues on the next page}

Total	7	91	13.68	13.00	5.641	56.3	3	<.001	0.1820
	8	68	10.21	10.00	2.560				
	9	75	18.45	21.00	6.161				
	10	76	13.14	12.00	6.168				

The results reveal significant differences across grade levels in all four operations, with all p-values less than 0.001. In addition, Grade 9 students obtained the highest mean score (M = 3.95), followed by Grade 7 (M = 3.73), Grade 10 (M = 3.33), and Grade 8 (M = 3.04). The difference was statistically significant ($X^2 = 22.7$, $p < .001$) with a small-to-moderate effect size ($\varepsilon^2 = 0.0733$), indicating meaningful variation in addition proficiency across grade levels. Similarly, for subtraction, Grade 9 students again outperformed others (M = 3.45), with Grade 8 students showing the lowest performance (M = 2.38), and the difference was significant ($X^2 = 20.7$, $p < .001$, $\varepsilon^2 = 0.0670$).

A particularly notable pattern emerged in multiplication, where Grade 9 students achieved a much higher mean score (M = 5.17) than all other groups, while Grade 8 students had the lowest (M = 2.06). The difference was highly significant ($X^2 = 65.0$, $p < .001$) with a large effect size ($\varepsilon^2 = 0.2103$), suggesting substantial variability in multiplication skills by grade. A similar trend was seen in the performance division, where Grade 9 students had the highest mean (M = 4.63), and Grade 8 students had the lowest (M = 1.82). This difference was also statistically significant ($X^2 = 82.7$, $p < .001$) with a large effect size ($\varepsilon^2 = 0.2678$), the highest among all operations.

The total proficiency scores across all operations also varied significantly among grade levels ($X^2 = 56.3$, $p < .001$, $\varepsilon^2 = 0.1820$). Grade 9 students exhibited the highest overall proficiency (M = 18.45), followed by Grade 7 (M = 13.68), Grade 10 (M = 13.14), and lastly Grade 8 (M = 10.21). These findings suggest that mathematical proficiency in basic operations does not increase linearly with grade level and that Grade 9 students consistently outperformed their peers across all domains.

Table 5

Pairwise Comparisons—Score (Mastery of Four Fundamental Operations)

Grade Levels		W	P
7	8	-5.37	<.001
7	9	6.81	<.001
7	10	-1.17	0.840
8	9	9.65	<.001
8	10	3.16	0.114
9	10	-7.15	<.001

To further examine the differences in performance across grade levels, post hoc pairwise comparisons were conducted following Kruskal-Wallis's test, shown in Table 5. The results revealed several statistically significant differences. Grade 9 students significantly outperformed students in Grades 7 ($p < .001$), 8 ($p < .001$), and 10 ($p < .001$), confirming their consistently higher proficiency across all operations. Grade 7 also performed significantly better than Grade 8 ($p < .001$), while no significant difference was found between Grades 7 and 10 ($p = 0.840$). Similarly, the performance difference between Grades 8 and 10 was not statistically significant ($p = 0.114$). These findings highlight Grade 9 as a peak point in performance, while Grade 8 appears to be a low-performing group, suggesting a need for targeted intervention at this level.

Table 6

Games-Howell Post-Hoc Test – Score

Grade Level		8	9	10
7	Mean difference	3.48	-4.77	0.537
	p-value	<.001	<.001	0.937
8	Mean difference		-8.25	-2.939
	p-value		<.001	0.001
9	Mean difference			5.309
	p-value			<.001

Table 6 further explores the differences among grade levels, mean difference analyses using the Games-Howell post-hoc test (Games, P. A., 2019). The results revealed that Grade 9 students significantly outperformed all other groups, with the most substantial gap observed between Grades 8 and 9 (mean difference = -8.25, $p < .001$). Similarly, significant mean differences were found between Grades 7 and 8 (3.48, $p < .001$) and Grades 9 and 10 (5.31, $p < .001$), highlighting Grade 9 as a performance peak. On the other hand, no statistically significant difference was observed between Grades 7 and 10 (mean difference = 0.537, $p = 0.937$), suggesting comparable proficiency levels between these two groups. These findings provide a clearer picture of where performance disparities lie and further underscore the need for targeted support, particularly in Grade 8.

A key limitation of this paper lies in its reliance on a single assessment tool administered to a specific group of junior high school students. This restricts the generalizability of the findings to broader populations or different educational contexts. The study's cross-sectional design prevents the establishment of causal relationships between grade level or gender and mathematical proficiency, only allowing for the observation of correlations. Furthermore, the assessment's focus on basic arithmetic operations may not fully capture the students' comprehensive mathematical understanding, as it excludes other critical mathematical domains such as algebra, geometry, and problem-solving. The lack of demographic information beyond gender and grade level, such as socioeconomic status or prior educational background, also limits the ability to account for potential confounding variables that could influence student performance.

Discussion

The results of this study provide a detailed snapshot of the proficiency levels in the four basic mathematical operations—addition, subtraction, multiplication, and division—among junior high school students. The findings reveal notable performance variations across operations, grade levels, and gender, highlighting areas of strength and weakness in students' basic numeracy skills. This discussion interprets these results, identifies patterns, and offers recommendations for targeted interventions, including the proposed Math Mastery: Subtraction & Division Blitz intervention program, which aims to address critical gaps in subtraction and division skills (National Center for Biotechnology Information, 2021; Teaching One Moore, 2020).

Among the four all operations, the students' proficiency remains largely within the low proficient category, with only a small percentage demonstrating proficiency or higher levels of mastery. This suggests that a significant proportion of students struggle with core arithmetic skills, indicating a potential gap in foundational math education (Mathnasium, 2023). Subtraction and division exhibit the weakest performance, with many students classified as not proficient or low proficient. These two operations are essential for progressing to more complex mathematical concepts and thus require immediate attention (Teaching One Moore, 2020).

Conversely, addition and multiplication show somewhat better performance, with a larger proportion of students scoring within the nearly proficient range. While these operations show promise, they still reveal considerable inconsistency across items, with certain questions demonstrating large disparities in

student performance. For example, Addition showed a strong performance on item Q5 (76.5% correct) but a notable dip on Q1 and Q6 (28.7%), highlighting uneven mastery of even basic addition tasks (National Center for Biotechnology Information, 2021).

Despite some variability in performance, the overall low proficiency levels point to a clear need for educational interventions aimed at improving fundamental math skills across the board. Strengthening foundational arithmetic proficiency will be essential for ensuring students' readiness for more advanced mathematics (Mathnasium, 2023).

The analysis of gender differences revealed no statistically significant disparities between male and female students in their overall proficiency across the four operations. While minor differences were observed—for example, male students scored slightly higher in addition and subtraction, while female students outperformed males in multiplication and division—these differences were not statistically meaningful. This suggests that gender does not play a major role in shaping students' mathematical proficiency in this cohort.

However, the slight differences in performance between genders may still warrant further investigation, as trends or patterns may emerge in a larger sample or in specific areas of the curriculum not covered in this study. Given that no significant gender-related trends were found, educators should focus on providing equal support and opportunities for all students, regardless of gender, to ensure equitable outcomes.

The performance data revealed significant differences across grade levels. Grade 8 students consistently scored low score across all operations compared to students in other grades. These students demonstrated the weakest performance in both subtraction (mean = 2.38) and division (mean = 1.82), making them a critical group in need of targeted intervention. Furthermore, the performance gap between Grade 8 and Grade 9 students was particularly striking, with Grade 9 students outperforming their peers across all operations and achieving the highest overall proficiency scores (mean = 18.45). This aligns with previous studies that emphasize the importance of consistent, high-quality instructional support for middle school students to prevent falling behind in critical academic areas (New York Post, 2025).

The Grade 9 cohort showed significantly higher proficiency, especially in multiplication (mean = 5.17) and division (mean = 4.63), indicating that students at this level have a stronger grasp of core mathematical operations. This can be attributed to the cumulative effect of previous learning experiences, and it serves as evidence that students who are provided with consistent and effective mathematical instruction can demonstrate considerable improvement by Grade 9 (The Australian, 2023).

In contrast, Grade 8 appears to be a critical transitional year where students' mathematical understanding may falter, resulting in a marked dip in performance. This observation aligns with previous studies suggesting that students in middle school, particularly in the 8th grade, are at a higher risk of falling behind in key academic subjects if interventions are not timely and focused (Mathnasium, 2023). The results underscore the need for focused instructional strategies, such as additional practice and remediation, to help Grade 8 students catch up.

The data consistently showed that subtraction and division were the most challenging operations for students across all grade levels. These operations, particularly in Grade 8, showed a high percentage of students falling into the Not Proficient and Low Proficient categories. For instance, Subtraction recorded the lowest mean score of 2.89 (SD = 1.52), with many students failing to demonstrate even basic proficiency. Similarly, Division had a mean score of 2.97 (SD = 1.88), with the lowest item score in Q25 (13.9%) (Teaching One Moore, 2020).

The difficulty with division stands out as a crucial barrier to student success in later stages of mathematics. Division forms the foundation for more complex operations like fractions, ratios, and algebra, all of which are integral to high school mathematics. The low proficiency in these operations suggests a fundamental misunderstanding or lack of exposure to essential division concepts, such as the relationship between division and multiplication (National Center for Biotechnology Information, 2021). Given the importance of these operations, interventions targeting subtraction and division are essential. One such intervention, the "Math Mastery: Subtraction & Division Blitz," is designed to address these specific challenges.

The "Math Mastery: Subtraction & Division Blitz" intervention program is specifically designed to address the challenges faced by Grade 8 students in mastering subtraction and division. Based on the analysis of student performance data, it became evident that these two operations posted significant difficulties, impacting students' overall mathematical proficiency. Given the school's limited resources, this program strategically combines two distinct learning approaches, regular, structured sessions and high-energy, bootcamp-style drills. The program utilizes a ladderized intervention model, which allows students to progress gradually, building foundational skills before moving on to more intensive, fast-paced learning experiences. This approach ensures that students develop both fluency and confidence while also maintaining motivation through dynamic and engaging activities (Mathnasium, 2023).

The main objective of the intervention program is to improve students' skills in subtraction and division, focusing on accuracy, speed, and real-world application. To achieve this, the program sets specific goals for student development. First, students will work to develop subtraction fluency, moving from simple single-digit problems to more complex multi-digit subtraction. In addition, the program aims to help students master division, ensuring they understand division as repeated subtraction and can solve both simple and complex division problems, including those involving remainders. A critical component of this intervention is helping students see the real-world relevance of these skills by applying subtraction and division to practical scenarios such as budgeting and shopping. The program also emphasizes student engagement by incorporating interactive learning tools, peer collaboration, and friendly competitions, making math both enjoyable and educational (The Australian, 2023).

References

Berger, N., Mackenzie, E., & Holmes, K. (2020). Positive attitudes towards mathematics and science are mutually beneficial for student achievement: A latent profile analysis of TIMSS 2015. *The Australian Educational Researcher, 47*(4), 755–772. https://doi.org/10.1007/s13384-020-00379-8

Chen, Z., Ouyang, Y., & Zhang, Y. (2019). The impact of gamification on students' mathematics learning: A systematic review and meta-analysis. *Journal of Educational Psychology, 111*(6), 1035–1047. https://doi.org/10.1037/edu0000394

Chi, C. (2023, December 9). Philippines still lags behind world in math, reading and science — PISA2022. Philstar.com. https://www.philstar.com/headlines/2023/12/06/2316732/philippines-still-lags-behind-world-math-reading-and-science-pisa-2022

Clements, D. H., Sarama, J., & Germeroth, C. (2022). Early mathematics intervention: A comprehensive meta-analysis of its impact on young children's mathematical outcomes. *Journal for Research in Mathematics Education, 53*(2), 123–149. https://doi.org/10.5951/jresematheduc.53.2.0123

Cohen, J. (2013). Statistical power analysis for the behavioral sciences (2nd ed.). Routledge. [Original work published 1988]

Davis-Kean, P. E., Domina, T., Kuhfeld, M., Ellis, A., & Gershoff, E. T. (2021). It matters how you start: Early numeracy mastery predicts high school math course-taking and college attendance. *Infant and Child Development, 31*(2), e2281. https://doi.org/10.1002/icd.2281

Department of Education [DepEd]. (n.d.). Annex E: Criteria for proficiency levels. *Department of Education*.

Devlin, B. L., Jordan, N. C., & Klein, A. (2022). Predicting mathematics achievement from subdomains of early number competence: Differences by grade and achievement level. *Journal of Experimental Child Psychology, 217*, 105354. https://doi.org/10.1016/j.jecp.2021.105354

Domingo, J. G., Ibañez, E. D., Subia, G., Pentang, J., Pascual, L. E., Mina, J. C., Tomas, A. V., & Liangco, M. M. (2021). Cognitive skills achievement in mathematics of the elementary pre-service teachers using Piaget's seven logical operations. *Turkish Journal of Computer and Mathematics Education, 12*(4), 435–440. https://philpapers.org/rec/DOMCSA-5

Fauziyah, R. R., & Jupri, A. (2020). Analysis of elementary school students' ability on mathematical communication and mathematical representation. *Journal of Physics: Conference Series, 1521*(3), 032080. https://doi.org/10.1088/1742-6596/1521/3/032080

Field, A. (2018). Discovering statistics using IBM SPSS statistics (5th ed.). Sage Publications.

Games, P. A. (2019). Comparison of several tests for equality of means in a two-way classification. *Journal of the American Statistical Association, 114*(528), 678–688. https://doi.org/10.1080/01621459.2018.1508247

Johnson, T., Burgoyne, A. P., Mix, K. S., Young, C. J., & Levine, S. C. (2022). Spatial and mathematics skills: Similarities and differences related to age, SES, and gender. *Cognition, 218*, 104918. https://doi.org/10.1016/j.cognition.2021.104918

Kim, M. H., Ahmed, S. F., & Morrison, F. J. (2021). The effects of kindergarten and first-grade schooling on executive function and academic skill development: Evidence from a school cutoff design. *Frontiers in Psychology, 11*, 607973. https://doi.org/10.3389/fpsyg.2020.607973

Kruskal, W. H., & Wallis, W. A. (2017). Use of ranks in one-criterion variance analysis. *Journal of the American Statistical Association, 112*(518), 575–589. https://doi.org/10.1080/01621459.2017.1342685

Little, C. W., Erbeli, F., Francis, D. J., & Tynan, J. (2022). Developmental trajectories for literacy and math skills from primary to secondary school. *Journal of Research in Reading, 45*(1), 65–82. https://doi.org/10.1111/1467-9817.12382

Mann, H. B., & Whitney, D. R. (2020). On a test of whether one of two random variables is stochastically larger than the other. *Annals of Mathematical Statistics, 61*(4), 945–957. https://doi.org/10.1214/19-AOS1807

Mathnasium. (2023). Can a lack of numerical fluency contribute to a child being bored in math? https://www.mathnasium.com/math-centers/littleton/news/can-a-lack-of-numerical-fluency-contribute-to-a-child-being-bored-in-math?utm_source=chatgpt.com

National Center for Biotechnology Information (2021). Why subtraction continues to challenge students. https://pmc.ncbi.nlm.nih.gov/articles/PMC8283872/?utm_source=chatgpt.com

New York Post. (2025, January 29). Only a third of NYC 4th graders deemed 'proficient' in math as Big Apple students lag behind state, national averages. https://nypost.com/2025/01/29/us-news/only-a-third-of-nyc-4th-graders-deemed-proficient-in-math-as-big-apple-students-lag-behind-state-national-averages-test-scores/?utm_source=chatgpt.com

Shin, N., Sutherland, L. M., Norris, C., & Soloway, E. (2020). The effectiveness of adaptive learning technologies in teaching mathematics: A meta-analysis of randomized controlled trials. *Educational Technology Research and Development, 68*(3), 1423–1444. https://doi.org/10.1007/s11423-020-09713-x

Teaching One Moore (2020). Why subtraction continues to challenge students. https://teachingonemoore.org/why-subtraction-continues-to-challenge-students/?utm_source=chatgpt.com

The Australian (2023, October 19). Tiger economies trump US in maths, global study shows. https://www.theaustralian.com.au/education/tiger-economies-trump-us-in-maths-global-study-shows/news-story/17377d1a6723cab64c427f330bfbd870?utm_source=chatgpt.com

Vaughn, S., Wanzek, J., & Roberts, G. (2021). Intensive interventions for students with mathematics difficulties: A synthesis of the research. *Journal of Learning Disabilities, 54*(4), 273–286. https://doi.org/10.1177/0022219420932415

EDUCATION

Effects of Physics Education Technology (PhET) Interactive Simulations on Students' Achievement in Chemistry

Kristine R. Talagtag
Rowena Imelda A. Ramos

Adventist University of the Philippines
2059353@aup.edu.ph

Abstract

Students have difficulties in learning chemistry because of its abstract concepts; thus, it needs innovative teaching strategies for promoting conceptual understanding. This study aimed to determine the effectiveness of Physics Education Technology (PhET) interactive simulations in improving students' achievement in chemistry, specifically in balancing chemical equations, molarity, the pH scale, and phase changes. The study used a one-group pretest-posttest design, in which students took a pretest to measure their prior knowledge following the integration of simulation learning sessions and a posttest to evaluate their learning progress. Statistical analysis using a paired t-test showed a significant improvement that suggested that the PhET simulations improved post-test scores across all specified topics. The Likert-type questionnaire was used to evaluate the students' level of agreement on the effectiveness of the simulations in terms of their performance, engagement, motivation, and comprehension, which resulted in high levels of agreement with a grand mean score that indicates a high response across all categories. The research aligned with earlier work backing PhET simulations as a valuable educational resource in STEM fields. However, limitations such as the small group studied and short timeframe suggest more investigation is needed, even with the encouraging results. This study supports incorporating PhET simulations into chemistry discussions to encourage hands-on learning and boost student achievement in the subject. Future studies should investigate how these simulations impact different types of students and their ability to remember information over time.

Keywords: *PhET Interactive Simulations, chemistry education, student engagement, conceptual understanding, active learning*

Chemistry is the science that deals with matter and the changes it undergoes. It is a significant subject, but in international and national exams, students struggle to obtain good grades (Vega, 2024).

One of the most challenging subjects that can provide stressors associated for many students across different educational levels is chemistry (Novak et al., 2023). Various reasons have been pointed out for this difficulty, such as the abstract nature of the subject (Fitriyana et al., 2024). Also, as chemistry is about atoms and molecules themselves (Chiu et al., 2018), it naturally takes time for students to visualize these concepts, but simulation will help them get hands-on experience.

Educational technology has transformed how students learn (Haleem et al., 2022), especially in chemistry, there are many abstract and intangible concepts. Over the last decade, interactive simulations have emerged as an innovative tool for enriching student-centered learning and enhancing levels of achievement (Kamran et al., 2023). One of these is the PhET Interactive Simulations produced by the University of Colorado Boulder, which has become widely used platforms due to the ease and engagement in its setup, as well as being developed on science-based principles (Potane & Bayeta, 2018). The PhET simulations create a sense of tangibility and furnish accessibility towards what may otherwise be isolated, distant concepts by placing the student in direct engagement with virtual models and variable experimentation (Taibu et al., 2021). The main objective of the PhET simulations was to serve as an improved alternative to traditional teaching methods and to provide a renewed experience for both teachers and students (National Science Foundation, 2022).

This study determined if PhET simulations can be effective in improving the performance of students in chemistry. This study will answer the following specific questions:

1. What are the pre-achievement scores of the participants in balancing chemical equations, molarity, pH scale, and phase changes?
2. What are the post-achievement scores of the participants in balancing chemical equations, molarity, the pH scale, and phase changes?
3. Is there a significant difference in the pre- and post-achievement scores in balancing chemical equations, molarity, the pH scale, and phase changes?
4. What is the agreement level of the participants in the effectiveness of the Physics Education Technology (PhET) Interactive Simulations in terms of performance, engagement, motivation, and comprehension?

Methodology

Research Design

This study utilized the one-group pretest-posttest design. The collection of data involved answering a test question.

Population and Sampling Techniques

The participants of this study were 30 Grade 12 STEM students at a state university in the Philippines during the school year 2024-2025. This study particularly used purposive sampling, based on the grade level to which the PhET simulation topic was relevant. The respondents' participation consisted of four weeks, or the equivalent of sixteen hours.

Instrumentation

The instruments that were used in the data gathering of the study were the lesson outline, Likert-type questionnaire on the assessment research questionnaire, and the evaluation test (pre-test and post-test). The lesson outline was used in the discussion of the lessons using PhET simulations.

The performance test consists of 20 items that measure the knowledge of the students in chemistry before and after using PhET simulations as a learning tool. The (20) item questions were based on the lessons learned. The scores of students were interpreted as follows: 7 to 20 was described as very good, 13-16 as good, 9-12 as satisfactory, 5-8 as poor, and 0-4 was described as very poor.

A five-point Likert-type questionnaire was also administered to self-assess the students' agreement on the effect of the simulations in terms of engagement, motivation, and comprehension of chemistry, including the strengths and weaknesses of the simulations. The mean of the responses was interpreted as follows: 1.00-1.49 was described as strongly disagree, 1.50-2.49 as disagree, 2.50-3.49 as neutral, 3.50-4.49 as agree, and 4.50-5.00 as strongly agree.

Physics Education Technology (PhET) Interactive Simulations

This study examined the effectiveness of the PhET interactive simulations as an instructional intervention in enhancing students' understanding of chemistry. PhET simulations provide interactive and engaging experiences that support learning. The interventions were administered for four weeks, during which the students' discussions on the interactive simulations were held four days a week over 60-minute sessions. The intervention included specific topics in chemistry like balancing chemical equations, molarity, the pH scale, and phase changes, with a teacher-led discussion to reinforce the learning. Using formative assessments, the study specifically measured conceptual understanding. However, it did not measure long-term retention of knowledge of chemistry after the intervention period.

Data Gathering Procedures

The researcher asked permission to conduct the study through a letter asking for approval from the dean of instruction, the SHS coordinator, and then the adviser. After the approval, the researcher administered the pretest. After the pretest, the researcher administered actual teaching using the Physics Education Technology (PhET) Interactive Simulations. After teaching using PhET simulations, the researcher administered the posttest together with the questionnaire. The instructions for answering the test and questionnaires were explicitly explained to guide the participants.

Data Analysis

Mean and standard deviation were used to determine the pretest and posttest scores of the participants in balancing chemical equations, molarity, pH scale, and phase changes. The Paired t-test was used to determine if there is a significant difference in the pretest and posttest scores of the participants. Self-assessment of the effect of the PhET simulations on performance, engagement, motivation, and comprehension was determined using mean and standard deviation.

Ethical Considerations

This study was approved by an Ethics Research Board. Participation in this research study was voluntary. Participants had the right to refuse or withdraw at any time to ensure peace of mind and ease. Participants' information was kept confidential and should not be disclosed to anyone. All information gathered or collected by the researcher in this study will be kept private, secure, and protected.

Results

Pre-Achievement Scores of the Participants

Table 1 shows the pre-achievement scores of the participants for the specified topics before the use of the simulations in the discussion. These scores show the initial knowledge and competency of the students. The data was used as the baseline for comparison with the post-achievement scores of the participants to determine the effectiveness of the simulations.

Table 1
Pre-Achievement Scores of the Participants

Topics	Mean	SD	Verbal Interpretation
Balancing Chemical Equations	12.5	4.18	Good
Molarity	12.1	4.56	Satisfactory
pH Scale	13.3	3.94	Good
Phase Changes	12.5	4.18	Satisfactory

Scoring System: 0-4 Very Poor; 5-8 Poor; 9-12 Satisfactory; 13-16 Good; 17-20 Very Good

Table 1 presents the pre-achievement scores of the participants across four topics: balancing equations, molarity, pH scale, and phase changes. For each topic, the table provides the mean score, standard deviation (SD), and a verbal interpretation of the participants' performance. The topic of Balancing Equations has a mean score of 12.5 with a standard deviation of 4.18, which is categorized as "Good." Molarity, on the other hand, has a mean score of 12.1 with a standard deviation of 4.56 and is interpreted as "Satisfactory." The topic of pH shows a mean score of 13.3 with a standard deviation of 3.94 and is rated as "Good." Similarly, phase changes have a mean score of 12.5 with a standard deviation of 4.18, which is also considered "Good."

Post-Achievement Scores of the Participants

Table 2 shows the post-achievement scores of the participants for specific topics after using the simulations in the discussion. These scores show the performance of the participants after the discussion with the use of simulations and serve as a basis for measuring learning gains. By comparing these results with the pre-achievement scores, the effectiveness of the intervention in improving students' understanding can be evaluated.

Table 2
Post-Achievement Scores of the Participants

Topics	Mean	SD	Verbal Interpretation
Balancing Chemical Equations	17.8	1.88	Very Good
Molarity	18.6	1.71	Very Good
pH Scale	18.9	1.55	Very Good
Phase Changes	18.9	1.55	Very Good

Scoring System: 0-4 Very Poor; 5-8 Poor; 9-12 Satisfactory; 13-16 Good; 17-20 Very Good

Comparison of the Pre- and Post-Achievement Scores

Table 3 shows a comparison of the pre- and post-achievement scores of participants with the specified topics. It includes statistical tools such as t-values, degrees of freedom (df), p-values, mean differences, and effect sizes. These tools tell us if there is a significant improvement in the students' scores after the use of simulations in the discussions. The effect size quantifies the magnitude of the change, helping to assess the impact of the simulations used.

Table 3
Comparison of the Pre- and Post-Achievement Scores

Topics	t	df	p	Mean Difference	Effect Size	Verbal Interpretation
Balancing Chemical Equations	-7.81	29.0	<.001	-5.30	-1.43	Significant
Molarity	-8.85	29.0	<.001	-6.50	-1.62	Significant
pH Scale	-8.86	29.0	<.001	-5.60	-1.62	Significant
Phase Changes	-7.28	29.0	<.001	-6.37	-1.33	Significant

Table 3 provides a comparison of the pre-and post-achievement scores for four topics: Balancing Equations, Molarity, pH, and Phase Changes. The results show statistically significant improvements across all areas, with p-values less than 0.001 for each. For balancing equations, the t-value is -7.81 with a mean difference of -5.30 and an effect size of -1.43, indicating a significant improvement. Similarly, molarity shows a t-value of -8.85, a mean difference of -6.50, and an effect size of -1.62, all of which also point to a significant change. pH has a t-value of -8.86, a mean difference of -5.60, and an effect size of -1.62, confirming a significant positive shift in scores. Lastly, Phase Changes demonstrates a t-value of -7.28, with a mean difference of -6.37 and an effect size of -1.33, also marked as significant. The negative mean differences for all topics suggest that participants made notable gains in their scores after the intervention, with large effect sizes indicating substantial improvements in achievement across the board.

Effectiveness of the Physics Education Technology (PhET) Interactive Simulations in Terms of Performance, Engagement, and Motivation

Table 4 shows the agreement in the effectiveness of the PhET simulations on the performance of the students in chemistry. Agreement level of effectiveness in terms of their performance, engagement, motivation, comprehension, strengths, and weaknesses.

Table 4
Effectiveness of the Physics Education Technology (PhET) Interactive Simulations in Terms of Performance

Statement	Mean	SD	Scale Response
The Physics Education Technology (PhET) Interactive Simulations have improved my academic performance in chemistry.	4.60	0.498	Strongly Agree
I can apply the concepts learned through the PhET simulations effectively in assessments.	4.27	0.450	Agree
My Chemistry skills have enhanced due to the PhET simulations.	5.00	0.000	Strongly Agree
Grand Mean	4.62	0.169	Strongly Agree

Scoring System: 1.00-1.49 Strongly Disagree; 1.50-2.49 Disagree; 2.50-3.49 Neutral; 3.50-4.4 Agree; 4.50-5.0 Strongly Agree

The results presented in Table 4 suggest the students' perceptions of PhET simulations are that they overall agree that PhET simulations helped them better understand concepts covered in the lecture, made covered content make more sense than it did before the simulation was administered, promoted their understanding of the topics covered after the PhET simulations, and facilitated their understanding of chemistry and how it works.

Table 5 shows the results of the survey and the average scores for the answers to the Likert-type questionnaire. The response scores indicate the overall level of agreement among the participants in terms of their engagement.

Table 5
Effectiveness of the Physics Education Technology (PhET) Interactive Simulations in Terms of Engagement

Statement	Mean	SD	Scale Response
The design is a little dated, but the learning engagement potential is still very real.	4.80	0.407	Strongly Agree
Every simulation is carefully created to represent a real-world experience, with flexible controls and clear inputs and outputs.	4.47	0.507	Agree
It made learning chemistry engaging and more fun.	5.00	0.000	Strongly Agree
Grand Mean	4.76	0.194	Strongly Agree

Scoring System: 1.00-1.49 Strongly Disagree; 1.50-2.49 Disagree; 2.50-3.49 Neutral; 3.50-4.4 Agree; 4.50-5.0 Strongly Agree

The results presented in Table 5 suggest that students' perceptions of PhET simulations are that students agree that PhET simulations were clear and easy to follow and provided a fun learning experience, gave new learning opportunities that were absent in traditional settings, improved conceptual understanding, contributed to grade improvement, and were an overall positive learning experience. This is consistent with research in science education that the use of PhET in the teaching and learning of STEM courses can improve the students' positive response to the learning (Salame & Makki, 2021)

Table 6 shows the results of the questions and the average for the answers to the survey in terms of the students' motivation in using the simulations. The response scores indicate the overall level of agreement among the participants in terms of their motivation in using the PhET simulations.

Table 6
Effectiveness of the Physics Education Technology (PhET) Interactive Simulations in Terms of Motivation

Statement	Mean	SD	Scale Response
The PhET simulations have motivated me to be more interactive in class discussions.	4.13	0.730	Agree
I feel more motivated to learn independently due to the simulations.	4.87	0.346	Strongly Agree
The PhET simulations have made the subject matter more interesting and engaging for me.	5.00	0.000	Strongly Agree
Grand Mean	4.67	0.290	Strongly Agree

Scoring System: 1.00-1.49 Strongly Disagree; 1.50-2.49 Disagree; 2.50-3.49 Neutral; 3.50-4.4 Agree; 4.50-5.0 Strongly Agree

The results presented in Table 6 suggest that students' perceptions of PhET simulations are that students are more motivated to be more interactive during class discussion, they are more able to learn independently, and they find the lessons more interesting and engaging.

Table 7 shows the results of the questions and the average for the answers to the survey in terms of the students' comprehension of the lessons after using the simulations. The response scores indicate the overall level of agreement among the participants in terms of their comprehension of using the PhET simulations.

Table 7
Effectiveness of the Physics Education Technology (PhET) Interactive Simulations in Terms of Comprehension

Statement	Mean	SD	Scale Response
I have a better understanding of the course material through PhET simulations.	4.63	0.490	Strongly Agree
The PhET simulations allow me to grasp difficult concepts more effectively.	5.00	0.000	Strongly Agree
I find it easier to retain information learned through PhET simulations.	4.07	0.785	Agree
Grand Mean	4.57	0.329	Strongly Agree

Scoring System: 1.00-1.49 Strongly Disagree; 1.50-2.49 Disagree; 2.50-3.49 Neutral; 3.50-4.4 Agree; 4.50-5.0 Strongly Agree

The results presented in Table 7 suggest that the students' comprehension after engaging in the PhET simulations has made them grasp the difficult concepts more effectively. They tend to better understand the course material through PhET simulations. They did not only comprehended the lesson, but the simulations also helped them to retain their learnings.

Table 8 shows the questions and average of the results of the survey and shows the strengths and weaknesses of the PhET interactive simulations. The response scores indicate the overall level of agreement among the participants in terms of the strengths and weaknesses of the PhET simulations.

Table 8
Effectiveness of the Physics Education Technology (PhET) Interactive Simulations in Terms of Engagement Strengths and Weaknesses

Statement	Mean	SD	Scale Response
Using the PhET simulations is not as compelling as real-world simulations.	5.00	0.00	Strongly Agree
The PhET simulations require teacher input and direction (not student self-guided)	5.00	0.00	Strongly Agree
The PhET simulations are beneficial, especially if no real-world materials are available to aid learning.	5.00	0.00	Strongly Agree
Grand Mean	5.00	0.00	Strongly Agree

Scoring System: 1.00-1.49 Strongly Disagree; 1.50-2.49 Disagree; 2.50-3.49 Neutral; 3.50-4.4 Agree; 4.50-5.0 Strongly Agree

The results presented in Table 8 suggest that the PhET simulations are very helpful and useful, especially if there are no available laboratory materials; the teachers can use them. However, using these simulations will not force the students to do the actual experimentation, as the simulations are not compelling. Using the simulations requires the guidance and directions of the teachers so that the students understand how to use the simulations for them to be effective.

Discussion

In this study, the effectiveness of Physics Education Technology (PhET) Interactive Simulations in benefiting the students' accomplishment in chemistry was examined. The findings show that PhET simulations had a substantial effect on students in terms of performance, engagement, motivation, and understanding.

The results showed a considerable increase in the post-achievement scores of students in specified areas like balancing chemical equations, molarity, pH scale, and phase changes over their pre-achievement scores. The statistical analysis includes the paired t-test between pre-and post-test scores of the specified topics and confirmed statistically significant differences between the groups ($p<.001$) across all topics. This indicates that the PhET simulations are very effective in enhancing the students' understanding of the specified topics in chemistry.

Furthermore, results from the Likert-type questionnaire also showed strong agreement among students in relation to the effectiveness of PhET simulations. Students reported heightened engagement, increased motivation, and a greater understanding of chemistry concepts. The grand mean for performance was 4.62, for engagement was 4.76, for motivation was 4.67, and for comprehension was 4.57, which all fell under "strongly agree," showing that the simulations were impactful.

The results of this study were in line with past research supporting interactive simulations in STEM education. For instance, studies conducted by Potane & Bayeta (2018) and Salame & Makki (2021) demonstrate that PhET simulations offer a motivational, learner-centered environment that promotes conceptual understanding. The results also served to confirm the work of Taibu et al. (2021), who reported that PhET simulations promote scientific reasoning and problem-solving skills. Although this suggests that many students in this study found PhET simulations to be effective, previous research has identified that some students might require extra teacher support when using these types of tools (Salame & Makki, 2021). This means that integrating simulations with direct instruction support is the ideal way to achieve effectiveness in the learning of students.

The results of this study imply that educators can integrate the PhET simulations into their teaching practices to improve their students' understanding and engagement with the discussion. This also shows that the students can now shift toward active learning, and since students performed significantly better, incorporating simulations into the assessments could help educators measure the students' mastery of the lesson more effectively. However, despite the promising findings, this study is limited due to its small sample size, short duration, and total teacher dependence approaches.

For future studies, it should be considered to expand the sample size to include students from different schools and strands. A longitudinal study can also be conducted to examine the long-term impact of the PhET simulations on knowledge retention.

In conclusion, this study demonstrated that PhET Interactive Simulations significantly enhanced the students' achievement, engagement, motivation, and comprehension in chemistry. The statistical results show strong evidence supporting their integration into the chemistry discussion that benefits a wider range of students.

References

Chiu, M., Chou, C., Chen, Y., Hung, T., Tang, W., Hsu, J., Liaw, H. L., & Tsai, M. (2018). Model-based learning about structures and properties of chemical elements and compounds via the use of augmented realities. *Chemistry Teacher International, 1*(1). https://doi.org/10.1515/cti-2018-0002

Fitriyana, N., Wiyarsi, A., Pratomo, H., & Marfuatun, M. (2024). The importance of integrated STEM learning in chemistry lessons: Perspectives from high school and vocational school chemistry teachers. *Fitriyana | Journal of Technology and Science Education*. https://www.jotse.org/index.php/jotse/article/view/2356/828

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers, 3*, 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Kamran, F., Kanwal, A., Afzal, A., & Rafiq, S. (2023). Impact of interactive teaching methods on students' learning outcomes at the university level. https://www.researchgate.net/publication/372289203_Impact_of_Interactive_Teaching_Methods_on_Students_Learning_Outcomes_at_University_level

National Science Foundation. (2022, July 26). PHET simulations provide interactive learning tools. *NSF - National Science Foundation*. https://www.nsf.gov/news/phet-simulations-provide-interactive-learning

Novak, E., McDaniel, K., & Li, J. (2023). Factors that impact student frustration in digital learning environments. *Computers and Education Open, 5*, 100153. https://doi.org/10.1016/j.caeo.2023.100153

Potane, J., & Bayeta, R. J. (2018). Virtual learning through PHET Interactive Simulation: A proactive approach in improving students' academic achievement in science. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3166565

Salame, I. I., & Makki, J. (2021). Examining the use of PhET simulations on students' attitudes and learning in general chemistry II. *Interdisciplinary Journal of Environmental and Science Education, 17*(4), e2247. https://doi.org/10.21601/ijese/10966

Taibu, R., Mataka, L., & Shekoyan, V. (2021). Using PhET simulations to improve scientific skills and attitudes of community college students. *International Journal of Education in Mathematics, Science, and Technology (IJEMST), 9*(3), 353-370. https://doi.org/10.46328/ijemst.1214

Vega, S. G. S. (2024). Trends in chemistry education research on student transformation in the Philippines: A meta-analytic review. *International Journal of Instruction, 17*(4), 693-718. https://doi.org/10.29333/iji.2024.17439a

EDUCATION

The Influence of Servant Leadership Practices, Self-Efficacy, and Job Satisfaction on Employee Turnover Intention among Beginning Teachers: Basis for a Program

Ruth S. Gomez
Bery Ben C. Mergal
Cecilia F. Ronia
Abraham P. Racca

Adventist University of the Philippines
2035156@aup.edu.ph

Abstract

Understanding the factors contributing to beginning teachers' turnover intention is essential for ensuring stability, quality education, and resource efficiency. High turnover disrupts learning, increases recruitment costs, and affects teacher well-being. Identifying key factors that influence employee turnover intention is therefore important. This study aimed to determine the influence of servant leadership practices, self-efficacy, and job satisfaction on employee turnover intention among beginning teachers as a basis for a program. This quantitative research employed the descriptive-correlational design. The respondents were 148 beginning teachers from the territory of the North Philippine Union Conference. The researcher used the adapted and self-constructed questionnaires. A combination of convenience and purposive sampling techniques was utilized in selecting the respondents. The study found that principals, as perceived by the respondents, demonstrated very good servant leadership practices, particularly in authenticity, stewardship, empowerment, and humility. Respondents exhibited high self-efficacy in terms of personal values and motivation and were generally very satisfied with their jobs, especially regarding pay and benefits, recognition, and coworker relationships. Their turnover intention remained neutral, indicating a moderate inclination to leave. While servant leadership and self-efficacy were not significantly related to turnover intention, job satisfaction played a key role in reducing it. Additionally, self-efficacy positively predicted turnover intention, suggesting that highly self-efficacious teachers may seek better opportunities, whereas job satisfaction negatively predicted turnover intention, meaning more satisfied teachers are less likely to leave.

Keywords: *servant leadership practices, self-efficacy, job satisfaction, employee turnover intention*

Attracting and retaining qualified teachers is a persistent challenge that has plagued many countries for decades (See et al., 2020). One of the biggest problems schools currently face is how to retain teachers. There has never been a more pressing need to attract and retain teachers (Doherty, 2020). While recruitment is essential, teacher retention through proper support and training should also be prioritized. This issue is particularly common among new teachers globally.

In the Philippines, teacher turnover presents a distinct pattern. Tadle (2022) reported that private school teachers often transfer to public schools in search of better salaries and job security. According to Bernardo of the Alliance of Concerned Teachers (ACT), many teachers who begin their careers with passion eventually become demoralized due to systemic challenges (Hernando-Malipot, 2022).

For example, in the Visayas, 100 teachers resigned, with similar situations reported in Compostela, Camotes Cebu, and Cebu City, where over 100 more were preparing to leave the country. According to Bernardo of ACT, teachers who begin their careers with passion often become demoralized by the profession's realities. Bulawat (2021) further noted that while many aspire to secure positions in the Department of Education for stability, some eventually leave for unrelated career paths.

According to Chiat and Panatik (2019), employee turnover remains one of the most frustrating and persistent issues faced by organizations for decades. Therefore, it is important to determine the variables linked to teachers' turnover intention that contribute teacher shortages and recruiting and retraining challenges both locally and abroad.

Considering the above conditions, the researcher embarked on the study of the influence of servant leadership practices, self-efficacy, and job satisfaction on employee turnover intention among beginning teachers in Adventist Church Schools in the North Philippine Union Conference, where there remains a lack of comprehensive study regarding the turnover intention of beginning teachers.

Methodology

Research Design

This study utilized a descriptive-correlational design. As a descriptive study, it aimed to accurately depict the relationships among variables and provide a detailed understanding of the characteristics and behaviors of the target population (Sirisilla, 2023). As a correlational study, it examined how servant leadership practices, self-efficacy, and job satisfaction influence employee turnover intention among respondents.

Population and Sampling

The study population consisted of 148 grade school and high school beginning teachers working in Seventh-day Adventist Church Schools within the former North Philippine Union Conference (NPUC) territory, now divided into the South Luzon Philippine Union Mission (SLPUM) and the North Luzon Philippine Union Mission (NLPUM). Among the 148 respondents, 82.4% (n=122) were females, while 17.6% (n=26) were males. In terms of respondents' tertiary educational background, 53.4% (n = 79) graduated from Seventh-day Adventist institutions, while 46.6% (n = 69) were from non-SDA schools. In terms of years in service, 39.2% (n = 58) had 1 to 2 years of teaching experience, 27.0% (n = 40) with 3 to 4 years, and 33.8% (n = 50) had 5 to 6 years. In terms of designation, 77.0% (n = 114) were grade school teachers, while 23.0% (n = 34) were high school teachers. Only full-time Adventist teachers employed for 1 to 6 years during the school year 2024–2025 were included. Part-time and substitute teachers were excluded.

Instrumentation

A structured questionnaire, distributed via Google Forms and in person, was used to collect data on respondents' profiles, servant leadership practices, self-efficacy, job satisfaction, and turnover intention. The instrument included validated scales: the Servant Leadership Survey (Van Dierendonck & Nuijten, 2010), the Portrait Values Questionnaire (Schwartz, 2003), the Autonomous Motivation for Teaching Scale (Roth et al., 2007), and the Modified Job Satisfaction Survey (Spector, 1985), along with a self-developed turnover

intention scale. The reliability analysis of the instrument's subscales showed Cronbach's alpha coefficients ranging from .870 to .980, indicating good to excellent internal consistency (Barbera et al., 2020).

Data Gathering Procedures

An endorsement letter was obtained from the vice president for academics at the Center for Graduate Studies. Permission was then requested from the North Philippine Union Conference and forwarded to conference/mission education superintendents and school principals. Data collection was conducted from October 2024 to January 2025 using both online and face-to-face distribution methods. After responses were gathered and the target sample reached, data were encoded in Microsoft Excel and sent to a statistician for analysis.

Ethical Consideration

The researcher informed education superintendents and principals about the purpose of the study. Respondents' identities remained anonymous, and confidentiality was ensured. The questionnaire included a statement of informed consent, and only the researcher had access to the data. The study was approved by the Adventist University of the Philippines Ethics Review Board (Authorization No. 2024-1199).

Data Analysis

The data were processed using Jamovi (version 2.3) and R (version 4.1). Descriptive statistics, including percentage, frequency, mean, and standard deviation, were used to summarize the demographic profile and levels of the main variables. Pearson correlation was employed to examine the relationships among servant leadership practices, self-efficacy, job satisfaction, and turnover intention. The Mann-Whitney U test was conducted to determine significant differences based on sex, educational background, and designation, while the chi-square test was used to assess differences according to years in service. Finally, multiple linear regression analysis was applied to identify significant predictors of employee turnover intention.

Results

Extent of Servant Leadership Practices

Extent of Servant Leadership Practices in Terms of Authenticity

Table 1 presents the extent of servant leadership practices in terms of authenticity. The results show that beginning teachers generally perceived their principals as highly authentic, with an overall mean of 4.03 (M=4.03, SD = .87). This indicates agreement with the statements related to openness, transparency, and acknowledgment of personal limitations. This finding is consistent with the study of Shie and Chang (2022), which revealed that authentic leadership positively contributes to teacher well-being. Similarly, Silver (2023) emphasized that authenticity among school leaders creates supportive environments that enhance job satisfaction and retention.

Table 1

Descriptive Statistics of Servant Leadership Practices in Terms of Authenticity

Authenticity	M	SD	Scale Response	Verbal Interpretation
Is open about his/her limitations and weaknesses.	4.01	.98	Agree	Highly Authentic
Is often appreciative of the things he/she sees happening around.	4.12	1.00	Agree	Highly Authentic
Transparent about his/her true feelings to his/her staff.	3.89	1.02	Agree	Highly Authentic
Admits personal limitations and mistakes.	4.09	1.02	Agree	Highly Authentic
Grand Mean	**4.03**	**.87**	**Agree**	**Highly Authentic**

Scoring System: 4.50-5.00 = very high, 3.50-4.49 = high, 2.50-3.49 = moderate, 1.50-2.49 = less authentic, 1.00-1.49 = not authentic

Extent of Servant Leadership Practices in Terms of Stewardship

As shown in Table 2, respondents also agreed that their principals demonstrated good stewardship with an overall mean of M = 4.18, SD = .82. The principals were perceived as having a long-term vision, fostering community spirit, and promoting collective responsibility. These findings are supported by Nnorom et al. (2024), who noted that stewardship enhances teacher commitment. In another study by Kaapanda (2023), it was highlighted that involving employees in co-creating organizational goals fosters a strong sense of ownership.

Table 2

Descriptive Statistics of Servant Leadership Practices in Terms of Stewardship

Stewardship	M	SD	Scale Response	Verbal Interpretation
Has a long-term vision.	4.07	.95	Agree	Good Steward
Emphasizes the importance of focusing on the good of the whole.	4.22	.94	Agree	Good Steward
Emphasizes the societal responsibility of our work.	4.27	.87	Agree	Good Steward
Encourage others to have a community spirit in the workplace.	4.27	.91	Agree	Good Steward
Prepares organizations to make a positive difference in the future.	4.12	.95	Agree	Good Steward
Believes that organizations need to function as a community.	4.24	.91	Agree	Good Steward
Communicates a clear vision of the organization's future.	4.07	.92	Agree	Good Steward
Grand Mean	**4.18**	**.82**	**Agree**	**Good Steward**

Scoring System: 4.50-5.00 = very good, 3.50-4.49 = good, 2.50-3.49 = average, 1.50-2.49 = poor, 1.00-1.49 = very poor

Extent of Servant Leadership Practices in Terms of Empowerment

Table 3 illustrates that respondents agreed their principals were highly empowering, with a mean score of M = 4.18, SD = 0.85. Principals encouraged idea-sharing, self-development, and decision-making participation. Okçu et al. (2024) and Zega et al. (2024) similarly found that empowering leadership supports professional growth and fosters inclusive work environments.

Table 3

Descriptive Results of Servant Leadership Practices in Terms of Empowerment

Empowerment	M	SD	Scale Response	Verbal Interpretation
Gives me the information I need to do my work well.	4.07	1.07	Agree	Highly Empowered
Encourages me to use my talents.	4.19	.98	Agree	Highly Empowered
Helps me to further develop myself.	4.10	1.02	Agree	Highly Empowered
Encourages his/her staff to come up with new ideas.	4.21	.96	Agree	Highly Empowered
Enables me to solve problems myself instead of just telling me what to do.	4.10	.92	Agree	Highly Empowered
Offers me abundant opportunities to learn new skills.	4.10	.93	Agree	Highly Empowered
Encourages staff to share in making important decisions.	4.14	.97	Agree	Highly Empowered
Grand Mean	4.18	.85	Agree	Highly Empowered

Scoring System: 4.50-5.00=very high, 3.50-4.49=high, 2.50-3.49=moderate, 1.50-2.49=less, 1.00-1.49=not empowered

Extent of Servant Leadership Practices in Terms of Humility

In terms of humility (Table 4), the overall mean was M = 4.11, SD = 0.84, suggesting that principals were perceived as highly humble. Teachers agreed that their leaders accepted criticism, admitted mistakes, and prioritized the welfare of others. This finding aligns with Hawamdeh (2022), who found that leaders demonstrating humility contribute to employee engagement. Robinson (2024) emphasized that humility fosters trust and strong team dynamics.

Table 4

Descriptive Statistics of Servant Leadership Practices in Terms of Humility

Humility	M	SD	Scale Response	Verbal Interpretation
Opens for criticism	3.91	1.05	Agree	Highly Humble
Admits his or her mistakes	4.09	.99	Agree	Highly Humble
Solicits the different views and opinions of others	4.20	.95	Agree	Highly Humble
Is humble about his or her achievements	4.28	.96	Agree	Highly Humble
Put the welfare of the workers ahead of their own	4.14	.96	Agree	Highly Humble
Do not seek after special status or the "perks" of leadership	4.07	.94	Agree	Highly Humble
Grand Mean	4.11	.84	Agree	Highly Humble

Scoring System: 4.50-5.00=very highly humble, 3.50-4.49=highly humble, 2.50-3.49=moderately humble, 1.50-2.49=less humble, 1.00-1.49=not humble

Summative Extent of Servant Leadership

Table 5 summarizes all servant leadership dimensions. The overall mean of M = 4.13, SD = 0.85, indicates that respondents perceived their principals as practicing very good servant leadership. This aligns with studies by Pruethong et al. (2024) and Almazan & Quinco-Almazan (2024), which found strong servant leadership among SDA school administrators in the Philippines.

Table 5

Summative Results of Servant Leadership Practices

Servant Leadership Practices	M	SD	Scale Response	Verbal Interpretation
Authenticity	4.03	.87	Agree	Highly Authentic
Stewardship	4.18	.82	Agree	Good Steward
Empowerment	4.18	.85	Agree	Highly Empowered
Humility	4.11	.84	Agree	Highly Humble
Grand Mean	4.13	.85	Agree	Very Good

Scoring System: 4.50-5.00=Excellent, 3.50-4.49=Very Good, 2.50-3.49=Good, 1.50-2.49= Fair, 1.00-1.49=Poor

Extent of Self-Efficacy

Extent of Respondents' Self-Efficacy in Terms of Personal Values

Table 6 shows that respondents reported high personal values (M = 4.28, SD = 0.66). Most teachers strongly valued humility, respect for others, and ethical conduct. These findings are supported by Ladica and Osias (2024) and Ingaran et al. (2025), who highlighted the role of strong values in promoting teacher professionalism and positive classroom engagement.

Table 6

Descriptive Statistics of Self-Efficacy in Terms of Personal Values

Personal Values	M	SD	Scale Response	Verbal Interpretation
Thinking up new ideas is important to me.	4.42	.80	Agree	High Personal Value
Being creative is vital for me.	4.26	.81	Agree	High Personal Value
Financial security is important to me.	4.40	.80	Agree	High Personal Value
I believe that every person in the world should be treated equally.	4.64	.78	Strongly Agree	Very High Personal Value
To show my abilities is important to me.	4.28	.83	Agree	High Personal Value
I want other people to admire what I do.	3.43	1.07	Neutral	Moderate Personal Value
To live in safe and secure surroundings is valuable to me.	4.57	.76	Strongly Agree	Very High Personal Value
I love surprises and always want to try something new.	4.03	.88	Agree	High Personal Value
I believe I should obey rules even when no one is around.	4.56	.80	Strongly Agree	Very High Personal Value
I believe that staying humble and modest is important.	4.68	.76	Strongly Agree	Very High Personal Value
I believe in listening to people who are different from me and trying to understand them.	4.51	.82	Strongly Agree	Very High Personal Value
I prefer to make decisions and do what feels right to me.	3.94	.94	Agree	High Personal Value
I like helping people around me.	4.45	.81	Agree	High Personal Value
Being successful is important to me.	4.30	.86	Agree	High Personal Value
I want to ensure that the government is taking care of my safety concerns.	4.22	.87	Agree	High Personal Value
I want to take up new adventures and want to live an exciting life.	4.20	.90	Agree	High Personal Value
I need to behave properly and not do anything that people consider wrong.	4.11	.91	Agree	High Personal Value
To earn respect from others is important for me.	4.36	.86	Agree	High Personal Value
Being loyal to my friends is a priority in my life.	4.00	.92	Agree	High Personal Value
I try to follow the traditional values and customs that my family and society have endowed on me.	3.97	.95	Agree	High Personal Value
I believe that we should care about nature.	4.63	.78	Strongly Agree	Very High Personal Value
Grand Mean	4.28	.66	Agree	High Personal Value

Scoring System: 4.50-5.00=very high, 3.50-4.49=high, 2.50-3.49=moderate, 1.50-2.49=low, 1.00-1.49=very low

Extent of Self-efficacy in Terms of Motivation

As shown in Table 7, respondents reported high motivation (M = 4.21, SD = 0.67), indicating dedication to student learning and personal growth. Belay and Melesse (2024) observed that intrinsic motivation is crucial in developing professional learning communities.

Table 7

Descriptive Statistics of Self-Efficacy in Terms of Motivation

Personal Values	M	SD	Scale Response	Verbal Interpretation
When I devote time to individual talks with students, I do so because…				
I want the parents to appreciate my knowledge.	3.68	1.03	Agree	High Motivation
I want to familiarize myself with my students.	4.33	.86	Agree	High Motivation
It makes me feel proud to do this.	3.77	1.03	Agree	High Motivation
I can learn from them what happens in the classroom.	4.60	.75	Strongly Agree	Very High Motivation
I like being in touch with children and adolescents.	4.25	.93	Agree	High Motivation
When I try to find interesting subjects and new ways of teaching, I do so because……..				
I want the parents to be satisfied so they won't complain.	4.06	1.06	Agree	High Motivation
I think it is a shame to keep on teaching in the same way all the time.	3.88	1.00	Agree	High Motivation
I need to keep up with innovations in teaching.	4.47	.80	Agree	High Motivation
It is fun to create new things.	4.54	.79	Strongly Agree	Very High Motivation
When I invest effort in my work as a teacher, I do so because….				
I want to prevent disruptions and discipline problems during the lessons.	4.21	.84	Agree	High Motivation
If I do not invest enough, I will feel ashamed of myself.	3.93	.93	Agree	High Motivation
Otherwise, I would feel guilty.	3.93	.96	Agree	High Motivation
I need to make children feel that I care about their learning.	4.54	.82	Strongly Agree	Very High Motivation
It is important for me to feel that their learning is my priority.	4.49	.84	Agree	High Motivation
I enjoy creating connections with people.	4.32	.86	Agree	High Motivation
I enjoy finding unique solutions for the various learning styles of my students.	4.39	.85	Agree	High Motivation
Grand Mean	4.21	.67	Agree	High Motivation

Scoring System: 4.50-5.00 = very high, 3.50-4.49 = high, 2.50-3.49 = moderate, 1.50-2.49 = low, 1.00-1.49 = very low

Summative Level of Self-Efficacy

Table 8 summarizes the two dimensions. The overall mean score of M = 4.25, SD = 0.67 suggests that beginning teachers exhibited high self-efficacy, reflecting confidence in their ability to perform their duties effectively. This is consistent with findings from Pressley (2023), Hendricks et al. (2024), and Jeffri and Hamid (2022), which reported high self-efficacy among new and preservice teachers.

Table 8

Summative Results of Self-Efficacy

Self-Efficacy	M	SD	Scale Response	Verbal Interpretation
Personal Values	4.28	.66	Agree	High Personal Value
Motivation	4.21	.67	Agree	High Motivation
Grand Mean	4.25	.67	Agree	High Self-Efficacy

Scoring System: 4.50-5.00=very high, 3.50-4.49=high, 2.50-3.49=moderate, 1.50-2.49=low, 1.00-1.49=very low

Recent research confirms that new teachers generally exhibit high confidence in their teaching abilities. Pressley (2023) found that first-year teachers in Virginia started with high self-efficacy, which declined in the first month but increased by year-end. Hendricks et al. (2024) reported that preservice high school math teachers demonstrated strong personal teaching efficacy, reflecting positive expectations for student learning. Similarly, Jeffri and Hamid (2022) found extremely high self-efficacy levels among teachers, closely linked to modern instructional leadership methods. Collectively, these studies suggest that new teachers typically feel confident in their ability to perform their roles effectively.

Level of Job Satisfaction

Level of Job Satisfaction in Terms of Pay and Benefits

Table 9 shows that respondents generally agreed they were well paid (M = 4.11, SD = 0.84), although some items related to benefits received mixed responses. Bruder (2022) and Ogada et al. (2020) emphasized that fair compensation and benefit systems are essential for teacher satisfaction and retention.

Table 9

Descriptive Statistics of Job Satisfaction, Pay, and Benefits

Pay and Benefits	M	SD	Scale Response	Verbal Interpretation
On my current job,				
I feel I am paid a fair amount for the work I do.	3.54	1.05	Agree	Well Paid
I am not satisfied with the benefits I receive.	2.46	1.03	Disagree	Moderately Satisfied with Benefits
I feel unappreciated by the organization when I think about what they pay me.	3.30	1.12	Neutral	Fairly Paid
I think the benefit package we have is equitable.	3.52	.98	Agree	Well Paid
I feel satisfied with my chances for a salary increase.	3.79	.97	Agree	Well Paid
I think there are few rewards for those people who work here.	3.25	1.02	Neutral	Fairly Paid
I think there are benefits that we do not have that we should have.	2.57	1.18	Neutral	Moderately Satisfied with Benefits
Grand Mean	4.11	.84	Agree	Well Paid

Scoring System: 4.50-5.00 = very high, 3.50-4.49 = well paid, 2.50-2.49 = moderate, 1.50-2.49 = fair, 1.00-1.49 = poorly paid

Bruder (2022) discussed that increasing salary and benefits is crucial for luring and keeping teachers, according to models for improving teacher retention. According to a study by Ogada et. al (2020) looked at how reward systems affect teachers' work satisfaction, insufficient compensation, performance bonuses, retirement benefits, and prospects for advancement all lead to dissatisfaction. The study concluded that enhancing these reward systems is crucial for improving teachers' job satisfaction.

Level of Job Satisfaction in Terms of Recognition

Table 10 reveals the descriptive results of job satisfaction in terms of recognition. The results indicate that respondents generally agree with being well recognized in their work (M = 3.60, SD = .60).

Table 10

Descriptive Statistics of Job Satisfaction in Terms of Recognition

Recognition	M	SD	Scale Response	Verbal Interpretation
I think my performance evaluation provides me with meaningful information about my performance.	4.03	.92	Agree	Well Recognized
I would like to see employee recognition and appreciation by management and my fellow employees.	3.78	1.06	Agree	Well Recognized
I think when I do a good job, I receive the recognition that I deserve.	3.49	.99	Neutral	Moderately Recognized
I feel a sense of pride in doing my job.	3.54	1.09	Agree	Well Recognized
I don't feel my efforts are rewarded the way they should be.	3.14	1.11	Neutral	Moderately Recognized
I am satisfied with my chances for promotion.	3.60	.95	Agree	Well Recognized
Grand Mean	3.60	.60	Agree	Well Recognized

Scoring System: 4.50-5.00 = high, 3.50-4.49 = well recognized, 2.50-3.49 = moderate, 1.50-2.49 = poor, 1.00-1.49 = not recognized

Level of Job Satisfaction in Terms of Company Policies

Table 11 presents the descriptive results of job satisfaction in terms of company policies. The respondents were generally in a neutral stance, with policies being perceived as moderately favorable (M = 3.60, SD = .60).

Table 11

Descriptive Statistics of Job Satisfaction in Terms of Company Policies

Company Policies	M	SD	Scale Response	Verbal Interpretation
I think many of our rules and procedures make doing an easy job difficult.	2.70	.92	Neutral	Somewhat Unfavorable Policies
I think the policies of the company are administered the same in all departments.	3.42	1.06	Neutral	Moderately Favorable Policies
Rules and regulations seem unreasonable.	3.49	.99	Neutral	Moderately Favorable Policies
I like how our policies are implemented.	3.59	1.09	Agree	Favorable Policies
Grand Mean	3.30	.60	Neutral	Moderately Favorable Policies

Scoring System: 4.50-5.00 = highly favorable, 3.50-4.49 = favorable, 2.50-3.49 = moderately favorable policies, 1.50-2.49 = unfavorable policies, 1) 1.00-1.49 = highly unfavorable policies

Level of Job Satisfaction in Terms of Coworkers' Relationship

Table 12 presents the respondents' level of job satisfaction in terms of the coworkers' relationship. The respondents generally agree with the statement and classify it as a strong coworker relationship (M = 4.02, SD = .92). His finding supports Vanmol et al. (2022) and the Greater Good Science Center (2019b), which highlight how collegial networks improve teacher satisfaction and engagement.

Table 12

Summative Results of Coworkers' Relationship

Company Policies	M	SD	Scale Response	Verbal Interpretation
I like the people I work with.	4.06	.94	Agree	Strong Relationship
I sense that the people I work with cooperate as a team.	3.95	.98	Agree	Strong Relationship
I enjoy my coworkers.	4.03	1.03	Agree	Strong Relationship
I feel connected with my co-workers.	3.98	.99	Agree	Strong Relationship
I get along with my colleagues.	4.07	.98	Agree	Strong Relationship
Grand Mean	4.02	.92	Agree	Strong Relationship

Scoring System: 4.50-5.00=very strong relationship, 3.50-4.49=strong relationship, 2.50-3.49=moderate coworker relationship, 1.50-2.49=weak relationship, 1.00-1.49=very weak relationship

Summative Level of Job Satisfaction

Table 13 presents the descriptive summary results of job satisfaction in terms of pay and benefits, recognition, company policies, and coworkers' relationships. The overall mean (M=3.76 ±.75), indicating that respondents generally agree with positive job satisfaction, classifies them as very satisfied.

Table 13

Summary Results of Job Satisfaction and its Dimensions

Job Satisfaction	M	SD	Scale Response	Verbal Interpretation
Pay and Benefits	4.11	.84	Agree	Well Paid
Recognition	3.60	.60	Agree	Well Recognized
Company Policies	3.30	.60	Neutral	Moderately Favorable Policies
Coworkers Relationship	4.02	.92	Agree	Strong Coworkers Relationship
Grand Mean	3.76	.75	Agree	Very Satisfied

Scoring System: 4.50-5.00 = very highly satisfied, 3.50-4.49 = very satisfied, 2.50-3.49 = satisfied, 1.50-2.49 = dissatisfied, 1.00-1.49 = very dissatisfied

The study by Cortez et al. (2021) reveals that respondents were generally very satisfied with their work. However, this satisfaction was not related to their work performance, degree of professionalism, or commitment to their job. Similarly, a study by Jintalan and Velasco (2024) found that respondents expressed high levels of job satisfaction, particularly in terms of relationships with colleagues and the nature of their work. These studies provide valuable insights into the factors influencing job satisfaction among teachers.

Level of Turnover Intention

Table 14 shows that respondents had a neutral stance on turnover intention (M = 2.53, SD = 0.93), indicating a moderate inclination to leave their current job. This implies that while some teachers are considering leaving; many remain undecided or committed, as also noted by Ertürk (2022) and Perdizo & Tantiado (2025), who observed that job satisfaction and support systems help reduce attrition even amid financial or career-related concerns.

Table 14

Descriptive Statistics of Turnover Intention

Turnover Intention	M	SD	Scale Response	Verbal Interpretation
I am thinking of leaving my job for one that pays more.	2.62	1.05	Neutral	Moderate Intention
I will probably start looking for a new job next year.	2.55	1.12	Neutral	Moderate Intention
I would consider leaving my job for another with greater opportunities for advancement.	2.78	1.20	Neutral	Moderate Intention
Two to three years from now, I will probably quit my job as a teacher.	2.45	1.10	Disagree	Low Intention
I am considering leaving my current job.	2.53	1.08	Neutral	Moderate Intention
I have started to look for other jobs.	2.25	1.09	Disagree	Low Intention
Grand Mean	2.53	.93	Neutral	Moderate Intention

Scoring System: 4.50-5.00 = very high, 3.50-4.49 = high, 2.01-3.49 = moderate, 1.50-2.49 = low, 1.00-1.49 = very low

Relationship Between Servant Leadership Practices, Self-Efficacy, and Job Satisfaction on Employee Turnover Intention

Table 15 presents the correlation analysis of servant leadership practices, self-efficacy, and job satisfaction on employee turnover intention. The result shows that servant leadership has a weak negative correlation with turnover intention ($r = -0.111$, $p = 0.179$); this relationship is not statistically significant. Similarly, self-efficacy shows a very weak and non-significant correlation with turnover intention ($r = 0.047$, $p = 0.567$). However, job satisfaction has a small but significant negative correlation with turnover intention ($r = -0.184$, $p = 0.025$). This suggests that while servant leadership and self-efficacy may not directly influence turnover intention, higher job satisfaction is associated with a lower likelihood of employees leaving their organization.

Table 15

Correlation of Servant Leadership Practices, Self-Efficacy, and Job Satisfaction on Employee Turnover Intention

Dimensions		Turnover Intention	Servant Leadership Practices	Self-Efficacy	Job Satisfaction
Turnover Intention	r	1			
	p				
Servant Leadership Practices	r	-.111			
	p	.179			
Self-Efficacy	r	.047	.612		
	p	.567	<.001		
Job Satisfaction	r	-.184	.642	.606	
	p	.025	<.001	<.001	1

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

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

Predictors of Employee Turnover Intention

Table 16 presents the regression coefficients for predictors of employee turnover intention. Job satisfaction negatively predicts turnover intention (β = -0.336, p = 0.001), indicating that higher job satisfaction reduces turnover intention. Self-efficacy positively predicts turnover intention (β = 0.251, p = 0.014), suggesting that employees with higher self-efficacy may have a greater likelihood of leaving. The model explains 7.4% of the variance ($R^2 = 0.074$) and is statistically significant ($F(2,145) = 5.757$, p = 0.004). However, 92.6% of the variance in turnover intention remains unexplained, indicating the presence of other influential factors not included in this model.

Table 16

Coefficients of Predictors of Employee Turnover Intention

	Beta			R	R^2	Adjusted R^2	Root Mean Square Error	ΔR^2	ΔF	Sig. ΔF
	B	t	p							
Constant	3.389	0.616	5.500	<0.001						
Job Satisfaction	-0.695	-0.336	-3.431	0.001	.184	.034	.027	.918	.034	5.099	.025
Self-Efficacy	0.372	0.251	2.497	0.014	.271	.074	.061	.902	.040	5.757	.004

Recent literature consistently supports the idea that job satisfaction is a significant negative predictor of turnover intention among educators, emphasizing that teachers who are more satisfied with their jobs are less likely to leave. A study on lecturer turnover in Chinese private universities found that increased job satisfaction and organizational commitment were strongly associated with lower turnover intentions, highlighting the crucial role of workplace satisfaction in teacher retention (Yao & Kongruang, 2025). In the same manner, while high self-efficacy is generally associated with positive outcomes such as increased job satisfaction and commitment, it can also correlate with higher turnover intentions under certain conditions. Huang et al. (2020) revealed that higher self-efficacy in teacher-student relationships and school decision-making was positively associated with job satisfaction and occupational commitment.

Discussion

Beginning teachers play a crucial role in an educational system, bringing fresh perspective and energy, shaping student learning, and fostering school growth. Understanding their turnover intention helps schools implement support systems, improve retention, and ensure a stable, high-quality learning environment. This study investigates the influence of servant leadership practices, self-efficacy, and job satisfaction on employee turnover intention. The study finds that principals, as perceived by respondents, demonstrated very good servant leadership practices, particularly in authenticity, stewardship, empowerment, and humility. Respondents also exhibited high self-efficacy in personal values and motivation and were generally very satisfied with their jobs especially regarding pay and benefits, recognition, company policies, and coworker relationships. Respondents' turnover intention remained neutral, indicating a moderate inclination to leave. While servant leadership and self-efficacy were not significantly related to turnover intention, job satisfaction played a key role in reducing it. Additionally, self-efficacy positively predicted turnover intention, suggesting that highly self-efficacious teachers may seek better opportunities, whereas job satisfaction negatively predicted turnover intention, meaning more satisfied teachers are less likely to leave.

In Adventist Christian schools, where servant leadership aligns with the principles, values, and mission of the institution, school administrators are evident as strong servant leaders. Similarly, beginning teachers in these schools exhibit high confidence in their teaching abilities and are generally satisfied with their jobs. However, there may be areas for improvement in company policies to further enhance job satisfaction.

While some teachers are open to exploring better opportunities, their commitment remains relatively stable, as active job searching and definite plans to resign are not yet prominent.

With this result, to improve teacher retention, schools should adopt a holistic approach like the Teacher Induction Program (TIP), fostering a positive work environment, reducing workload stress, strengthening mentoring and peer coaching, and offering incentives for long-term service. Additionally, future research should explore other factors influencing turnover intention, such as work-life balance, teacher workload, and organizational culture.

References

Almazan, A. R., & Quinco-Almazan, R. M. (2024). Servant leadership practices, school heads' Decision-Making skills, and teachers' job satisfaction. *Journal of Interdisciplinary Perspectives, 2*(11). https://doi.org/10.69569/jip.2024.0488

Barbera, J., Naibert, N., Komperda, R., & Pentecost, T. C. (2020). Clarity on Cronbach's Alpha use. *Journal of Chemical Education, 98*(2), 257–258. https://doi.org/10.1021/acs.jchemed.0c00183

Belay, S., & Melesse, T. (2024). Exploring the link between teachers' motivation for continuous professional development and professional learning communities: a Structural equation Modeling approach. *SAGE Open, 14*(3). https://doi.org/10.1177/21582440241281855

Bruder, R. M. a. N. (2022). *Job Satisfaction: Models for Maximizing Teacher Retention - JNTP.* JNTP. https://jntp.org/jntp-in-the-news/job-satisfaction-models-for-maximizing-teacher-retention/?utm_source=chatgpt.com

Bulawat, A. (2021, February 13). *Teachers' Turnover Among Public Schools: Basis for Teachers' Retention Programs by Albert Bulawat :: SSRN*.: SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3744193

Chiat , L. C., & Panatik, S. A. (2019). Perceptions of Employee Turnover Intention by Herzberg's Motivation-Hygiene Theory: A Systematic Literature Review. *Journal of Research in Psychology, 1*(2), 10-15. https://doi.org/10.31580/jrp.v1i2.949

Cortez, A. O., Galman, S. M. A., Amaranto, J., Tomas, M. J. L., & Rufino, M. V. (2021). Teacher's Job Satisfaction and Its Relationship with Their Work Performance, Professionalism, and Commitment. *OALib, 08*(05), 1–10. https://doi.org/10.4236/oalib.1107397

Doherty, J. (2020) 'A systematic review of literature on teacher attrition and school-related factors that affect it'. *TEAN Journal, 12*(1), pp. 75-84

Ertürk, R. (2022). The effect of teachers' quality of work life on job satisfaction and turnover intentions. *International Journal of Contemporary Educational Research, 9*(1), 191–203. https://doi.org/10.33200/ijcer.1022519

Greater Good Science Center. (2019b, October 29). Positive staff relationships | Greater good in education. *Greater Good in Education*. https://ggie.berkeley.edu/school-relationships/positive-staff-relationships/

Hawamdeh, N. A. (2022). The influence of humble leadership on employees' work engagement: the mediating role of leader knowledge-sharing behaviour. *VINE Journal of Information and Knowledge Management Systems*. https://doi.org/10.1108/vjikms-03-2022-0083

Hendricks, W., Olawale, B. E., & Saddiq, K. (2024). An Investigation of High School Preservice Teachers' Self-Efficacy in Teaching Mathematics. *Education Sciences, 14*(11), 1262. https://doi.org/10.3390/educsci14111262

Hernando-Malipot, M. (2022, September 30). 'Heart-breaking': Group says more Filipino teachers apply for work abroad. *Manila Bulletin*. https://mb.com.ph/2022/09/30/heart-breaking-group-says-more-filipino-teachers-apply-for-work-abroad/

Huang, X., Lin, C., & Lee, J. C. K. (2020). Moving beyond classroom teaching: a study of multidimensional teacher self-efficacy on job satisfaction and occupational commitment. *Teachers and Teaching, 26*(7–8), 522–542. https://doi.org/10.1080/13540602.2021.1890014

Ingaran, A. V., Madriaga, E. B., Cagatao, P. P. S., & Bautista, R. G. (2025). Factors affecting teacher professionalism and ethical considerations in West Cluster of Schools, Division of Santiago City, Philippines. *American Journal of Educational Research, 13*(2), 46–51. https://doi.org/10.12691/education-13-2-1

Jeffri, A. I., & Hamid, A. H. A. (2022, September 7). *The Relationship between 21st-Century Instructional Leadership and Teachers' Self-Efficacy*. https://kwpublications.com/papers/detail/IJARBSS/12117/The-Relationship-between-21st-Century-Instructional-Leadership-and-Teachers-Self-Efficacy

Jintalan, J. C., & Velasco, M. (2024). Organizational culture and job satisfaction of private school teachers. *CGCI International Journal of Administration, Management, Education and Technology (CGCI-IJAMET), 1*(1), 37–41. https://doi.org/10.70059/bhyz7w65

Kaapanda, L. N. (2023). Unleashing Strategic leadership potential: Embracing stewardship theory for strategy execution and organizational growth. *Creative Education, 14*(12), 2442–2462. https://doi.org/10.4236/ce.2023.1412157

Nnorom, J. N., Egwunyenga, E. J., & Anho, J. E. (2024). Empathetic disposition, stewardship as principals' leadership practices and teachers' commitment in Delta State Mission schools. *International Journal of Education Learning and Development, 12*(3), 25–36. https://doi.org/10.37745/ijeld.2013/vol12n32536

Ogada E. O., Momanyi M. & Mwalw'a S. (2020). Contribution of Reward Systems towards Teachers' Job Satisfaction among Public Secondary Schools in Kikuyu Sub-County, Kiambu County, Kenya. *Journal of Education. Vol 3*(2) pp. 54-67

Okçu, V., Cemaloğlu, N., & Ay, İ. (2024). The Effect of school principals' empowering Leadership Behaviors on Well-Being at Work: The Mediating role of Organizational ostracism. *The Asia-Pacific Education Researcher*. https://doi.org/10.1007/s40299-024-00895-6.

Osias, N., & Ladica, R. (2024). Work Ethics on Teachers' Behavior, Attitude and Performance: Basis for Professional Development Plan. American Journal of Arts and Human Science, 3(3), 41–70. https://doi.org/10.54536/ajahs.v3i3.3046

Perdizo, M. a. P., & Tantiado, R. C. (2025). Teachers' financial well-being and job satisfaction. *International Journal of Multidisciplinary Research and Analysis, 08*(01). https://doi.org/10.47191/ijmra/v8-i01-48

Pressley, T. (2023). Changes in First-year Teacher Self-efficacy during COVID-19. *The Teacher Educator, 59*(3), 345–360. https://doi.org/10.1080/08878730.2023.2289876

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Pruethong, W., Suwantara, P., & Noymanee, N. (2024). Servant Leadership of School Administrators Affecting Participative Management of Teachers in Schools Under the Foundation of Seventh Day Adventist Church in Thailand. *Journal of Roi Et Rajabhat University, 18*(1), 99–109. retrieved from https://so03.tci-thaijo.org/index.php/reru/article/view/270215

Robinson, E. (2024, April 16). How humble leaders create engagement. *Hogan Assessments*. https://www.hoganassessments.com/blog/how-humility-creates-engagement-humble-leaders-build-trust/

Roth, G., Assor, A., Kanat-Maymon, Y., & Kaplan, H. (2007, November 1). Autonomous motivation for teaching: How self-determined teaching may lead to self-determined learning. *Journal of Educational Psychology; American Psychological Association*. https://doi.org/10.1037/0022-0663.99.4.761

Schwartz, S. H. (2003). A proposal for measuring value orientations across nations. *Chapter 7 in the European Social Survey Questionnaire Development Report*, pp. 259-319. https://www.europeansocialsurvey.org/sites/default/files/2023-06/ESS_core_questionnaire_human_values.pdf

See, B. H., Morris, R., Gorard, S., Kokotsaki, D., & Abdi, S. (2020). Teacher Recruitment and Retention: A Critical review of international evidence of most promising interventions. *Education Sciences, 10*(10), 262. https://doi.org/10.3390/educsci10100262

Shie, E., & Chang, S. (2022). Perceived principal's authentic leadership impact on the organizational citizenship behavior and well-being of teachers. *SAGE Open, 12*(2). https://doi.org/10.1177/21582440221095003

Silver, M. (2023, November 28). The power of authentic school leadership: A guide to showing more of your authentic self in your leadership. — The Glass House Leadership Lab. *The Glass House Leadership Lab*. https://glasshouselab.com/blog/authentic-leadership

Sirisilla. (2023, February 20). Bridging the gap: Overcome these 7 flaws in descriptive research design. https://www.enago.com/academy/descriptive-research-design/.

Spector, P. E. (1985). Measurement of human service staff satisfaction: Development of the job satisfaction survey. *American Journal of Community Psychology, 13*(6), 693–713. DOI: 10.1007/BF00929796

Tadle, R. N. (2022, September 21). [OPINION] Why are salaries of private school teachers so low, and what should be done? *RAPPLER*. https://www.rappler.com/voices/thought-leaders/opinion-why-salaries-private-school-teachers-so-low-what-should-be-done/

Uğur, R. U. S. (2020b). Teachers' views on school principals' servant leadership behaviors: A mixed method study. kuey.net. https://doi.org/10.17762/kuey.v26i3.24

Van Dierendonck, D., & Nuijten, I. (2010). The servant leadership survey: Development and validation of a multidimensional measure. *Journal of Business and Psychology, 26*(3), 249–267. https://doi.org/10.1007/s10869-010-9194-1

Vanmol, S., De Vos, S., Beausaert, S., & De Wilde, J. (2022). How does newly qualified teachers' collegial network foster their feedback-seeking behaviour and job satisfaction? *Teachers and Teaching, 28*(6), 703–723. https://doi.org/10.1080/13540602.2022.2098267

Yao, X., & Kongruang, C. (2025, January 28). Predicting lecturer turnover intention in Chinese private universities: The roles of job satisfaction and organizational commitment. https://so09.tci-thaijo.org/index.php/PMR/article/view/5734

Zega, Novelina & Sitanggang, Nathanael. (2024). N empowering education: Unveiling effective strategies in school principal supervision to enhance teacher professionalism. *International Journal Of Humanities Education and Social Sciences (IJHESS). 3*. 10.55227/ijhess.v3i5.829.

EDUCATION

The Digital Push: The Influence of Specialized Educational Social Media on Academic Motivation

Althea Draelle P. Mallari
Lovely M. Rivera
Alexander D. Fortich
Christine Kyle L. Daoang
Kristen Elisse D. Guevarra
Mercedes M. Ibanez

Adventist University of the Philippines
mmibanez@aup.edu.ph

Abstract

Social media and networking platforms have significantly transformed communication, contributing to rapid advancements in education and other sectors. Due to their knowledge-sharing capabilities, these platforms have emerged as valuable tools in teaching and learning, gaining attention for their potential to enhance academic motivation. This study aimed to determine the influence of the use of specialized educational social media on students' academic motivation. Utilizing a descriptive-correlational design, the study involved 156 high school students. Results revealed a high level of SESM usage among participants. Students also reported high levels of both intrinsic motivation—driven by personal interest in learning—and extrinsic motivation—inspired by external rewards and recognition. Notably, the study found a significant positive correlation between the use of SESM and academic motivation. Both types of motivation were positively influenced by students' engagement with these platforms. These findings suggest that SESM can be an effective tool in fostering student motivation by promoting interactive and collaborative learning experiences. The study highlights the importance of leveraging technology that aligns with students' interests and digital habits to support their academic engagement. It also underscores the need for the thoughtful integration of SESM in instructional practices to enhance learning outcomes. This research contributes to the growing body of literature on the educational impact of digital tools and provides insights for educators and policymakers seeking to optimize student motivation through the strategic use of social media in educational settings.

Keywords: *specialized educational social media, intrinsic, extrinsic, motivation*

The educational system has recently undergone a significant transformation due to the digital revolution, marked by the increasing integration of social media and technology in teaching methods. This shift has prompted the widespread adoption of specialized educational social media (SESM) platforms such as Edmodo, Facebook groups, WhatsApp, Google Classroom, Piazza, Kahoot, Schoology, Flip, and ClassDojo. These specialized educational social media (SESM) tools blend features of social networking with academic functionalities, allowing for real-time or asynchronous interactions that support both broad and focused educational engagements (Carr & Hayes, 2015).

However, this growing trend raises critical questions regarding its effects on students' academic motivation (Aqeel et al., 2022; Ansari et al., 2020; Tuten & Marks, 2012). Excessive use of social media may result in negative outcomes such as sleep deprivation, academic burnout, reduced focus, and time mismanagement—factors that contribute to lower academic motivation and performance (Aqeel, 2022; Annamalai, 2020; Cao & Yu, 2019; Chang et al., 2019). It can also lead to multitasking and cognitive overload, reducing the ability to concentrate on complex tasks (Brooks, 2015), and may foster reliance on instant gratification and external validation (Ansari et al., 2020; Chugh & Ruhi, 2018).

Additionally, exposure to idealized peer success can lead to self-doubt and anxiety, further diminishing motivation (Castren et al., 2022; Choney, 2010). Despite these concerns, SESM platforms have demonstrated strong educational potential. They support knowledge sharing, peer-to-peer support, virtual communication, and collaborative learning—gaining recognition as tools that can enhance engagement and academic motivation (Kolan & Dzandza, 2018; Hosen et al., 2021). Students increasingly use these platforms to share course content and help one another with academic tasks (Özen et al., 2016). They also provide avenues for interaction, feedback, and access to global resources, fostering intrinsic motivation and creativity (Perriera & Koehler, 2021; Malik et al., 2020; Dwivedi, 2021).

Moreover, SESM can cultivate a sense of autonomy, self-determination, and ownership of learning (Özen et al., 2016). The theoretical foundation of this study is grounded in Connectivism Learning Theory (CLT), which recognizes that learning is no longer solely individualistic or confined to traditional methods. Instead, knowledge exists across networks and is constructed through connections facilitated by technology (Hendricks, 2019; Herlo, 2017; Western Governors University, 2024).

Social media aligns with this framework, as it enables learners to connect with content, peers, and mentors, facilitating ongoing and self-directed learning. While existing literature has explored the dual role of social media in promoting and hindering motivation, studies focusing specifically on SESM and its effect on high school students' academic motivation remain limited. Gender differences in motivation and SESM usage patterns present an area that requires further exploration, as previous findings have shown varying impacts across male and female students (Naz & Shah, 2020; Dumford et al., 2022). Furthermore, prior assumptions that generational identity influences digital learning behaviors have been contested, indicating the need for context-specific research (Lai & Hong, 2014).

Given these considerations, this study aims to determine the influence of specialized educational social media on students' academic motivation. It seeks to address the gap in literature by evaluating both the positive and negative impacts of SESM and providing insights to help educators and decision-makers integrate these tools effectively to support student motivation in the classroom.

Methodology

Research Design

A descriptive-correlational research design employs quantitative techniques to depict existing phenomena comprehensively, encompassing description, documentation, analysis, and interpretation. This approach was applied in this study to determine the influence of SESM on the academic motivation of high school students.

Population and Sampling Techniques

The population for this study consisted of high school students. This study was conducted during the second semester of the academic year 2023–2024. The selection of respondents was conducted using a

simple random sampling technique, ensuring an unbiased representation for the study. By utilizing this method, 156 students were selected as the sample of the study, with every student in the population having an equal chance of being chosen.

Instrumentations

This study used a modified questionnaire based on ideas from the review of relevant literature and previous studies. The questionnaires were revised to better fit the current investigation and the characteristics of the study population. Three instruments were utilized in this study. First is the demographic section, which was used to categorize the sex of the respondents and evaluate whether they use SESM. Second is the Use of Specialized Educational Social Media Questionnaire (SESMUQ), adapted from Al-Rahmi (2022). This 12-item questionnaire uses a 5-point Likert scale ranging from 1 to 5 and was used to evaluate the extent of SESM use. Lastly, the Academic Motivation Questionnaire (AMQ), adapted from Ryan et al. (2000) and Vallerand et al. (1992), was used to assess students' academic motivation experiences.

Table 1 shows the reliability results of the instruments used in the study. SESMUQ had an excellent Cronbach's alpha of 0.926, while the intrinsic and extrinsic learning motivation questionnaires showed good reliability with Cronbach's alphas of 0.890 and 0.812, respectively. This implies that the instruments used in the study are valid and reliable measures of the indicated variables and can address the research problem.

Table 1

Reliability of Questionnaire SESMUQ And AMQ

Variables	Number of Items	Cronbach's Alpha	Verbal Interpretation
Use of Specialized Educational Social Media	12	0.926	Excellent
Academic Motivation			
Intrinsic	8	0.890	Good
Extrinsic	4	0.812	Good

Analysis of Data

Descriptive statistics—frequency and percentage—were used to classify the profile of the respondents. Mean and standard deviation were applied to determine the extent of specialized educational social media use and academic motivation of the respondents. Pearson's r correlation was used to examine the relationship between the use of SESM and academic motivation. Linear regression was conducted to determine whether the use of SESM could predict academic motivation.

Ethical Considerations

This study received approval from the institutional Ethics Review Board (ERB) of the university. The online survey included a cover letter detailing the study's purpose, emphasizing voluntary participation, and offering the option to withdraw from the study at any time. Anonymity and confidentiality were maintained throughout. In the informed consent form, respondents were encouraged to provide honest answers, with confidentiality guaranteed. Furthermore, all data collected was securely stored and held by the designated researcher and adviser.

Results

Use of Specialized Educational Social Media

The data in Table 2 show that students utilize SESM to a high extent for various academic purposes. The overall mean score of 4.21 (SD = 0.83) indicates that SESM is consistently integrated into students' academic routines. Among the specific purposes, the highest mean was for interacting with peers (M =

4.19, SD = 0.85), followed by answering reflections (M = 4.06, SD = 0.98), collaborative learning (M = 4.05, SD = 0.93), and studying for exams (M = 4.03, SD = 0.94). All items received mean scores above 3.50, falling within the range interpreted as high extent, suggesting that SESM is extensively used for both communication and academic-related tasks.

Table 2

Descriptive Statistics of Use of Specialized Educational Social Media

	Mean	SD	Interpretation
I use specialized educational social media to…			
get more information about my subject	3.60	1.11	High Extent
interact with peers	4.19	0.85	High Extent
learn new things	3.86	0.91	High Extent
share knowledge with classmates	3.52	1.10	High Extent
have online academic group discussions	3.76	0.99	High Extent
have collaborative learning	4.05	0.93	High Extent
do research work	3.86	1.02	High Extent
do my daily tasks	4.02	0.97	High Extent
study for exams	4.03	0.94	High Extent
review my lessons	3.85	1.10	High Extent
answer my reflections	4.06	0.98	High Extent
do my requirements	3.92	0.73	High Extent
Grand Mean	4.21	0.83	High Extent

Legend: 1–1.49 = Very Low; 1.50–2.49 = Low; 2.50–3.49 = Moderate; 3.50–4.49 = High; 4.50–5 = Very High

The use of social media has stood out not only in daily life but also in the academic domain. The use of smartphones, tablets, and other technological devices has become essential to students' communication and everyday activities. As a result, social media is frequently used to support both formal and informal learning settings in education (Penn, 2020; Kara et al., 2020).

Level of Students' Academic Motivation

Table 3 presents the levels of academic motivation among high school students, with an overall mean of 3.93 (SD = 0.67), interpreted as high. Both dimensions of motivation—intrinsic (M = 3.87, SD = 0.74) and extrinsic (M = 4.00, SD = 0.73)—also fall within the high range. This indicates that students are strongly motivated both by internal factors, such as enjoyment and personal interest in learning, and external factors, such as rewards, grades, or recognition.

Table 3

Descriptive Statistics of Students' Academic Motivation

	Mean	SD	Interpretation
Intrinsic	3.87	0.74	High
Extrinsic	4.00	0.73	High
Overall Mean	3.93	0.67	High

Legend: 1–1.49 = Very Low; 1.50–2.49 = Low; 2.50–3.49 = Moderate; 3.50–4.49 = High; 4.50–5 = Very High

Motivation is important for academic success and can be affected b y social media usage. It involves students' abilities to set goals and persist with academic tasks, even those that may not interest them (Barton, 2018).

Level of Students' Intrinsic Academic Motivation

Table 4 indicates that students exhibit a high level of academic motivation, with an overall mean of 3.87 (SD = 0.74). The highest-rated item was for the statement was "studying is important to me" (M = 4.12, SD = 0.98), followed by "I have the desire to learn" (M = 4.09, SD = 0.93), and "I want to learn something new every day" (M = 4.04, SD = 0.93). Even the lowest-rated item, "I enjoy studying" (M = 3.58, SD = 1.04), still falls within the high interpretation range.

Table 4

Descriptive Statistics of Students' Intrinsic Academic Motivation

	Mean	SD	Interpretation
Studying is important to me	4.12	0.98	High
I have the desire to learn	4.09	0.93	High
I want to learn something new every day	4.04	0.93	High
I have the desire to study	3.90	0.97	High
I have the desire to study for exams	3.79	1.05	High
I struggle with finding the zeal to study	3.76	1.02	High
I listen well in class	3.69	0.93	High
I enjoy studying	3.58	1.04	High
Grand Mean	3.87	0.74	High

Legend: 1–1.49 = Very Low; 1.50–2.49 = Low; 2.50–3.49 = Moderate; 3.50–4.49 = High; 4.50–5 = Very High

Level of Students' Extrinsic Academic Motivation

The data reflect a high level of extrinsic academic motivation among students, as presented in Table 5. The highest-rated item was "good grades encourage me to study" (M = 4.17, SD = 0.91), followed by "I keep track of all my school requirements" (M = 4.07, SD = 1.04) and "using specialized educational social media helps me to study" (M = 4.01, SD = 0.96). Although "I only feel encouraged to learn subjects I am interested in" received the lowest mean (M = 3.83, SD = 0.97), it still falls within the high interpretation range, suggesting strong external motivators across all indicators.

Table 5

Descriptive Statistics of Students' Extrinsic Academic Motivation

	Mean	SD	Interpretation
Good grades encourage me to study.	4.17	0.91	High
I keep track of all my school requirements.	4.07	1.04	High
Using specialized educational social media helps me to study.	4.01	0.96	High
I only feel encouraged to learn subjects I am interested in.	3.83	0.97	High
Grand Mean	4.00	0.73	High

Legend: 1–1.49 = Very Low; 1.50–2.49 = Low; 2.50–3.49 = Moderate; 3.50–4.49 = High; 4.50–5 = Very High

The students who are extrinsically motivated determine the standards of their performance according to social norms and customs, and hence they are normally more social and friendly. These tendencies of externally motivated students can be used by the teachers to make the academic performance of the students

better and effective; thus, extrinsic motivation is related to the action that is done to get some rewards (Schunk et al., 2014; Deci et al., 2001).

Relationship Between the Use of Specialized Educational Social Media and Academic Motivation

Table 6 presents Pearson correlation coefficients examining the relationship between the use of SESM and academic motivation, including its intrinsic and extrinsic components. All correlations are statistically significant at the 0.01 level ($p < .01$), indicating strong, positive associations. Both were highly correlated with overall academic motivation ($r = .915$ for intrinsic; $r = .913$ for extrinsic). These results suggest that as students increase their use of specialized educational social media, their intrinsic, extrinsic motivation and overall academic motivation also tend to increase.

Table 6

Relationship of the Use of Specialized Educational Social Media and Academic Motivation

		Use of SESM	Intrinsic	Extrinsic	Motivation
Use of SESM	Pearson Correlation				
	Sig. (2-tailed)				
Intrinsic	Pearson Correlation	.569**			
	Sig. (2-tailed)	.000			
Extrinsic	Pearson Correlation	.695**	.670**		
	Sig. (2-tailed)	.000	.000		
Motivation	Pearson Correlation	.691**	.915**	.913**	
	Sig. (2-tailed)	.000	.000	.000	

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

Students who used specialized educational social media platforms to supplement their learning reported higher levels of academic interest compared to those who did not. The study found that access to SESM platforms supports interactive and engaging academic experiences, improving academic performance (Chen & Young, 2022; Chang et al., 2019).

Predictor of Students' Academic Motivation

The results revealed that the use of SESM significantly predicted academic motivation, $B = 0.638$, $t(154) = 11.874$, $p < .001$. The model explained a substantial portion of variance in academic motivation, $R^2 = .478$, Adjusted $R^2 = .475$, indicating that approximately 47.5% of the variability in academic motivation can be attributed to the use of SESM, $F(1, 154) = 140.985$, $p < .001$. The positive regression coefficient suggests that greater use of SESM strategies is associated with higher levels of academic motivation.

Table 7

Regression Analysis of Students' Academic Motivation

Predictor	Estimate	SE	t	p
Intercept	1.434	.214	6.696	.000
Use of SESM	.638	.054	11.874	.000

R=.691, R2=.478, Adjusted R2=.475, F(1, 154)= 140.985, p<.001

Studies show that use of SESM enhances engagement by promoting interaction, feedback, and peer collaboration—factors that support intrinsic motivation by building community and ownership of learning. Al-Rahmi and Zeki (2017) observed significantly higher motivation and engagement among students who actively used social media for academic purposes.

Comparison of Academic Motivation in Terms of Sex

A t-test was conducted to determine whether there was a significant difference in academic motivation between male and female students. The results showed that male students (M = 3.90, SD = 0.66) and female students (M = 3.96, SD = 0.68) did not differ significantly in terms of their academic motivation, t (154) = 0.531, p = 0.381. Therefore, the difference is not statistically significant.

Table 8

Independent T-test for Academic Motivation

	Sex	N	Mean	SD	t	Sig.	Verbal Interpretation
Academic	Male	73	3.90	0.66	0.531	0.381	Not Significant
	Female	83	3.96	0.68			
	Total	156					

Multiple studies have also found that gender does not significantly affect academic motivation (Turhan, 2020). Social media tools may fail to increase motivation when not meaningfully integrated into the curriculum. Some students prefer traditional learning methods and may find social media distracting or overwhelming, which can neutralize potential motivational benefits.

Barczyk and Duncan (2013) found no significant difference in motivation between students who used Facebook in class and those who did not, citing varied attitudes toward using social media as an academic tool. Additionally, in certain cultural contexts, the use of social media in education may not align with students' expectations or educational norms, thus limiting its impact on motivation.

Discussion

The findings suggest that high school students are highly engaged with SESM platforms for a range of academic tasks, from content review and exam preparation to collaborative learning and peer interaction. The highest-rated activity, peer interaction, aligns with social constructivist perspectives, which emphasize learning as a socially mediated process (Vygotsky, 1978). This finding is also supported by Ozen et al. (2016), who highlighted that SESM fosters a common academic language and peer support.

The study revealed that students exhibit high levels of both intrinsic and extrinsic academic motivation, indicating a balanced motivational profile. The slightly higher score for extrinsic motivation suggests that students may be more driven by tangible outcomes and external reinforcement, which is consistent with previous findings in secondary education settings (Filgona et al., 2020).

Moreover, students maintain strong intrinsic motivation toward learning, marked by a genuine desire to study, curiosity, and a value for academic growth. The highest-rated item, "studying is important to me," underscores that students perceive studying as meaningful—a key trait of self-determined learners (Deci & Ryan, 2000). The consistently high scores across indicators such as the desire to learn, daily learning goals, and exam preparation suggest a sustained internal drive to achieve academically (Filgona et al., 2020).

The results emphasize the significance of external motivators, particularly grades, structure, and technology, supporting students' academic behaviors. The item with the highest mean, "good grades encourage me to study," supports the view that tangible rewards remain powerful motivators for students, a core element of extrinsic motivation as defined by Ryan and Deci (2000). This aligns with previous studies asserting that academic success and recognition are strong external incentives influencing study habits (Filgona et al., 2020).

The findings indicate that SESM use is significantly and positively associated with students' intrinsic and extrinsic motivation, as well as their overall academic motivation. The strongest correlation was between SESM use and extrinsic motivation (r = .695), although substantial correlations were also observed with intrinsic motivation (r = .569) and overall academic motivation (r = .691).

Furthermore, the high inter-correlations among intrinsic, extrinsic, and overall motivation ($r > .91$) align with Deci and Ryan's Self-Determination Theory (2000), which recognizes that motivation exists on a continuum. Intrinsic and extrinsic motivations are not mutually exclusive but can coexist and reinforce one another in academic contexts.

These insights imply that incorporating SESM platforms into learning environments may be an effective strategy to foster students' motivation across multiple dimensions. Future interventions might explore how specific SESM features—such as peer collaboration, instant feedback, or gamification—contribute to these motivational gains.

The regression analysis shows a strong and statistically significant relationship between SESM and academic motivation among students. Specifically, increased use of SESM significantly predicts higher academic motivation. The high R^2 value (0.478) indicates that nearly half of the variance in academic motivation can be explained by the use of SESM alone, highlighting the critical role of self-regulatory strategies in fostering motivation. In practical terms, educators may consider integrating training in SESM strategies to empower students to take greater control of their learning. Such interventions can promote reflective thinking, goal setting, and persistence, all of which are associated with sustained academic motivation and performance.

The findings also indicate that sex does not play a significant role in influencing academic motivation among the participants. Although female students had a slightly higher mean score than male students, the difference was minimal and not statistically significant. This suggests that both male and female students in the sample generally possess comparable levels of academic motivation. These results align with existing literature that emphasizes individual differences and contextual factors over demographic variables like sex in determining motivation. However, further research may explore other potential moderators such as learning environment, teacher support, or personal goals, which could influence academic motivation (Ryan & Deci, 2000).

This study concludes that students who are highly engaged with specialized educational social media are also highly motivated to learn. It further suggests that if SESM is properly integrated into classroom instruction and curriculum, students are more likely to comply with their class requirements and improve their learning outcomes. The significant relationship between the use of SESM and academic motivation supports the idea that SESM platforms can be valuable educational tools if used effectively. Lastly, the lack of significant difference in motivation based on sex indicates that both male and female students using SESM exhibit similar levels of learning motivation.

Based on the findings of this study, it is recommended that educational institutions continue to encourage the use of specialized educational social media (SESM) platforms to enhance students' academic motivation. Given the strong association between the use of SESM and both intrinsic and extrinsic motivation, schools should explore ways to thoughtfully integrate these platforms into classroom instruction and curricular activities. Educators should receive training and support in utilizing SESM tools effectively to maximize their impact on student engagement and learning outcomes. Furthermore, cultivating a collaborative digital environment where students and teachers can interact meaningfully can enhance academic motivation and support task completion. It is also important to strike a balance between performance-based incentives and interest-driven learning experiences to ensure that both extrinsic and intrinsic motivational factors are addressed. By leveraging SESM as a tool for interactive, student-centered learning, educators can create more motivating and supportive learning environments that align with the digital habits and preferences of today's learners.

References

Al-Rahmi, M., Shamsuddin, A., & Wahab, E. (2022, September). Structural equation modeling and confirmatory factor analysis of social media use and education. https://www.researchgate.net/publication/334613960_Structural_equation_modeling_and_confirmatory_factor_analysis_of_social_media_use_and_education

Al-Rahmi, W. M., & Zeki, A. M. (2017). A model of using social media for collaborative learning to enhance learners' performance on learning. *Journal of King Saud University Computer and Information Sciences, 29*(4), 526–535. https://doi.org/10.1016/j.jksuci.2016.06.002

Annamalai, N. et al. (2020). Needs and Facebook addiction: Role of well-being and performance-approach goals. *Current Psychology, 39*, 1942–1953. https://doi.org/10.1007/s12144-019-00516-2

Ansari, J. A. N., & Khan, N. A. (2020). The role of social media in collaborative learning. *Smart Learning Environments, 7*(1), 1–16. https://doi.org/10.1186/s40561-020-00118-7

Aqeel, M., Rehna, T., & Shuja, K. H. (2022). Comparison of students' mental wellbeing, anxiety, depression, and quality of life during COVID-19 lockdowns. *Frontiers in Psychiatry, 13*, 835585. https://doi.org/10.3389/fpsyt.2022.835585

Barczyk, C. C., & Duncan, D. G. (2013). Facebook in higher education courses: An analysis of students' attitudes, community of practice, and classroom community. *International Business and Management, 6*(1), 1–11. https://doi.org/10.3968/j.ibm.1923842820130601.1165

Brooks, S. (2015). Does personal social media usage affect efficiency and well-being? *Computers in Human Behavior, 46*, 26–37. https://doi.org/10.1016/j.chb.2014.12.053

Cao, X., & Yu, L. (2019). Influence of excessive social media use at work. *International Journal of Information Management, 46*, 83–92. https://doi.org/10.1016/j.ijinfomgt.2018.11.019

Carr, C. T., & Hayes, R. (2015, February 6). Social media: Defining, developing, and divining | request PDF. https://www.researchgate.net/publication/272376225_Social_Media_Defining_Developing_and_Divining

Castrén, S., et al. (2022). Risk factors for excessive social media use in youth. *International Journal of Environmental Research and Public Health, 19*(4), 2406. https://doi.org/10.3390/ijerph19042406

Chang, C. T., Tu, C. S., & Hajiyev, J. (2019). Integrating academic type of social media activity with perceived academic performance. *Computers & Education, 139*, 157–172. https://doi.org/10.1016/j.compedu.2019.05.011

Chen, M., & Peng, A. Y. (2022). Motivational effects of social media in learning: The moderating role of platform type. *Social Science Computer Review, 40*(6), 1564–1583. https://doi.org/10.1177/08944393211049120

Choney, S. (2010). Facebook use can lower grades by 20 percent. *NBC News*. https://www.nbcnews.com/id/wbna39038581

Chugh, R., & Ruhi, U. (2018). Social media in higher education: A literature review of Facebook. *Education and Information Technologies, 23*(2), 605–616. https://doi.org/10.1007/s10639-017-9621-2

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Deci, E. L., Koestner, R., & Ryan, R. M. (2001). Extrinsic rewards and intrinsic motivation in education: Reconsidered once again. *Review of Educational Research, 71*(1), 1–27. https://doi.org/10.3102/00346543071001001

Dumford, A., Miller, A., & Lee, K. (2022, December 29). Social media usage in relation to their peers: Comparing male and Female College Students' perceptions. *Computers and Education Open*. https://www.sciencedirect.com/science/article/pii/S2666557322000489

Dwivedi, Y. (2021, August 10). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*. https://www.sciencedirect.com/science/article/pii/S0268401220308082

Filgona, J., Sakiyo, J., Gwany, D. M., & Okoronka, A. U. (2020). Motivation in learning: A review. *The European Journal of Educational Studies, 7*(1), 17–28.

Hendricks, G. (2019, December). Connectivism as a learning theory and its relation to open distance education. https://www.researchgate.net/publication/352565618_Connectivism_as_a_Learning_Theory_and_Its_Relation_to_Open_Distance_Education

Herlo, D. (2017). Connectivism a learning theory for the digital age. *Scientific Bulletin Economic Sciences, 16*(1), 120–129.

Hosen , H., Ogbeibu, S., Gridharam, B., Cham, T.-H., Balakrishnan, V., Blasco-Arcas, L., Chang, H. H., Eid, M. I., Hsu, M. H., Hsu, C. L., Hung, S. Y., Jadin, T., Junco, R., Kirschner, P. A., Lau, W. W., Lin, K. Y., Liu, S., Lu, J., Ma, W. W., … Choi, J. H. (2021, June 12). Individual motivation and social media influence on student knowledge sharing and learning performance: Evidence from an emerging economy. *Computers & Education.* https://www.sciencedirect.com/science/article/abs/pii/S0360131521001391

Kara, N., Çubukçuoğlu, B., & Elçi, A. (2020). Using social media to support teaching and learning in higher education: An analysis of personal narratives. *Research in Learning Technology*. https://journal.alt.ac.uk/index.php/rlt/article/view/2410

Kolan , B. J., & Dzandza, E. (2018, February). effect of social media on academic performance of students in Ghanaian universities: A case study of university of ghana, Legon. https://www.researchgate.net/publication/323165156_Effect_of_Social_Media_on_Academic_Performance_of_Students_in_Ghanaian_Universities_A_Case_Study_of_University_of_Ghana_Legon

Lai, K.-W., & Hong, K.-S. (2014, June). Technology use and learning characteristics of students in ... https://www.researchgate.net/publication/262026636_Technology_use_and_learning_characteristics_of_students_in_higher_education_Do_generational_differences_exist

Malik, M., Mudaser, A., & Kamran, M. (2020, June). Student use of social media, academic performance, and creativity: The mediating role of intrinsic motivation | semantic scholar. https://www.semanticscholar.org/paper/Student-use-of-social-media,-academic-performance,-Malik-Ahmad/94b2040b8fabc2a353200f0fad7977ea7d22c80e

Munir, J., & Faiza, M. (2023). the impact of socio-economic status on academic ... https://www.researchgate.net/publication/371350334_The_Impact_of_Socio-economic_Status_on_Academic_Achievement

Naz, S., & Shah, S. (2020, March). Gender differences in motivation and academic achievement: A study of the university students of KP, Pakistan. https://www.researchgate.net/publication/341758004_Gender_Differences_in_Motivation_And_Academic_Achievement_A_Study_Of_the_University_Students_of_KP_Pakistan

Özen, R., Gündüz, M., & Yalçın, M. (2016). Social media use of distance education students for educational purposes. *Turkish Online Journal of Distance Education, 17*(4), 61–76.

Penn, C. S. (2021, November 19). What's the difference between social media and new media? Christopher S. Penn - Marketing AI Keynote Speaker. https://www.christopherspenn.com/2021/11/whats-the-difference-between-social-media-new-media/

Perriera, A., & Koehler, A. (2021). Motivational impacts of social media platforms in secondary education. *Journal of Educational Technology & Society, 24*(2), 56–67.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54–67. https://doi.org/10.1006/ceps.1999.1020

Schunk, D. H., Pintrich, P. R., & Meece, J. L. (2014). Motivation in education: Theory, research, and applications (4th ed.). Pearson Education.

Turhan, N. (2020). Gender differences in academic motivation: A meta-analysis. https://www.researchgate.net/publication/341104673_Gender_Differences_in_Academic_Motivation_A_Meta-Analysis

Tuten, T., & Marks, M. (2012, October). The adoption of social media as educational technology among marketing educators. https://www.researchgate.net/publication/279747860_The_Adoption_of_Social_Media_As_Educational_Technology_Among_Marketing_Educators

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Senécal, C., & Vallières, E. F. (1992). The academic motivation scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement, 52*(4), 1003–1017. https://doi.org/10.1177/0013164492052004025

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.

PSYCHOLOGY

Mediating Effects of Emotional Regulation Difficulty in the Influence of Social Media Usage and Self-Concept and Facial Dysmorphia Symptoms Among Female Adults

Christine Kate D. Ignacio
Mylene S. Gumarao
Rowena Imelda A. Ramos
Myrtle O. Grijalvo
Jolly S. Balila
Susy A. Jael

Adventist University of the Philippines
2055321@aup.edu.ph

Abstract

This research aimed to determine the mediating effects of emotional regulation difficulty in the relationship between social media usage, self-concept, and facial dysmorphia symptoms among female adults. The rampant usage of social media and the widespread promotion of beauty ideals through viral advertisements have raised concerns about their impact on mental health, yet the mechanisms underlying this influence remain insufficiently understood. This study examined how emotional regulation difficulty may influence the effects of social media exposure and self-concept on facial dysmorphia symptoms. Data were collected from 224 female adults in Quezon and Batangas provinces using stratified sampling. Results showed that both social media usage and self-concept significantly predicted facial dysmorphia symptoms. Social media usage was found to have a significant negative relationship with emotional regulation difficulty, indicating that higher usage was associated with fewer reported difficulties. Self-concept also showed a significant negative relationship with emotional regulation difficulty, suggesting that higher self-concept corresponded with better emotional regulation. Moreover, emotional regulation difficulty significantly predicted facial dysmorphia symptoms. Self-concept had the strongest influence on emotional regulation difficulty, while social media usage directly influenced both emotional regulation difficulty and facial dysmorphia symptoms. Given these results, programs promoting healthy self-concept development and mindful social media usage are recommended, alongside digital literacy initiatives and emotional regulation skills training.

Keywords: *social media usage, self-concept, emotional regulation difficulty, facial dysmorphia*

Facial beauty, often celebrated through social and physical attributes such as facial symmetry and body shape, can be a source of psychological distress when perceptions become distorted. Body Dysmorphic Disorder (BDD), as defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-2013), involves a preoccupation with perceived physical flaws that are not observable by others, typically emerging in adolescence with about two-thirds of cases developing before age 18 (Cleveland Clinic, 2023).

BDD is a brain-based mental health disorder marked by obsessive thoughts and compulsive behaviors driven by feelings of unworthiness (Anxiety and Depression Association of America, 2024). Globally, BDD affects approximately 1.7% to 2.9% of the population, with women more vulnerable than men (Phillips, 2023). Social media exacerbates these concerns by fostering constant comparison and highlighting appearance-related insecurities, leading to behaviors like excessive photo filtering (Malcolm, 2021; Santanachote, 2021).

In the Philippines, facial dysmorphia—a subset of BDD focused on facial features—is under-researched but linked to increased social media use and societal beauty ideals (Santiago, 2023; Reyes et al., 2025). Facial dysmorphia involves distressing symptoms such as shame, social avoidance, and compulsive grooming (Turk, 2023; Cleveland Clinic, 2022). Social media influences these symptoms by shaping beauty standards and promoting edited images, which intensify dysmorphic concerns (Laughter et al., 2023). However, emotion regulation and self-concept have been identified as important factors, where poor emotion regulation correlates with higher dysmorphic preoccupation and lower self-esteem (Saeed, 2023).

Despite the growing recognition of facial dysmorphia in the Philippine context, research remains limited, especially concerning its distinct characteristics and effective interventions. This study aims to investigate the mediating role of emotional regulation difficulty in the relationship between social media usage, self-concept, and facial dysmorphia symptoms among female adults.

Methodology

Research Design

The study used a quantitative, descriptive-correlational design to explore relationships among social media usage, self-concept, emotional regulation difficulties, and facial dysmorphia symptoms. It aimed to identify how difficulties in emotion regulation mediated the influence of self-concept and social media on facial dysmorphia.

Population and Sampling Techniques

Respondents were 224 female adults from two selected universities in Batangas (124) and Quezon (100), chosen through stratified, purposive, and cluster sampling methods. From a total of 510 potential participants, stratification ensured representation across academic levels and institutions.

Instrumentation

The study utilized four standardized instruments to measure the key variables. Social media usage was assessed using the Social Media Use Scale developed by Tuck and Thompson (2023), which evaluates the frequency, intensity, and type of engagement. Self-concept was measured through the Personal Self-Concept Questionnaire by Goñi (2011), which examines domains such as self-fulfillment, autonomy, honesty, and emotional adjustment, demonstrating strong reliability ($\alpha = .85$). Difficulties in emotion regulation were evaluated using the Difficulties in Emotion Regulation Scale–16 (DERS-16) by Bjureberg et al., a psychometrically sound instrument that measures aspects such as impulse control and emotional clarity, with excellent internal consistency ($\alpha = .94$). Finally, symptoms of facial dysmorphia were screened using the Body Dysmorphic Disorder Questionnaire developed by Veale et al. (2012), a 9-item tool adapted from the Cosmetic Procedure Questionnaire, which has shown high reliability ($\alpha = .91$).

Data Gathering Procedure

The researcher secured ethical clearance and official permits before data collection. Recruitment occurred in classrooms, where participants received informed consent and clear instructions. Ethical safeguards included confidentiality, voluntary participation, and referral to guidance counselors for participants needing psychological support.

Ethical Considerations

The study followed ethical research standards, including informed consent, confidentiality, and participant rights protection. The Ethical Review Board approved the protocol, and respondents were fully briefed about the purpose, procedures, and potential risks. Information release would only occur if required by law, with participants duly notified.

Analysis of Data

Data were analyzed using Jamovi, SPSS, and Partial Least Squares–Structural Equation Modeling (PLS-SEM). Descriptive statistics, including the mean and standard deviation, were computed to summarize the levels of social media use, self-concept, emotion regulation, and facial dysmorphia. Pearson's correlation was employed to examine the relationships among these variables, while multiple regression analysis tested the predictive effects of the independent variables on the dependent variables. Finally, SEM was utilized to determine whether difficulties in emotion regulation mediated the influence of social media use and self-concept on facial dysmorphia symptoms.

Result

Level of Social Media Usage

In Table 1, the grand mean is 3.53, with a standard deviation of 1.05, which indicates 5-6 times per week and verbal interpretation of mild. These results imply the level of social media usage of female adults in a limited manner. Noting that the participants were students, they may not be highly active in social media because of their school responsibilities or for some reason of accessibility to the internet.

Table 1

Descriptive Statistics of Social Media Usage

Statements	Mean	SD	Scale	Verbal Interpretation
Made/shared a post or story about something positive that was personally about me	2.64	1.42	3-4 times per week	Low
Looked at how many people liked, commented on, shared my content, or followed/friended me	3.65	2.21	5-6 times per week	Mild
Read comments to my own content	3.56	2.24	5-6 times per week	Mild
Edited and/or deleted my own social media content	3.45	2.33	3-4 times per week	Low
Played with photo filtering/photo editing	3.11	1.98	3-4 times per week	Low
Compared my body or appearance to others'	3.24	2.23	3-4 times per week	Low
Compared my life or experiences to others'	3.19	2.33	3-4 times per week	Low
Reminisced about the past	4.08	2.39	5-6 times per week	Mild
Made/shared a post or story about something negative that was personally about me	2.41	2.01	1-2 times per week	Very Low
Made/shared post or story about something negative that was NOT personally about me	1.77	1.44	1-2 times per week	Very Low

{table continues on the next page}

Commented unsupportively or disliked/"reacted" unsupportively on other's post(s)	1.75	1.41	1-2 times per week	Very Low
Sought out content that I morally or ethically disagreed with	2.24	1.84	1-2 times per week	Very Low
Scrolled aimlessly through my feed(s)	5.00	2.65	Once daily	Moderate
Looked at others' stories	5.63	2.49	2-5 times daily	Considerable
Navigated to others' profiles in my social network (e.g., friends or friends of friends)	3.81	2.29	5-6 times per week	Mild
Navigated to others' pages who I do not know (e.g., influencers or other famous people)	3.50	2.22	5-6 times per week	Mild
I watched videos such as memes, news content, how-tos/recipes, etc.	7.02	2.36	6-9 times daily	High
Grand Mean	3.53	1.05	5-6 times per week	Mild

Scoring System: 1.00 - 1.49 Never/No impact; 1.50 - 2.49 1 to 2 times per week/Very Low; 2.50 - 3.49 3 to 4 times per week/Low; 3.50 - 4.49 5 to 6 times per week/Mild; 4.50 - 5.49 once daily/Moderate; 5.50 - 6.49 2 to 5 times daily/Considerable; 6.50 - 7.49 6 to 9 times daily/ High; 7.50 - 8.49 10 to 13 times daily/Severe; 8.50 - 9.00 an hour or more daily/ Extreme high

The findings reveal that female respondents generally showed low to mild engagement in image-based social media behaviors, prioritizing authentic self-expression over validation through likes or comments, and exercising caution in oversharing (Thompson et al., 2020; Khajuria et al., 2025). They also reported low levels of comparison-based behaviors, rarely comparing themselves to influencers or idealized beauty standards, though mild feelings of inadequacy about their past selves reflected personal reflection rather than external envy (Meier & Johnson, 2022; Liu et al., 2024; Verduyn et al., 2020; Samra et al., 2022; Better Help, 2025). In terms of belief-based behaviors, participants showed very low engagement with negative content, avoiding conflictual topics and instead seeking positive, neutral, and supportive interactions (Schone et al., 2023). Finally, consumption-based behaviors were moderate to high, with social media primarily used for entertainment and inspiration through passive browsing and video watching, consistent with global usage trends (Panjrath, 2021; American Psychological Association, 2023; Karam, 2023; Liu et al., 2022). Overall, the respondents demonstrated a mindful and emotionally balanced use of social media, emphasizing authenticity, positivity, and intentional content consumption over comparison, validation, or negativity.

Extent of Self-Concept

The results in Table 2 reveal a grand mean of 3.20 (SD = 0.330), which corresponds to a moderately high interpretation. Among the items, test item number 4 obtained the highest mean score (M = 4.12, SD = 0.825), interpreted as high, indicating that participants demonstrated loyalty and the capacity to keep secrets and maintain confidentiality when necessary. In contrast, item number 7, a negatively phrased statement, recorded the lowest mean score (M = 2.42, SD = 0.843), interpreted as low. This finding suggests that participants had not yet fully achieved their life goals, likely since many were still in their academic years.

Table 2

Descriptive Statistics of Self-Concept

Statements	Mean	SD	Scale	Verbal Interpretation
I am satisfied with what I am achieving in my life.	3.56	0.931	Agree	High
If I'm feeling down, I find it hard to snap out of it.	2.67	0.791	Undecided	Undecided
So far, I have achieved every important goal I have set myself.	3.21	0.857	Undecided	Undecided

{table continues on the next page}

I am a trustworthy person.	4.12	0.825	Agree	High
To do anything, I first need other people's approval.	2.75	1.016	Undecided	Undecided
I consider myself to be a very uptight and highly strong person.	3.31	0.819	Undecided	Undecided
I have yet to achieve anything I consider to be important in my life	2.42	0.843	Disagree	Low
I am a man/woman of my word.	3.96	0.851	Agree	High
I find it hard to embark on anything without other people's support.	2.79	0.854	Undecided	Undecided
I am more sensitive than most people.	2.61	0.959	Undecided	Undecided
I have always overcome any difficulties I have encountered in my life.	3.58	0.885	Agree	High
When taking a decision, I depend too much on other people's opinions.	3.08	1.062	Undecided	Undecided
If I could start my life over again, I would not change very much.	3.11	0.987	Undecided	Undecided
I find it difficult to take decisions on my own.	2.91	0.973	Undecided	Undecided
I am an emotionally strong person.	3.42	0.958	Undecided	Undecided
I feel proud of how I manage my life.	3.80	0.878	Agree	High
I suffer too much when something goes wrong.	2.54	0.922	Undecided	Undecided
My promises are sacred.	3.71	0.858	Agree	High
Grand Mean	3.20	0.330	Undecided	Undecided

Scoring System: 1.00–1.49 Totally Disagree/Very Low; 1.50–2.49 Disagree/Low; 2.50–3.49 Undecided/Undecided; 3.50–4.49 Agree/High; 4.50–5.00 Totally Agree/Very High

While many expressed positivity about their achievements, some felt they had yet to reach important goals, likely due to ongoing studies (Lieberman, 2023; Morsink et al., 2022). Honesty was rated highly, reflecting strong integrity, trustworthiness, and the value placed on keeping promises, though honesty also brings pressure to maintain high standards (Kanngiesser, 2023; Do et al., 2021). Autonomy was moderately high, with respondents sometimes relying on external validation and needing support in decision-making (Camilleri, 2023; Cherry, 2024; Appel, 2024). Emotional self-concept showed moderate sensitivity and strength in emotion management, though some participants struggled with recovering from low moods, emphasizing the need for emotional resilience and supportive environments (Zaid et al., 2021; Dong et al., 2023; Wang et al., 2024).

Extent of Emotional Regulation Difficulty

Table 3 shows that participants generally experienced moderately high difficulties in emotion regulation with an overall mean score of 2.89 (SD = 0.736). Among the items, the highest mean score was observed in item number 3 (M = 3.32, SD = 1.064), indicating that respondents often struggled to identify and understand their emotions in various situations. Conversely, item number 6 received the lowest mean score (M = 2.42, SD = 1.145), suggesting that participants were more likely to associate feelings of being upset with symptoms of depression.

Table 3

Descriptive Statistics of Emotional Regulation Difficulty

Statements	Mean	SD	Scale	Verbal Interpretation
I have difficulty making sense out of my feelings	2.77	0.887	Half the time	Moderate
I am confused about how I feel	2.91	0.962	Half the time	Moderate
When I am upset, I have difficulty getting work done	3.32	1.064	Half the time	Moderate
When I am upset, I become out of control	2.76	1.089	Half the time	Moderate
When I am upset, I believe that I will remain that way for a long time	2.68	1.093	Half the time	Moderate
When I am upset, I believe that I'll end up feeling very depressed	2.42	1.145	Sometimes	Low
When I am upset, I have difficulty focusing on other things	3.17	1.173	Half the time	Moderate
When I am upset, I feel out of control	2.79	1.162	Half the time	Moderate
When I am upset, I feel ashamed with myself for feeling that way	3.05	1.170	Half the time	Moderate
When I am upset, I feel like I am weak	2.93	1.222	Half the time	Moderate
When I am upset, I have difficulty controlling my behaviors	2.70	1.126	Half the time	Moderate
When I am upset, I believe that there is nothing I can do to make myself feel better	2.59	1.179	Half the time	Moderate
When I am upset, I become irritated with myself for feeling that way	3.08	1.206	Half the time	Moderate
When I am upset, I start to feel very bad about myself	2.93	1.134	Half the time	Moderate
When I am upset, I have difficulty thinking about anything else	2.97	1.060	Half the time	Moderate
When I am upset, my emotions feel overwhelming	3.21	1.100	Half the time	Moderate
Grand Mean	2.89	0.736	Half the time	Moderate

Scoring System: 1.00 - 1.49 Almost never /Very Low; 1.50 - 2.49 Sometimes /Low; 2.50 - 3.49 Half the time / Moderate; 3.50 - 4.49 Most of the time /High; 4.50 - 5.00 Almost always /Very High

The findings in Table 3 suggest that female respondents experience moderately high difficulties in multiple domains of emotion regulation. In the area of non-acceptance (M = 2.93–3.08), they tend to avoid confronting distressing emotions, a pattern that temporarily reduces stress but fosters maladaptive coping and heightened shame, guilt, or anxiety (Wang, 2024; Ziegler, 2021; Scott, 2024; Lener, 2021). Difficulties in goal-directed behavior (M = 2.97–3.32) indicate struggles with focus and task completion when upset, often linked to relational problems and cognitive impairments like sleep disturbances (Herres et al., 2021; Suni, 2023).

Impulse control issues (M = 2.76–3.17) highlight susceptibility to emotionally driven actions, undermining decision-making and associated with disorders such as bipolar and borderline personality disorders (Chan et al., 2023; Eskandar et al., 2020; Pearlstein et al., 2019; Cho & Kim, 2025). Limited access to emotion regulation strategies (M = 2.77–2.91) reflects confusion in identifying emotions and connections to depressive symptoms, emphasizing the need for interventions like cognitive reappraisal (Atta et al., 2024; Kim et al., 2024; Rodriguez, 2020). Finally, lack of emotional clarity (M = 2.42–3.21) points to beliefs that emotions are uncontrollable, though respondents recognize depressive moods as

temporary. This factor is particularly important, as poor clarity is associated with impulsivity, PTSD, and binge eating, whereas higher clarity supports life satisfaction and reduced social anxiety (Calleja-Nuñez et al., 2023; Walenda, 2021).

Facial Dysmorphia Symptoms

The results in Table 4 reveal that respondents were somewhat affected by societal and facial beauty standards, as well as by challenges in self-perception. The grand mean of 2.49 (SD = 0.493) indicates a generally low level of impact, suggesting that while these concerns are recognized, they are not strongly experienced by most participants. Item number 9 obtained the highest mean score (M = 3.01, SD = 1.122), which falls under a moderately high interpretation, implying that some respondents perceive their appearance as influencing their sense of identity. In contrast, item number 6 had the lowest mean score (M = 2.14, SD = 1.010), reflecting a low level of agreement. Overall, the findings suggest a diverse range of experiences, with some participants being more affected by societal facial beauty ideals than others.

Table 4

Descriptive Statistics of Body Dysmorphia

Statements	Mean	SD	Scale	Verbal Interpretation
How often do you deliberately check your feature(s)? Not accidentally catch sight of it. Please include looking at your feature in a mirror or other reflective surfaces like a shop window or looking at it directly or feeling it with your fingers	2.68	1.034	Somewhat	Moderate
To what extent do you feel your feature(s) are currently ugly, unattractive or 'not right'?	2.61	0.964	Somewhat	Moderate
To what extent do your feature(s) currently cause you a lot of distress?	2.38	0.848	Slightly	Low
How often do your feature(s) currently lead you to avoid situations or activities?	2.77	1.189	Somewhat	Moderate
To what extent do your feature(s) currently preoccupy you? That is, you think about it a lot and it is hard to stop thinking about it?	2.27	0.864	Slightly	Low
If you have a partner, to what extent does your feature(s) currently influence your relationship with an existing partner? (e.g., affectionate feelings, number of arguments, enjoying activities together). If you do not have a partner, to what extent does your feature(s) currently influence dating or developing a relationship?	2.14	1.010	Slightly	Low
To what extent do your feature(s) currently interfere with your ability to work or study, or your role as a homemaker? (Please rate this even if you are not working or studying we are interested in your ability to work or study.)	2.31	0.994	Slightly	Low
To what extent does your feature(s) currently interfere with your social life? (with other people, e.g., parties, pubs, clubs, outings, visits, home entertainment).	2.23	0.892	Slightly	Low
To what extent do you feel your appearance is the most important aspect of who you are?	3.01	1.122	Somewhat	Moderate
Grand Mean	2.49	0.493	Slightly	Low

Scoring System: 1.00 - 1.49 Not at all/Very Low; 1.50 - 2.49 Slightly/Low; 2.50 - 3.49 Somewhat/ Moderate; 3.50 - 4.49 Quite a bit/High; 4.50 - 5.00 Very much/Very High

The results from Table 9 show that facial dysmorphia items 3, 5, 6, 7, and 8 had mean scores ranging from 2.14 to 3.01, generally interpreted as low, while items 1, 2, 4, and 9 were moderately interpreted, indicating some female respondents experience mild dissatisfaction and occasionally check their facial features. This aligns with findings by Ratan et al. (2021), who noted that women are more prone to mirror anxiety, especially those with dermatological conditions (Schut et al., 2022). Although most participants reported a low impact of dysmorphia symptoms, some may experience noticeable distress affecting social and daily functioning (Kilpela, 2019; Demosthenous, 2021). The results suggest that while dysmorphia symptoms are not overwhelming, appearance remains a significant concern. Thus, promoting self-awareness and addressing dysmorphia symptoms through medical and psychological interventions is important to prevent worsening insecurities and improve self-esteem (Pop, 2022).

Relationship Between Social Media Usage, Self-Concept, and Emotional Regulation Difficulty with Facial Dysmorphia

Table 5 presents the correlations among social media usage, self-concept, emotional regulation difficulty, and facial dysmorphia. Social media usage ($r = .294$, $p < .001$) and emotional regulation difficulty ($r = .288$, $p < .001$) were both positively and significantly associated with facial dysmorphia, indicating that greater social media engagement and higher difficulty in regulating emotions are linked to increased symptoms of facial dysmorphia. In contrast, self-concept was negatively and significantly correlated with facial dysmorphia ($r = –.207$, $p = .002$), suggesting that individuals with a stronger self-concept tend to report lower levels of facial dysmorphia.

Table 5

Correlation Between Social Media Usage, Self-Concept, and Emotional Regulation Difficulty with Facial Dysmorphia

		Facial Dysmorphia	Verbal Interpretation
Social Media Usage	r	0.294***	Significant
	p	<.001	
Self-Concept	r	-0.207***	Significant
	p	0.002	
Emotional Regulation Difficulty	r	0.288***	Significant
	p	<.001	

** p < .05, ** p < .01, p < .001*

Table 5 shows a significant but weak positive correlation between social media usage and facial dysmorphia ($r = 0.294$, $p < .001$), indicating that while social media influences dysmorphia symptoms, respondents were not overly preoccupied with it. This aligns with findings by Usman and Punzalan (2024), who noted social media's impact on mental health, especially through activities like posting and editing photos, which can heighten body dissatisfaction and anxiety (Raj et al., 2022; Buali et al., 2024). Additionally, a significant negative correlation exists between self-concept and facial dysmorphia ($r = -0.207$, $p = .002$), suggesting that lower self-concept relates to increased dysmorphia symptoms, consistent with research highlighting how distorted self-image fuels distress and mental health issues (Narang & Kaushik, 2024; Singh et al., 2021). Emotional regulation difficulty also showed a significant positive correlation with facial dysmorphia ($r = 0.288$, $p < .001$), emphasizing that poor emotional regulation exacerbates dysmorphia symptoms (Mohajerin, 2019; Atta et al., 2024). Together, these findings underscore the interconnectedness of social media use, self-concept, and emotional regulation in influencing facial dysmorphia, highlighting the need for therapeutic interventions that promote healthy self-image and emotional coping strategies.

Predictors of Facial Dysmorphia Symptoms

Table 6 shows that social media usage (β =0.264, t = 4.075, and p < 0.000) had a 0.86% variance in facial dysmorphia symptoms. The result contradicts the hypothesis because it implies that social media usage predicts facial dysmorphia symptoms. A positive Beta value indicates that as social media usage increases, facial dysmorphia symptoms are likely to increase as well.

Table 6

Predictors of Facial Dysmorphia Symptoms

	Unstandardized Coefficients		Standardized Coefficients			Model Summary							
Model	B	Std. Error	Beta	T	Sig	R	R^2	Adjusted R^2	R^2 Change	F Change	df1	df2	Sig. F Change
2(Constant)	2.791	.346		8.073	.000								
Social Media Usage	.123	.030	.264	4.075	.000	.294[a]	.086	.082	.086	20.921	1	221	.000
Self-Concept	-.232	.096	-.156	-2.409	.017	.332[a]	.110	.102	.023	5.805	1	220	.017

a. Dependent Variable: Facial Dysmorphia

The study emphasizes that excessive social media use worsens appearance distortion and psychological distress, increasing interest in cosmetic surgery and dysmorphia symptoms, supported by Anciete and Mabulay (2024), Losorelli (2025), and Gupta et al. (2023). Furthermore, self-concept negatively predicts facial dysmorphia symptoms (β = -0.232, p = 0.017), meaning lower self-concept is linked to greater dysmorphia severity, highlighting the need for interventions that improve self-esteem and body image (Silence, 2022; Jacobson, 2025). Although both social media usage and self-concept significantly predict facial dysmorphia, their combined explanatory power is modest, suggesting other factors also contribute to the condition.

Predictors of Emotional Regulation Difficulty

Table 7 shows that social media usage (β = –.333, p < .001) significantly predicts emotional regulation difficulty, accounting for 15.7% of the variance. This finding underscores the importance of fostering digital literacy and coping strategies to mitigate its impact (Giordano et al., 2022; Mahood, 2024; Fang et al., 2025). Similarly, self-concept (β = –.331, p < .001) explains 26.3% of the variance in emotional regulation difficulty, indicating that lower self-concept is associated with greater difficulties in emotion regulation.

Table 7

Predictors of Emotional Regulation Difficulty

	Unstandardized Coefficients		Standardized Coefficients			Model Summary							
Model	B	Std. Error	Beta	T	Sig	R	R^2	Adjusted R^2	R^2 Change	F Change	df1	df2	Sig. F Change
2(Constant)	4.448	.473		9.406	.000								
Social Media Usage	-.742	.132	-.333	-5.646	.000	.397[a]	.157	.153	.397[a]	41.239	1	221	.000
Self-Concept	.232	.041	.331	5.610	.000	.513[b]	263	256	.513[b]	31.471	1	220	.000

a. Dependent Variable: Emotional Regulation Difficulty

The results highlight the need for interventions aimed at strengthening self-esteem and self-worth (Oz & Kivrak, 2023; Antunes et al., 2021; Cristofanelli et al., 2024). Overall, both social media usage and self-concept are significant predictors of emotional regulation difficulty, with self-concept exerting a stronger influence.

Emotional Regulation Difficulty as Predictor of Facial Dysmorphia Symptoms

Table 8 shows unstandardized coefficients (B = 0.193, standardized coefficient β = 0.288, t value = 4.486) and 0.83% of variance indicates that the prediction of emotional regulation difficulty is linked to facial dysmorphia. Which was contrast to hypothesis because the positive Beta value indicates that as emotional regulation difficulty increases, facial dysmorphia symptoms are likely to increase as well.

Table 8

Emotional Regulation Difficulty Predicts Facial Dysmorphia Symptoms

	Unstandardized Coefficients		Standardized Coefficients			Model Summary						
Model	B	Std. Error	Beta	T	Sig	R	R^2	Adjusted R^2	F Change	df1	df2	Sig. F Change
1(Constant)	1.932	.128		15.040	.000	.288[a]	.083	.079	20.120	1	222	.000
Difficulty in Emotional Regulation	.193	.043	.288	4.486	.000							

a. Dependent Variable: facial dysmorphia symptoms

In conclusion, emotional regulation difficulty is a statistically significant predictor of facial dysmorphia symptoms, though it explains only a small portion of the variance (facial dysmorphia symptoms = 1.932 + 0.193 × emotional regulation difficulty). Supporting this, Pederson (2022) described emotion dysregulation as the inability to manage intense feelings like anxiety and sadness, which is linked to depression and psychological problems including dysmorphia (Boullion et al., 2021; Elkholy et al., 2024; Taccini et al., 2024). Overall, social media usage and self-concept significantly predict both facial dysmorphia symptoms and emotional regulation difficulty, with self-concept having the strongest effect on emotional regulation, while social media usage impacts both emotional regulation difficulty and facial dysmorphia symptoms.

Mediating Effects Emotional Regulation Difficulty in the Relationship of Social Media Usage and Self-Concept on Facial Dysmorphia

Table 9 shows the mediating role of Emotional Regulation Difficulty (ERD) in the relationship between Social Media Usage (SMU), Self-Concept (SC), and Facial Dysmorphia (FD). ERD has a significant direct effect on FD (M = 0.205, T = 3.336, p = 0.001), confirming it as a key contributing factor. Self-concept predicts ERD both directly (M = -0.335, T = 4.729, p < 0.001) and indirectly (M = -0.069, T = 2.546, p = 0.011), showing that lower self-concept increases ERD, which in turn worsens FD (Namadmaliani et al., 2025). Social media usage also shows strong total, direct, and indirect effects on ERD (e.g., M = 0.067, T = 2.998, p = 0.003), indicating that higher usage intensifies regulation problems linked to FD. In addition, SMU directly predicts FD (M = 0.215, T = 3.125, p = 0.002). Overall, the findings highlight that both lower self-concept and higher social media use worsening emotional regulation, which in turn contributes to facial dysmorphia.

Table 9

Mediating Effect of Emotional Regulation Difficulty in the Relationship of Social Media Usage and Self-Concept on Facial Dysmorphia

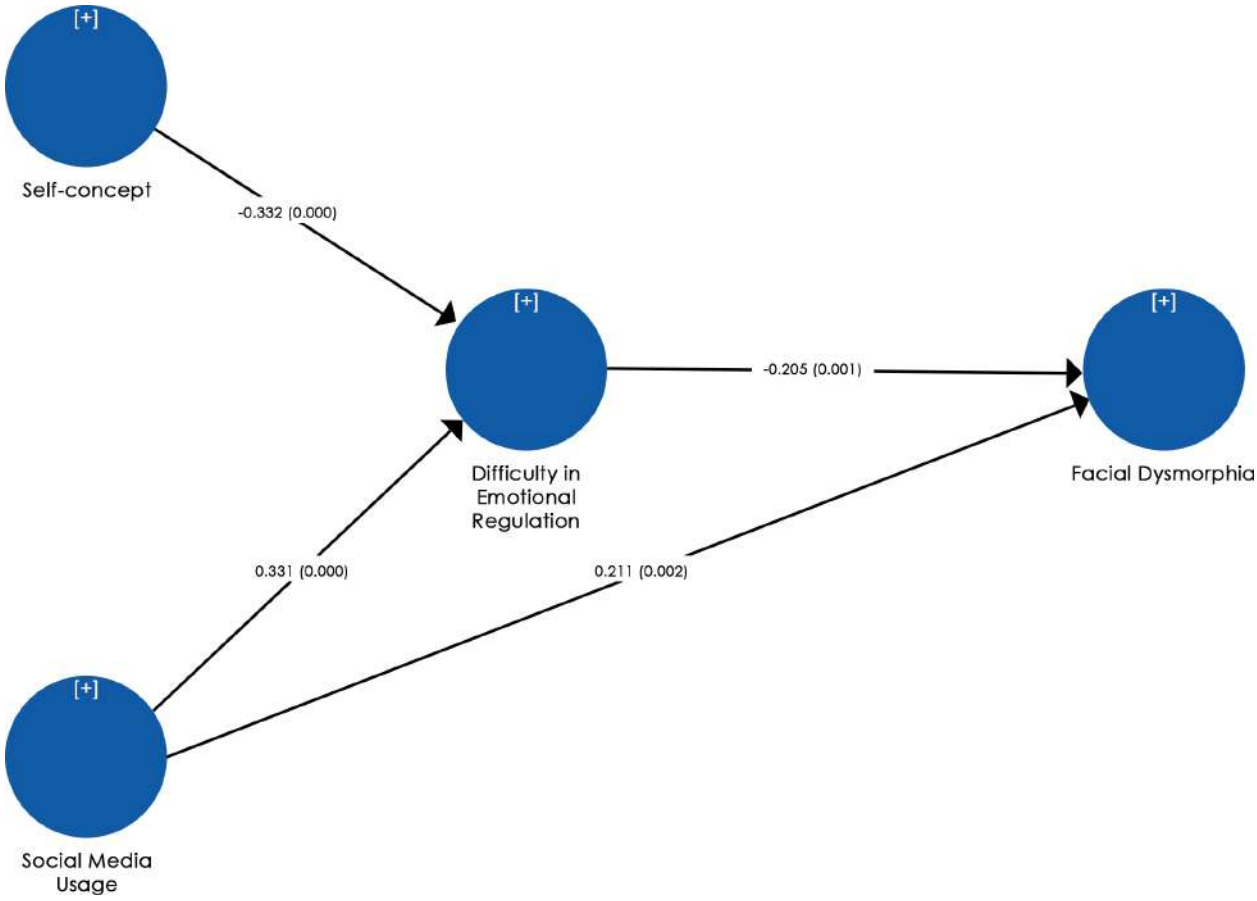
	Total Effects				Direct Effects				Indirect Effects			
	Mean	SD	T	P	Mean	SD	T	P	Mean	SD	T	P
ERD->FD	0.205	0.061	3.336	0.001	0.205	0.061	3.336	0.001				
SC_->ERD	-0.335	0.07	4.729	0.000	-0.335	0.07	4.729	0.000	-0.069	0.027	2.546	0.001
SMU->ERD	0.331	0.062	5.343	0.000	0.331	0.062	5.343	0.000	0.067	0.023	2.998	0.003
SMU->FD	0.282	0.065	4.297	0.000	0.215	0.068	3.125	0.002				
SC->FD	-0.069	0.027	2.546	0.011								

Legend: ERD = Emotional Regulation Difficulty; SC=Self-Concept; SMU = Social Media Usage, FD = Facial Dysmorphia

Figure 2 depicts the result that implies interventions focused on improving emotional regulation could potentially mitigate the control of social media and negative self-concept on facial dysmorphia. Lastly, this model suggests that emotional regulation plays a crucial intervening role between social media use, self-concept, and facial dysmorphia.

Figure 2

Mediating Effect of Emotional Regulation Difficulty in the Relationship of Social Media Usage and Self-Concept on Facial Dysmorphia



The path analysis reveals significant interconnections among self-concept, social media usage, emotional regulation difficulty, and facial dysmorphia symptoms. Emotional regulation difficulty negatively correlates with self-concept (coefficient = -0.332, p = 0.000), indicating that poor emotion regulation lowers self-concept, while social media usage positively correlates with emotional regulation difficulty (coefficient = 3.331, p = 0.000), suggesting increased social media use worsens emotional dysregulation. Facial dysmorphia is positively related to both emotional regulation difficulties (coefficient = 0.001, p = 0.205) and social media usage (coefficient = 0.211, p = 0.002), implying that greater emotional dysregulation and more social media exposure contribute to facial dysmorphia symptoms. Importantly, no direct correlation was found between self-concept and facial dysmorphia, highlighting emotional regulation difficulty as a key mediating factor. Supporting studies (Antunes et al., 2021; McAlister, 2024; Boullion et al., 2021; Rizwan et al., 2020; Namadmaliani et al., 2023) emphasize the vital role of emotional regulation and self-concept in mental health and dysmorphia, suggesting that improving emotional regulation rather than restricting social media could better address these issues.

Discussion

The study revealed that many female adults experience emotional regulation difficulties, which affect their ability to process and respond to emotions effectively. Social media usage among respondents was generally limited and viewed primarily as entertainment, with users avoiding negative content and favoring neutral or supportive interactions. Participants demonstrated a moderate self-concept, reflecting qualities such as loyalty and confidentiality. Although facial dysmorphia symptoms were low, they were present, indicating some influence of societal beauty standards on self-perception. The relationships among social media usage, self-concept, and emotional regulation difficulty were significant but not strong; social media use and emotional regulation difficulty positively correlated with facial dysmorphia, while self-concept had a protective, negative correlation. Demographic factors such as age and economic status did not significantly impact facial dysmorphia symptoms, suggesting other variables play a larger role. Emotional regulation difficulty was identified as a key mediator between social media usage, self-concept, and facial dysmorphia.

The findings indicate that both social media usage and self-concept significantly predict facial dysmorphia symptoms and emotional regulation difficulty, with emotional regulation difficulty itself also predicting facial dysmorphia. While social media use and self-concept explain only a modest portion of facial dysmorphia variance, they have a stronger explanatory effect on emotional regulation difficulty, particularly self-concept. The results underscore a mediated pathway where social media use and lower self-concept contribute to facial dysmorphia through increased emotional regulation difficulties. However, other unmeasured factors likely influence facial dysmorphia, and emotional regulation difficulty, though important, is not the sole determinant of its development.

It is recommended that educational institutions initiate programs to raise awareness among students and parents about social media use, self-concept, emotional regulation, and facial dysmorphia. Schools should promote healthy and mindful social media habits through digital literacy initiatives and launch body positivity campaigns spanning from adolescence through tertiary education to prevent negative self-image issues. Administrators should also provide targeted educational efforts to maintain awareness of facial dysmorphia. Further research is encouraged to explore the mediating role of emotional regulation difficulty in younger female populations, investigate the influence of demographic factors, and expand studies into private university settings. Additionally, mental health programs emphasizing emotional regulation skills are advised to support overall well-being and reduce risks associated with facial dysmorphia.

References

American Psychological Association (2023, February 23). Reducing social media use significantly improves body image in teens, young adults. https://www.apa.org/news/press/releases/2023/02/social-media-body-image

Anciete, A., & Mabulay, E. (2024). Scrolling to self-doubt: Unraveling the connection between social media and body dysmorphic disorder. *A Journal Analysis Presented as a Final Requirement for Clinical Psychology*. https://www.researchgate.net/publication/381046346

Antunes, A. V., Santos, C., Oliveira, P., & Almeida, T. C. (2021). Do difficulties in emotion regulation impact self-esteem and adult attachment? – The role of trauma. *Annals of Medicine, 53*(Suppl. 1), S159–S160. https://doi.org/10.1080/07853890.2021.1896150

Appel, H., Krasko, J., Luhmann, M., & Gerlach, A. (2024, June). Intolerance of uncertainty predicts indecisiveness and safety behavior in real-life decision making: Results from an experience sampling study. *Journal of Research in Personality, 110*, 104490. https://doi.org/10.1016/j.jrp.2024.104490

Atta, M. H. R., El-Gueneidy, M. M., & Lachine, O. A. R. (2024). The influence of an emotion regulation intervention on challenges in emotion regulation and cognitive strategies in patients with depression. *BMC Psychology, 12*(1), 496. https://doi.org/10.1186/s40359-024-01949-6

BetterHelp. (2025, January 9). *Comparing yourself to others on social media: Social comparison and mental health.* https://www.betterhelp.com/advice/general/how-does-comparing-yourself-to-others-on-social-media-impact-your-mental-health/

Boullion, G. Q., Witcraft, S. M., Schadegg, M. J., Perry, M. M., & Dixon, L. J. (2021). Emotion regulation difficulties and depression among individuals with dermatological and body dysmorphic concerns. *The Journal of Nervous and Mental Disease, 209*(9), 650–655. https://doi.org/10.1097/NMD.0000000000001355

Calleja-Nuñez, J. J., Granero-Gallegos, A., Espinosa-Guitierrez, R., & Baños, R. (2023, October 2). Mediating effect of social interaction anxiety between emotional intelligence and life satisfaction in physical education students: Post-COVID-19 study. *Frontiers in Psychology, 14*, 1284664. https://doi.org/10.3389/fpsyg.2023.1284664

Camilleri, A. R. (2023). An investigation of big life decisions. *Judgment and Decision Making, 18*, e32. https://doi.org/10.1017/jdm.2023.30

Chan, C. C., Alter, S., Hazlett, E. A., Shafritz, K. M., Yehuda, R., Goodman, M., Haznedar, M. M., & Szeszko, P. R. (2023). Neural correlates of impulsivity in bipolar disorder: A systematic review and clinical implications. *Neuroscience and Biobehavioral Reviews, 147*, 105109. https://doi.org/10.1016/j.neubiorev.2023.105109

Cherry, K. (2024, May 21). How social comparison theory influences our views on ourselves. Verywell Mind. https://www.verywellmind.com/what-is-the-social-comparison-process-2795872

Cherry, K. (2024, July 29). What is self-concept? Verywell Mind. https://www.verywellmind.com/what-is-self-concept-2795865

Cho, J., & Kim, H. (2025). The role of impulsivity and emotional dysregulation in smartphone overdependence explored through network analysis. *Scientific Reports, 15*, 1852. https://doi.org/10.1038/s41598-025-85680-1

Cleveland Clinic. (2022, June 29). What is facial dysmorphia? Cleveland Clinic. https://health.clevelandclinic.org/facial-dysmorphia

Cristofanelli, S., Testa, S., Centonze, E., Baccini, G., Toniolo, F., Vavalle, V., & Ferro, L. (2024). Exploring emotion dysregulation in adolescence and its association with social immaturity, self-representation, and thought process problems. *Frontiers in Psychology, 15*, 1320520. https://doi.org/10.3389/fpsyg.2024.1320520

Demosthenous, N. (2021, July 17). The rise in facial dysmorphia and appearance anxiety. *Etrevous*. https://www.etrevous.com/blogs/health/wellness/the-rise-in-facial-dysmorphia-and-appearance-anxiety

Do, J. H., Kang, S. W., & Choi, S. B. (2021). The effect of perceived supervisor-subordinate congruence in honesty on emotional exhaustion: A polynomial regression analysis. *International Journal of Environmental Research and Public Health, 18*(17), 9420. https://doi.org/10.3390/ijerph18179420

Dong, Y., Li, Y., Xiang, X., Xiao, Z. C., Hu, J., Li, Y., Li, H., & Hu, H. (2023). Stress relief as a natural resilience mechanism against depression-like behaviors. *Neuron, 111*(23), 3789–3801.e6. https://doi.org/10.1016/j.neuron.2023.09.004

Elkholy, O., Rady, A., & Sakr, R. R. A. (2024, April). The prevalence of body dysmorphic disorder in Alexandria University medical students. *Alexandria Medical Journal, 1*(6), 2. https://doi.org/10.21608/alexpo.2024.281557.1821

Eskander, N., Limbana, T., & Khan, F. (2020). Psychiatric comorbidities and the risk of suicide in obsessive-compulsive and body dysmorphic disorder. *Cureus, 12*(8), e9805. https://doi.org/10.7759/cureus.9805

Fang, Y., Zha, R., Li, J., & Lv, X. (2025). Bridging social media addiction and emotional dysregulation in adolescents: A neurobiological perspective. *Preprints*. https://doi.org/10.20944/preprints202502.0706.v1

Giordano, A., Schmit, M., & McCall, J. (2022, November 21). Exploring adolescent social media and internet gaming addiction: The role of emotion regulation. *Journal of Addiction & Offender Counseling, 44*(1), 27–39. https://doi.org/10.1002/jaoc.12116

Gupta, M., Jassi, A., & Krebs, G. (2023). The association between social media use and body dysmorphic symptoms of young people. *Frontiers in Psychology, 14*, 1231801. https://doi.org/10.3389/fpsyg.2023.1231801

Herres, J., James, K. M., Bounoua, N., Krauthamer Ewing, E. S., Kobak, R., & Diamond, G. S. (2021). Anxiety-related difficulties in goal-directed behavior predict worse treatment outcome among adolescents treated for suicidal ideation and depressive symptoms. *Psychotherapy, 58*(4), 523–532. https://doi.org/10.1037/pst0000391

Jacobson, R. (2025, January 14). Social media and self-doubt. *Child Mind Institute*. https://childmind.org/article/social-media-and-self-doubt/

Kanngiesser, P., Serko, D., & Woike, J. (2023, March 6). Promises on the go: A field study on keeping one's word. *Frontiers in Psychology, 14*, 1097239. https://doi.org/10.3389/fpsyg.2023.1097239

Karam, J. M., Bouteen, C., Mahmoud, Y., Tur, J. A., & Bouzas, C. (2023). The relationship between social media use and body image in Lebanese university students. *Nutrients, 15*(18), 3961. https://doi.org/10.3390/nu15183961

Kilpela, L. S., Verzijl, C. L., & Becker, C. B. (2021). Body image in older women: A mediator of BMI and wellness behaviors. *Journal of Women & Aging, 33*(3), 298–311. https://doi.org/10.1080/08952841.2019.1692629

Khajuria, A., Gandotra, A., Khajuria, A., Arora, K., Gupta, R. K., Gupta, U., & Babber, S. (2025). Role of social media in the rising body dissatisfaction and dysmorphia among adolescents. *Cureus, 17*(1), e78314. https://doi.org/10.7759/cureus.78314

Kim, J., Chun, J., & Kim, J. (2024). Emotion regulation from a virtue perspective. *BMC Psychology, 12*, 11. https://doi.org/10.1186/s40359-023-01490-y

Laughter, M., Anderson, J., Maymone, M., & Kroumpouzos, G. (2023, January). Psychology of aesthetics: Beauty, social media, and body dysmorphic disorder. *Clinics in Dermatology, 41*(1), 28–32. https://doi.org/10.1016/j.clindermatol.2023.03.002

Lener, M. (2021, March 8). How can we solve the problem of avoidance? *Psychology Today*. https://www.psychologytoday.com/us/blog/a-biopsychosocial-solution/202103/how-can-we-solve-the-problem-of-avoidance

Lieberman, Z. H. (2023). Surgery: An ideal profession. *Proceedings (Baylor University Medical Center), 36*(4), 530–533. https://doi.org/10.1080/08998280.2023.2195334

Liu, M., Kamper-DeMarco, K. E., Zhang, J., Xiao, J., Dong, D., & Xue, P. (2022). Time spent on social media and risk of depression in adolescents: A dose-response meta-analysis. *International Journal of Environmental Research and Public Health, 19*(9), 5164. https://doi.org/10.3390/ijerph19095164

Losorelli, S., Kandathil, C., Wei, M., Meyer, R., & Most, S. (2025, January 24). Association between symptoms of body dysmorphia and social media usage: A cross-generational comparison. *Frontiers in Psychiatry, 15*, 10234. https://doi.org/10.1089/fpsam.2024.0230

Mahood, N., Arehart, N., & Dimanlig, K. (2024, April 9). Emotion regulation and social media motives as mediators of attachment and problematic social media use. *SUNY Geneseo Research Review*.

McAlister, K., Beatty, C., Smith-Caswell, J., Yourell, J., & Huberty, J. (2024). Social media use in adolescents: Bans, benefits, and emotion regulation behaviors. *JMIR Mental Health, 11*, e64626. https://doi.org/10.2196/64626

Meier, A., & Johnson, B. (2022). Social comparison and envy on social media: A critical review. *Current Opinion in Psychology, 45*, 101302. https://doi.org/10.1016/j.copsyc.2022.101302

Mohajerin, B., Bakhtiyar, M., Olesnycky, O., Dolatshahi, B., & Motabi, F. (2019, February 19). Application of a transdiagnostic treatment for emotional disorders to body dysmorphic disorder: A randomized controlled trial. *Journal of Affective Disorders, 245*, 102–110. https://doi.org/10.1016/j.jad.2018.11.058

Morsink, S., Van der Oord, S., Antrop, I., Danckaerts, M., & Scheres, A. (2022). Studying motivation in ADHD: The role of internal motives and the relevance of self-determination theory. *Journal of Attention Disorders, 26*(8), 1139–1158. https://doi.org/10.1177/10870547211050948

Namadmaliani, Z., Johari, R., & Talebzadeh, S. (2025). The relationship between body dysmorphic disorder and emotion regulation in individuals seeking cosmetic surgery: The mediating role of self-concept. *Journal of Otorhinolaryngology and Facial Plastic Surgery, 9*(1), 1–9. https://doi.org/10.22037/orlfps.v9i1.47251

Narang, B., & Kaushik, P. (2024, May 26). Relationship between body dysmorphia and self-esteem in young adults. *The International Journal of Indian Psychology, 12*(2). https://doi.org/10.25215/1202.209

Oz, B., & Kıvrak, A. C. (2023). Evaluation of depression, anxiety symptoms, emotion regulation difficulties, and self-esteem in children and adolescents with obesity. *Archives de Pédiatrie, 30*(4), 226–231. https://doi.org/10.1016/j.arcped.2023.02.003

Panjrath, Y. (2021). "Why them, not me?": A study exploring the impact of following fashion influencers on Instagram on body image satisfaction of adolescent girls and middle-aged women. *International Journal of Psychosocial Rehabilitation, 25*(2). https://doi.org/10.37200/IJPR/V2512/PR320040

Pearlstein, J. G., Johnson, S. L., Modavi, K., Peckham, A. D., & Carver, C. S. (2019). Neurocognitive mechanisms of emotion-related impulsivity: The role of arousal. *Psychophysiology, 56*(2), e13293. https://doi.org/10.1111/psyp.13293

Pederson, T. (2023, February 27). How does social media affect body image? PsychCentral. https://psychcentral.com/health/how-the-media-affects-body-image

Raj, R., Arashpreet, A., Devedi, D., Pantho, S. F. H., Bara, P., & Agnihotri, B. K. (2022). Body dysmorphia and social media impact. *International Journal of Health Sciences, 6*(S3), 3725–3735. https://doi.org/10.53730/ijhs.v6nS3.6604

Ratan, R., Miller, D. B., & Bailenson, J. N. (2022). Facial appearance dissatisfaction explains differences in Zoom fatigue. *Cyberpsychology, Behavior, and Social Networking, 25*(2), 124–129. https://doi.org/10.1089/cyber.2021.0112

Reyes, M. E. S., Tong, A. A. O. A., Cada, S. L. H., Lopez, R. N. A., & Natividad, J. V. L. D. (2025). Body acceptance, body dysmorphia symptoms, and selfie behavior: Unpacking their relationships among Filipinos. *Makara Human Behavior Studies in Asia*. Advance online publication. https://doi.org/10.7454/hubs.asia.1281024

Rizwan, B., Zaki, M., Javaid, S., Jabeen, Z., Mehmood, M., Riaz, M., Maqbool, L., & Omar, H. (2022). Increase in body dysmorphia and eating disorders among adolescents due to social media. *Pakistan BioMedical Journal, 5*(3), 148–152. https://doi.org/10.54393/pbmj.v5i3.205

Samra, A., Warburton, W. A., & Collins, A. M. (2022). Social comparisons: A potential mechanism linking problematic social media use with depression. *Journal of Behavioral Addictions, 11*(2), 607–614. https://doi.org/10.1556/2006.2022.00023

Santiago, C. C., King-Ismael, D., & Reyes, M. E. S. (2023). Body dysmorphia and selfie behavior of Filipino patients with and without mild acne vulgaris: A descriptive cross-sectional study. *Journal of Medicine, University of Santo Tomas, 7*(1), 1112–1122. https://doi.org/10.35460/2546-1621.2022-0042

Schone, J. P., Garcia, D., Parkinson, B., & Goldenberg, A. (2023). Negative expressions are shared more on Twitter for public figures than for ordinary users. *PNAS Nexus, 2*(7), pgad219. https://doi.org/10.1093/pnasnexus/pgad219

Scott, E. (2024, January 12). Avoidance coping and why it creates additional stress. *Verywell Mind*. https://www.verywellmind.com/avoidance-coping-and-stress-4137836

Silence, C., Rice, S. M., & Kourosh, A. S. (2022). *Our Post-Zoom Reflection: Turning Off the Monitor. I*(2), 73–74. https://doi.org/10.1089/fpsam.2021.0355

Suni, E. (2023, July 18). How lack of sleep impacts cognitive performance and focus. *Sleep Foundation*. https://www.sleepfoundation.org/sleep-deprivation/lack-of-sleep-and-cognitive-impairment

Taccini, F., Rossi, A. A., & Mannarini, S. (2024). Understanding the role of self-esteem and emotion dysregulation in victims of intimate partner violence. *Family Process, 63*(4), 2258–2275. https://doi.org/10.1111/famp.12966

Turk, C. B. (2023). A screening proposal for Zoom dysmorphia in virtual setting. *Life, 13*(8), 1678. https://doi.org/10.3390/life13081678

Usman, A. P., & Punzalan, M. G. (2024). Social media use and body dysmorphia among adolescents in Western Mindanao, Philippines: A cross-sectional and case series study. *Asian Journal of Public Health Practice, 1*(1), 9–16. https://doi.org/10.4103/AJPHP.AJPHP_1_24

Van Beugen S, Schut C, Kupfer J, Bewley AP, Finlay AY, Gieler U, Thompson AR, Gracia-Cazaña T, Balieva F, Ferreira BR, Jemec GB, Lien L, Misery L, Marron SE, Ständer S, Zeidler C, Szabó C, Szepietowski JC, Reich A, Elyas A, Altunay IK, Legat FJ, Grivcheva-Panovska V, Romanov DV, Lvov AN, Titeca G, Sampogna F, Vulink NC, Tomás-Aragones L, Evers AWM, Dalgard FJ. (2023). Perceived stigmatization among dermatological outpatients compared with controls: An observational multicentre study in 17 European countries. *European Society for Dermatology and Psychiatry (ESDaP) Study Collaborators*. Acta Derm Venereol. 2023 Jun 22;103:adv6485. doi: 10.2340/actadv.v103.6485. PMID: 37345973; PMCID: PMC10296546.

Verduyn, P., Gugushvili, N., Massar, K., Tan, K., & Kross, E. (2020). Social comparison on social networking sites. *Current Opinion in Psychology, 36*, 32–37. https://doi.org/10.1016/j.copsyc.2020.04.002

Walenda, A., Kostecka, B., Santangelo, P. S., & Kucharska, K. (2021). Examining emotion regulation in binge-eating disorder. *Borderline Personality Disorder and Emotion Dysregulation, 8*, 25. https://doi.org/10.1186/s40479-021-00166-6

Wang, Y., Ran, G., Zhang, Q., & Zhang, Q. (2024). The association between social support and prosocial behavior: A three-level meta-analysis. *PsyCh Journal, 13*(6), 1026–1043. https://doi.org/10.1002/pchj.792

Zaid, S. M., Hutagalung, F. D., Bin Abd Hamid, H. S., & Taresh, S. M. (2021). Sadness regulation strategies and measurement: A scoping review. *PLOS ONE, 16*(8), e0256088. https://doi.org/10.1371/journal.pone.0256088

Zeigler, M. (2022, April 8). What does "avoidance mode" feel like? The association between avoidance awareness and negative affect in the moment. UR Scholarship Repository. https://scholarship.richmond.edu/cgi/viewcontent.cgi?article=2640&context=honors-theses

PSYCHOLOGY

Exploring the Outcomes of Single and Multiple Online Sessions Using Mindfulness Intervention on Adult Mental Health

Gil F. Cacha
Jolly S. Balila
Myrtle O. Grijalvo
Rhalf Jayson F. Guanco
Levy M, Fajanilan

Adventist University of the Philippines
gfcacha@hotmail.com

Abstract

This research investigated the differences between the outcomes of single-session and multiple-session online mindfulness interventions to provide information on both options. The study identified the mental health status of the participants before the intervention, their experiences during the interventions, and the differences in the outcomes of the single and multiple sessions. Six participants underwent the single session, while four participants underwent multiple sessions. Themes were generated from pre-intervention and post-intervention interviews. Participants reported anxiety and worry, depression, suicidal ideation, irritability and anger, loss of sense of purpose and direction, feelings of inadequacy, grief, emotional pain and emotional breakdown, feelings of guilt and regret, overthinking and distraction, and feelings of betrayal. Online multiple sessions proved to be more effective in fostering emotional calmness, mental clarity, and positive thinking because they lasted longer and included more psychoeducation. Emotional calmness was challenging for participants with deep traumatic pain, and struggles with forgiveness prevented shifts to positive thinking. A participant encountered no change due to a difficult situation and resistance to the process. More research on the use of forgiveness and awareness of God's presence and message, and the quantification of the effectiveness of enhanced online single-session mindfulness intervention, is recommended.

Keywords: *online intervention, single-session intervention, mindfulness intervention*

Adult mental health issues have been on the rise. According to the World Health Organization (2022), 12.5% of people worldwide experienced mental disorders in 2019, mostly involving anxiety and depression. In 2020, the prevalence of anxiety and depression rose to 26% and 28%, respectively, because of the pandemic (World Health Organization, 2022). In the Philippines, the Philippine News Agency has reported that at least 3.6 million Filipinos suffer from mental disorders (Mental Health Crisis, 2023).

According to the American Psychological Association (2017), the average number of sessions for 50% of patients to recover is between 15 to 20 sessions. In a study by Chen and Keenan (2021), the time to reliable change was 8 to 10 sessions. Lopes et al. (2015) reported that improvement in major depression could occur after four sessions, while full recovery required about 16 sessions. On the other hand, there have been initiatives to develop single-session interventions. In a study by Harris-Lane et al. (2023), 89.5% of clients received a single session for symptoms of depression and anxiety, with 92% reporting satisfaction. In a study in Italy, Cannistra et al. (2020) found that 90.7% of the clients experienced improvement from the single session, while 45.9% considered it enough with no need for additional sessions. In another study in Canada by Harper-Jaques and Foucault (2014) found that 44% of the clients stated that one session was enough, also reporting high satisfaction.

Though studies have shown that single-session interventions can lead to improvement and client satisfaction, there is still no study directly comparing the outcomes of single-session interventions and multiple-session interventions. Many of these studies involved online interventions, which are growing in both use and preference. There is a need to research the difference between the outcomes of online single-session intervention and online multiple-session intervention to determine the extent to which online single-session intervention can approximate the outcome of online multiple-session intervention. An online mindfulness intervention was used for this research since a study already shows that online ACT-based mindfulness can be applied in single-session interventions (Tze Ping Pan, 2019).

Methodology

Research Design

This study used the qualitative method of multiple case studies to explore and understand the differences in outcomes and experiences between online single-session and online multiple-session mindfulness interventions. The multiple case study approach is well-suited for counseling research because it enhances external validity and generalizability of the findings from the investigation of complex systems and dynamics in their context (Adams, 2022).

Population and Sampling Techniques

The researcher considered four mental health organizations with a possible pool of clients with depression, anxiety, or stress, and four colleagues in corporations with a high probability of having employees with depression, anxiety, or stress. Only one mental health foundation and two colleagues were able to invite participants. Twenty-nine individuals expressed interest, but only ten submitted the required documents. All ten were considered and accepted as research participants since all of them were experiencing depression, anxiety, or stress. Table 1 describes the profile of the participants in detail.

Table 1

Description of Participants

Code	Group	Age	Gender	Location	Depression	Anxiety	Stress
S01	Single Session	28	Male	Agusan Del Norte	Moderate	Moderate	Normal
S02	Single Session	32	Female	Misamis Occidental	Severe	Extremely Severe	Normal

{table continues on the next page}

S03	Single Session	20	Female	Bataan	Extremely Severe	Extremely Severe	Extremely Severe
S04	Single Session	40	Female	Tokyo	Mild	Mild	Normal
S05	Single Session	36	Female	Calabarzon	Mild	Mild	Normal
S06	Single Session	47	Female	Rizal	Extremely Severe	Extremely Severe	Extremely Severe
M01	Multiple Session	44	Female	Laguna	Extremely Severe	Moderate	Moderate
M02	Multiple Session	23	Female	Quezon City	Mild	Extremely Severe	Moderate
M03	Multiple Session	41	Female	Quezon City	Moderate	Severe	Normal
M04	Multiple Session	25	Female	Rizal	Extremely Severe	Extremely Severe	Moderate

Instrumentation

The study used an intake form to collect the basic personal data of the participants. The Depression Anxiety Stress Scales – Short Form (DASS-21) was used to qualify and characterize the participants, as well as assess the degree of stress, anxiety, and depression. Only those with mild to extremely severe depression, anxiety, or stress were included as final participants. A pre-intervention assessment form was administered to describe the mental health of the participants before the online sessions. A Post-intervention Assessment Form was completed by the participants after the single-session and multiple-session activities, capturing their mental health status, experiences during the process, and the challenges they encountered.

Interventions

Six participants underwent the single-session intervention, which consisted of a 10-minute psychoeducation on the protocol, a 45-minute mindfulness exercise, and a 5-minute discussion. The protocol included awareness of breathing and the body, regulation of emotions and thoughts, and compassion through awareness of God's love.

Four participants underwent the online multiple-session intervention, which comprised three sessions. Each session included 30 minutes of psychoeducation, 15 minutes of mindfulness exercise, and 15 minutes of discussion. The first session focused on mindfulness and awareness of breathing and the body, the second on mindfulness and emotional regulation, and the third on mindfulness and compassion.

Data Gathering Procedure

Following approval by the Ethics Review Board, invitations were disseminated through a mental health foundation and professional contacts. The foundation created a Google Form for participant registration and granted the researcher access to the responses, while colleagues provided the contact details of potential participants. The researcher then emailed interested individuals with the informed consent form, intake form, Depression Anxiety Stress Scales – Short Form (DASS-21), and pre-intervention assessment form.

Participants were required to submit the completed forms before scheduling their pre-intervention interviews. During these interviews, the intake and assessment forms were reviewed and clarified, with additional information recorded as necessary. All interviews were audio-recorded for transcription, observation, and analysis.

Upon completion of the interventions, participants submitted a post-intervention assessment form and were interviewed to elaborate on and refine their responses. These interviews were likewise recorded for transcription and analysis. Finally, a member-checking session was conducted to validate the findings and obtain participant confirmation.

Data Analysis

Thematic analysis was employed to analyze the data. Responses to the post-intervention assessment form were uploaded to Google Drive for coding and categorization. Themes were derived from the categories formed through coding, then distilled, summarized, and analyzed about the research questions.

Pre- and post-intervention interviews, which had been recorded, were transcribed and likewise uploaded to Google Drive for coding and categorization. Once categories were identified, themes were extracted to address the research questions.

The emerging themes from the interview transcripts were compared with those from the completed forms to determine whether they confirmed, disconfirmed, or enriched one another. Interview data also provided greater detail to the written responses, while observational notes on participants' non-verbal behavior and reviews of interview recordings served as supporting evidence for the verbal data, particularly about the emerging themes.

Ethical Considerations

The primary ethical considerations in this study were informed consent, voluntary participation, confidentiality, and anonymity. Informed consent was obtained and documented from all participants before the sessions, with the form detailing the study's purpose, procedures, potential risks and benefits, and confidentiality safeguards. Participation was entirely voluntary, and individuals who declined consent or withdrew at any stage were excluded, with their data permanently deleted. To protect identities, aliases were consistently used throughout data collection, transcription, analysis, and reporting. All data, including interview recordings, were stored in a password-protected folder accessible only to the researcher and designated research assistants, ensuring strict confidentiality and anonymity.

Results

Mental Health Status of Participants Before Online Single-Session Mindfulness Intervention

Seven themes emerged regarding participants' mental health status before undergoing the single-session intervention: anxiety and worry, depression, suicidal ideation, irritability and anger, loss of sense of purpose, feelings of inadequacy, and grief. Table 2 presents the distribution of participants per theme with sample verbatim statements (translated).

Table 2

Mental Health Status of Participants Before Online Single-Session Intervention

Theme	Who	Sample Verbatim Statement (Translated)
Anxiety and Worry	S01, S02, S03	(S01) When I try to refocus on my task, I lose my drive to do it. Delay happened. It stressed me. That is the result, I got stressed and it caused me anxiety.
Depression	S02, S06	(S02) I felt depressed. At times, I still think of what happened to me in my previous work where I resigned. I felt sad from time to time upon thinking why it happened. Then there are other factors too like losses in life.
Suicidal Ideation	S05, S06	(S05) I am a quiet person. In October last year, I felt I was at my lowest point; I felt rock bottom. I already had suicidal thoughts at that time.
Irritability and Anger	S01, S03, S04, S05, S06	(S04) I have observed that I tend to be reactive when something terrible is happening around me. It makes me angry. I felt angry.
Loss of Sense of Purpose	S01, S06	(S06) When my father passed away, I lost the person who validated my direction. I lost my sense of purpose. So, what will be my purpose now?
Feelings of Inadequacy	S02, S03, S06	(S03) I felt responsible. I thought it was my fault. I believe that I am the problem, that I lack, that I am not enough.
Grief	S06	(S06) I am the last person he was with. So, it was traumatic for me. My siblings were out of the country. I have so much trauma that I was not able to deal with because I had to take care of the property, the burial, everything. I could not cry during the wake.

Mental Health Status of Participants Prior to Online Multiple-Session Mindfulness Intervention

Eight themes emerged among participants before the multiple-session intervention: anxiety, emotional pain and breakdown, guilt and regret, overthinking and distraction, grief, suicidal ideation, loss of sense of purpose and direction, and betrayal with anger. Table 3 summarizes the participants per theme with sample verbatim statements.

Table 3

Mental Health Status of Participants Before Online Multiple-Session Intervention

Theme	Who	Sample Verbatim Statement (Translated)
Anxiety	M01, M02	(S01) When I try to refocus on my task, I lose my drive to do it. Delay happened. It stressed me. That is the result, I got stressed and it caused me anxiety.
Emotional Pain and Breakdown	M01, M03	(M03) The pain was so deep that I had nightmares.
Feelings of Guilt and Regret	M03, M04	(M04) Because I'm too busy daydreaming. That's one of my biggest problems, I believe, right now. I've just caught myself doing nothing. Well, I am doing something. It's just in my mind, you know? But, physically, I'm not doing anything productive. And after I realize that, I'll just have the sense of regret that, why did I do that? You know?
Overthinking and distraction	M02, M04	(M02) I am overstimulated by different facts about the personal lives of others to whom I compare myself.
Grief	M03	(M03) Specifically, about coping with my grief. During the pandemic, I lost two of my loved ones. It took a toll on my mental health.
Suicidal Ideation	M01	(M01) Even a simple chat from a long-time friend. They will say something that I would feel suicidal after that
Loss of Sense of Purpose and Direction	M02, M03, M04	(M02) Maybe I am behind? What's the right timeline for accomplishing this? Am I on the right path?
Feelings of Betrayal and Anger	M01	(M01) Because the perpetrators were family members of mine, this has loss of trust complete betrayal. It's a betrayal trauma. I went through that, and I have so much distrust. Not only that, but we also became estranged.

Between the two groups, the themes of anxiety, suicidal ideation, anger, loss of sense of purpose, and grief were common. At least half of the participants in both groups reported anxiety, and one in four disclosed suicidal ideation. Loss of purpose was more prevalent in the multiple-session group (75%) compared to the single-session group (33%). Both groups had one participant each who reported betrayal-related anger and grief due to bereavement. Overall, the two groups presented a similar mental health profile, underscoring the relevance of online mindfulness interventions.

Experiences of Participants Engaged in Online Single Mindfulness Interventions

Seven themes emerged for the experiences of participants who engaged in online single mindfulness interventions. They were emotional calmness, mental clarity, development of positive thinking, reduction of anxiety, self-improvement, struggles with forgiveness, and difficulty in and resistance to following techniques. Table 3 presents the key themes that emerged from participants' experiences during the sessions.

Table 4

Participants' Experiences During the Online Single Mindfulness Sessions

Theme	Who	Sample Verbatim Statement (Translated)
Emotional Calmness	S01, S02 S03, S04 S06	(S01) I feel lightened. I feel satisfied. Some of that baggage that I have been carrying has been taken off my shoulders. That's how I feel.
Mental Clarity	S01, S02 S03, S04 S06	(S02) The feeling became light. The negative thoughts and images were eliminated. The feeling is light.
Development of Positive Thinking	S01, S02 S06	(S06) I now retain the positive, that they are bigger than the negative. Before, I had retained negative emotions, which covered up the positive. Now, it is the reverse. I retain more of the positive.
Reduction of Anxiety	S01, S03	(S03) The anxiety attacks were reduced. I can now control them.
Self-improvement	S04, S06	(S04) I do not have that expectation anymore. I will let him be, whatever he may do. But I need to help myself to improve my situation. At the end of the day, I realized that there was nobody else who could help me but me. And I need to make that big effort. If I can exert effort to the important people in my life, I might need to double my effort in working hard on myself.
Struggles with Forgiveness	S03, S06	(S03) I found difficulty during the forgiveness technique – to imagine people in front of you, then forgive them and release the suffering. I felt emotional. I cannot give full forgiveness because it is draining for me. I started to think that I should forgive myself. In this part, I realized that before I forgive others, I need to forgive myself first for what I have done.
Difficulty In and Resistance to Following Techniques	S05	(S05) I do not like to be given instructions. I want it to be natural. I was in a place in where I thought I was being pressured. Do this, do that. Honestly, I was not expecting this type of session for my healing. Based on this, I don't think this is for me.)

Experiences of Participants Engaged in Online Multiple Mindfulness Interventions

Five themes emerged for the experiences of participants engaged in online multiple mindfulness interventions. They experienced emotional calmness, mental clarity, development of positive thinking, struggles with forgiveness, and reduction of grief. Table 5 presents the key themes that emerged from participants' experiences during the sessions.

Table 5

Participants' Experiences During the Online Multiple Sessions

Theme	Who	Sample Verbatim Statement (Translated)
Emotional Calmness	M01, M02 M03, M04	(M01) I remember that at the time, there was a feeling of lightness, a feeling of release. Actually, I don't really remember what I was focusing on. But I felt light afterwards.
Mental Clarity	M01, M03 M04	(M04) Right now, there's more clarity. I'm more aware of my emotions and what's going on and how to actually like control them and be able to make them neutral, not the extreme emotions. So, I can definitely. I feel like I can control them more than before.

{table continues on the next page}

Development of Positive Thinking	M02, M03 M04	(M02) I feel I am validated. I am now comfortable with my feelings rather than brushing them away. I am able to immediately give a positive interpretation or downplay them. I become aware first of what I am feeling. Then I have to fight back against my urge to think it could be worse and to train myself to rethink how I handle thoughts.)
Struggles with Forgiveness	M01, M03	(M03) The hardest to forgive is myself. But I felt that I was able to. It has now become a question of whether you're happy with this one; you may not please everybody, but are you pleased with yourself? Are you pleased with yourself, and are you pleased with your relationship to God, your Heavenly Father? If I know, I feel that I am doing my best to please, not people around me, but to please the Heavenly Father.
Reduction of Grief	M03	(M03) Somehow, in a way, I am excited to remember them. If I feel sad, if I miss them, I can do something about it. Unlike before, when I did not want to remember because I could not handle the pain, the loss, the guilt, and everything else that was negative. But right after the first session, it had helped me a lot.

Comparison of Outcomes Between Online Single Mindfulness and Online Multiple Mindfulness Interventions

Six themes emerged for the comparison of the outcomes between online single sessions and multiple sessions. More participants experienced emotional calmness in multiple sessions. Emotional calmness was challenging for participants with deep traumatic pain; enduring mental clarity sustained more emotional calmness in multiple sessions, positive thinking produced more enduring mental clarity in multiple sessions, struggles in forgiveness prevented a shift to positive thinking, and there was no change due to challenges in place and resistance to the process. Table 6presents the key themes that emerged from comparing participant outcomes between online single-session and multiple-session interventions, with sample verbatim statements.

Table 6

Comparison of Outcomes Between Online Single-Session and Multiple-Session Mindfulness Interventions

Theme	Who	Sample Verbatim Statement (Translated)
More Participants Experienced Emotional Calmness in Multiple Sessions	S01, S04 S06	(S01) Breath and body awareness release all that tension that I have in myself. And it gives me a clearer perspective.
	M01, M02 M03, M04	(M03) At first, I found it difficult in the beginning because it was not my normal breathing pattern. But once I got the hang of it, I was able to release—something really got released out of me. So, it helped me a lot.)
Emotional Calmness Challenging for Participants with Deep Traumatic Pain	M01	(M01) I think I might encounter difficulties when something really big comes and I have to do it myself. That is my concern. During the exercise, it is fine. But when something significant happens, I am not sure.)

{table continues on the next page}

Enduring Mental Clarity Sustained More Emotional Calmness in Multiple Session	S01, S02 S06	(S02) The feeling became light. The negative thoughts and images were eliminated. The feeling is light.
	M02, M03 M04	(M02) I think that after several repetitions, up to the fourth or fifth time, I was able to be less guarded. But it is really a process for me. Once I reached my safe place, I felt heard. At the same time, I felt I wanted to deal with it immediately. I acknowledged I feel like this. I'm in this place. I understand myself. Now, what's next? I wanted to immediately challenge it, or what's a more positive way to think about this?
Positive Thinking Produced Enduring More Mental Clarity in Multiple Sessions	S01, S02 S04, S06	(S06) I now retain the positive, that they are bigger than the negative. Before, I retained the negative emotions, which covered up the positive. Now, it is the reverse. I retain more of the positive.
	M02, M03 M04	(M04) So, although I do have ADHD, before this, I tended to blame myself for having a mental illness. But after the sessions, I don't really blame the illness anymore. The reason why I have this is because it's linked to my trauma. So, all I have to do is focus on healing my trauma. My mental illness is not worse. So, maybe I believe they will be lessened. I feel like as long as I apply what I've learned from my sessions, I believe they'll be lessened—not totally gone because I know it's hard to like heal or cure mental illness, but I think after this, I can finally be more open, or be more forgiving of my illness and be like more understanding that this is, I shouldn't blame myself for the mistakes like I've done.
Struggles in Forgiveness Prevented Shift to Positive Thinking	S03, S06	(S03) I really found difficulty during the forgiveness technique—to imagine people in front of you, then forgive them and release the suffering. I felt emotional. I cannot give full forgiveness because it is draining for me. I started to think that I should forgive myself. In this part, I realized that before I forgive others, I need to forgive myself first for what I have done.
	M01, M03	(M01) For me, forgiveness is the most difficult. It's difficult for me. If it were easy for me, then I would have had success over a lot of my past issues. But it's been a struggle.
No Change Due to Challenge in Place and Resistance to Process	S05	(S05) I do not like to be given instructions. I want it to be natural. I was in a place where I thought I was being pressured. Do this, do that. Honestly, I was not expecting this type of session for my healing. Based on this, I don't think this is for me.)

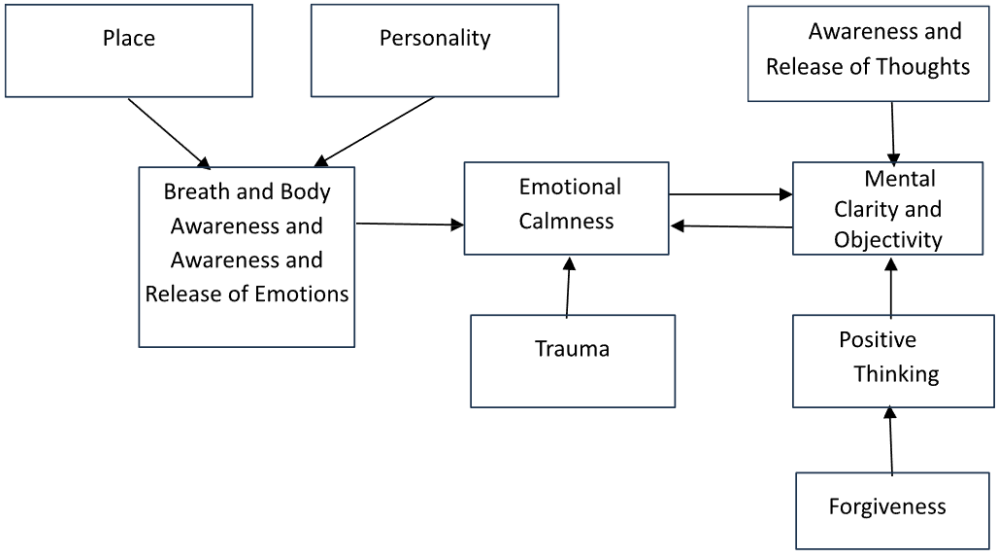
Discussion

Based on the themes generated, Figure 1 is the conceptual framework that emerged. Breath and body awareness, along with the awareness and release of emotions, initially foster emotional calmness, as controlled breathing can regulate emotional states. However, this calmness is often temporary; stressors in daily life may disrupt it, though it can be regained through renewed breathing and emotional release exercises. Emotional calmness, combined with awareness and release of thoughts, contributes to the initial establishment of mental clarity and objectivity. Sustained mental clarity and objectivity, however, require deliberate practice, which in turn supports enduring emotional calmness. Cultivating positive thinking reinforces long-term mental clarity and objectivity.

Several obstacles may impede this mindfulness process. First, the environment and personality traits of the participant affect the ability to engage fully in breath and body awareness; an unconducive setting or a predisposition against mindfulness can prevent emotional calmness. Second, participants with deep trauma may find that breathing awareness triggers painful memories, limiting their emotional regulation. Third, a lack of willingness to forgive oneself or others hinders the development of positive thinking, thereby preventing the establishment of enduring mental clarity.

Figure 1

Emergent Mindfulness Dynamics



This emerging framework aligns with Rational Emotive Behavior Therapy (REBT), which posits that beliefs strongly influence emotional states. Irrational beliefs perpetuate negative feelings when activated by triggering events. Through awareness and release of negative thoughts, along with cognitive reappraisal, participants can replace irrational beliefs with positive ones, thereby generating positive emotions (Sharf, 2012). Integrating REBT principles into mindfulness exercises—particularly in emotional release, forgiveness, and awareness of God's presence and message—enhanced the protocol's effectiveness. Participants learned to forgive themselves and others, fostering positive beliefs about themselves and their relationships, while spiritual reflection provided additional sources of constructive thoughts and beliefs. Mindfulness techniques facilitated the initial emotional calmness, which enabled participants to acknowledge and replace negative thoughts with positive ones, reinforcing mental clarity.

Online multiple-session interventions were more effective in fostering emotional calmness, mental clarity, and positive thinking. The extended duration allowed participants to gradually integrate mindfulness practices into daily life, enhancing stress management and emotional regulation. Multiple sessions also provided deeper psychoeducation, supporting consistent application of mindfulness principles. The success of online mindfulness interventions is influenced by several factors, including the participant's environment, personality traits, and willingness to engage in self-reflection and forgiveness.

This study recommends refining and standardizing online single-session mindfulness interventions as a counseling protocol, conducting quantitative studies to evaluate their effectiveness, and exploring the integration of forgiveness exercises and awareness of God's presence as counseling techniques.

References

Adams, C. R., Barrio-Minton, C. A., Hightower, J., & Blount, A. J. (2022). A systematic approach to multiple case study design in professional counseling and counselor education. *Journal of Counselor Preparation and Supervision, 15*(2). https://research.library.kutztown.edu/cgi/viewcontent.cgi?article=1529&context=jcps

American Psychological Association (2017). How long will it take for treatment to work? *Clinical Practice Guideline for the Treatment of Posttraumatic Stress Disorder*. https://www.apa.org/ptsd-guideline/patients-and-families/length-treatment#:~:text=So%20how%20long%20does%20it,by%20self%2Dreported%20symptom%20measures.

Cannistrà, F., Piccirilli, F., Paolo D'Alia, P., Giannetti, A., Piva, L., Gobbato, F., Guzzardi, R., Ghisoni, A., & Pietrabissa, G. (2020). Examining the incidence and clients' experiences of single session therapy in Italy: A feasibility Study. *Australian & New Zealand Journal of Family Therapy, 41*(3), 271–282. https://doi.org/10.1002/anzf.1421

Chen, B., & Keenan, M. D. (2021). How much therapy is enough? The dose–response effect and its moderators in a psychology training clinic. *Journal of Clinical Psychology, 77*(1), 20–35. https://doi.org/10.1002/jclp.23025

Harper-Jaques, S., & Foucault, D. (2014). Walk-in single-session therapy: Client satisfaction and clinical outcomes. *Journal of Systemic Therapies, 33*(3), 29–49. https://doi.org/10.1521/jsyt.2014.33.3.29

Harris-Lane, L. M., Keeler-Villa, N. R., Bol, A., Burke, K., Churchill, A., Cornish, P., Fitzgerald, S. F., Goguen, B., Gordon, K., Jaouich, A., Lang, R., Michaud, M., Mahon, K. N., & Rash, J. A. (2023). Implementing one-at-a-time therapy in community addiction and mental health centres: A retrospective exploration of the implementation process and initial outcomes. *BMC Health Services Research, 23*(1), 1–13. https://doi.org/10.1186/s12913-023-09923-5

Lopes, R. T., Gonçalves, M. M., Fassnacht, D., Machado, P. P. P., & Sousa, I. (2015). Time to improve and recover from depressive symptoms and interpersonal problems in a clinical trial. *Clinical Psychology & Psychotherapy, 22*(2), 97–105. https://doi.org/10.1002/cpp.1873

Mental health crisis a rising epidemic in PH' – experts. (2023, October 9). *Philippine News Agency*. https://www.pna.gov.ph/articles/1211404

Sharf, R. S. (2012). *Theories of Psychotherapy and Counseling* (5th ed.). Brooks/Cole.

Tze Ping Pang, N., Chung Sheng Tio, V., Singh, A. S. B., Wen Leh Tseu, M., Shoesmith, W. D., Rahim, M. A. A., & Kassim, M. A. M. (2022). Efficacy of a single-session online ACT-based mindfulness intervention among undergraduates in lockdown during the COVID-19 pandemic. *Trends in Psychiatry & Psychotherapy, 44*, 1–9. https://doi.org/10.47626/2237-6089-2020-0172

World Health Organization. (2022). *Mental disorders*. https://www.who.int/news-room/fact-sheets/detail/mental-disorders

PSYCHOLOGY

The Effect of Meditation and Mindfulness in Nature Intervention on Anxiety and Depressive Symptoms of Project-Based Workers

Shy T. Chiefe
Sheryll Ann Castillo
Jolly S. Balila

Adventist University of the Philippines
shychiefe02@gmail.com

Abstract

Employees in projectized organizations face challenges that pose risks to their mental health. Project-based employment can negatively impact workers' well-being due to tight deadlines, job insecurity, and feelings of isolation. This study explores the impact of nature-based meditation and mindfulness on the mental well-being of project-based workers. It assesses changes in anxiety and depressive symptoms using standardized measures on anxiety and depression, the State-Trait Anxiety Inventory for anxiety, and the Beck Depression Inventory for depressive symptoms. Using a quasi-experimental design, participants from a project-based organization were purposively selected and randomly divided into control (n = 25) and experimental (n = 19) groups. Findings indicate that the control group exhibited no significant changes in anxiety or depressive symptoms. In contrast, the intervention group, which practiced nature-based meditation and mindfulness, demonstrated a significant reduction in anxiety from a high level to a moderate level, as well as a decrease in mild mood disturbance. The intervention proved to be highly effective in reducing anxiety levels. Furthermore, the reduced level of anxiety is significantly lower in the intervention group. These results suggest that meditation and mindfulness in natural settings have a statistically significant effect on reducing anxiety and depressive symptoms among project-based workers. This study highlights the need for further research on the mental health challenges associated with different employment structures and underscores the importance of developing workplace programs that promote well-being and work-life balance for project-based employees.

Keywords: *anxiety, depressive symptoms, project-based employment, nature-based meditation, mindfulness, mental well-being*

Project-based employment refers to hiring a qualified worker for a specific project, and employment ends by project completion. It is often seen in construction industries and other areas that need specialized skills within a particular duration or length of time. This kind of employment affects workers' mental well-being due to deadlines, stress from job insecurity, and feelings of loneliness. It requires more working time to finish within the target schedule, and I usually must work away from home. Anxiety and depressive symptoms among project-based workers are high and are the factors that would affect the motivations and attitudes of the employees (Nolan, 2000).

Studies revealed that workers involved in projectized organizations show more mental health concerns than those in non-projectized organizations (Chiocchio, 2010; Nolan, 2000). Role overload (Ahmad & Saud, 2016), long working hours (Chan et al., 2021), and negative feelings are some factors that greatly affect the workers' mental health. There are about 74.1% variations in employee anxiety explained by the role overload (Ahmad & Saud, 2016) that affects workers' concentration and focus. The feeling of having reached the limit of one's ability, sacrificing physical and mental health for a project's success (Lindgren & Packendorff, 2009). Longer working hours (>-72hr per week) had higher odds of developing symptoms of anxiety than those who worked for <-36hr hours per week (odds ratio 5.94, 95% confidence interval [CI]: 1.82-19.41) (Chan et al., 2021). The negative feelings related to the need to maintain the permanent organizational context as another aspect of depression (Lindgren & Packendorff, 2009) and the feeling of loneliness without a companion outside work also affect workers' mental well-being.

In addition, chronic stress may contribute to the development or progression of mental health disorders, specifically anxiety and depression. Approximately 71% of respondents met the criteria for generalized anxiety disorder, and 53% met the criteria for major depressive disorder (Rudolphi et al., 2019). Some factors include tough routines, hectic shifts, and overloaded work.

Given this context, the researcher proposed using nature's healing power to lift up workers' concentration and, most importantly on their mental well-being. A study about a program using the forest environment for university students has shown effects on a decrease in their stress from unemployment and anxiety (Kim et al., 2013). Forest healing programs also improved the psychological well-being in all areas, such as self-confidence, ego, immersion, and joy (Kim et al., 2019). And greatly affected the decrease of PTSD (from 10.65+-12.00 to 5.64+-8.29) and depression (3.21+-4.00 to 2.21+-3.47), and improved mood states (Park et al., 2021).

Aside from above mentioned benefits, using forest therapy can improve the employment status of job security, has a mediating effect on better quality of life, depression, and generalized anxiety (Buono et al., 2021). Despite several studies using forest therapy in improving one's mental well-being, specifically on anxiety and depression, there is no evaluated effect focusing on meditation and mindfulness among project-based workers. This study sought to apply activities using meditation and mindfulness in nature. Specifically, it sought answers to the following research problems:

1. What are the pretest and posttest levels of anxiety and depressive symptoms in the control and intervention groups?
2. Is there a significant difference in the pretest and posttest levels of anxiety and depressive symptoms within the control and intervention groups?
3. Is there a significant difference in the change in anxiety and depressive symptoms between the experimental and control groups?

Methodology

Research Design

The study utilized a quasi-experimental research design with control and intervention groups using pretest and posttest to determine the effect of meditation and mindfulness in nature on the participants' anxiety and depressive symptoms. The changes in the variation of anxiety and depressive symptoms levels before and after the intervention are presumed to be the result of the intervention used by the researcher. It helps the researcher determine the effect of therapy in the controlled group versus the uncontrolled group.

Population and Sampling Technique

The study involves 44 young professionals aged from their early 20s to early 30s, mostly engineers, architects, and other employees related to construction. The respondents were from Panay Island, mostly from the Province of Aklan, that is currently working in a Hotel Project here in Boracay Island, Malay, Aklan. The participants were given an orientation for the study, and the researcher requested that the organization allow them to participate in the study.

In selecting participants, the researcher will be using purposive sampling. It is determined by purposive sampling, the participants should be adults, aged 24 to 35 years, and be project-based workers. The control and intervention groups will be selected by the fishbowl random sampling method.

Instrumentation

This study used a researcher-made instrument adopted from the State-Trait Anxiety Inventory (STAI) to assess the anxiety level of the participants before and after the meditation and mindfulness-in-nature intervention. The STAI has two subscales. The State Anxiety Scale (S-Anxiety) evaluates the current state of anxiety, asking how respondents feel "right now," with items measuring subjective feelings of apprehension, tension, nervousness, worry, and activation/arousal of the autonomic nervous system. In contrast, the Trait Anxiety Scale (T-Anxiety) evaluates relatively stable aspects of "anxiety proneness," including general states of calmness, confidence, and security. The STAI consists of 40 items, with 20 items assigned to each subscale, and yields scores ranging from 20 to 80. A higher score reflects greater anxiety. A cut point of 39–40 has been suggested to detect clinically significant symptoms on the S-Anxiety Scale, though other studies recommend a higher cut score of 54–55 for older adults (Julian, 2011). For this study, anxiety levels were interpreted using the following categories: 20–37 indicates no to low anxiety, 38–44 indicates moderate anxiety, and 45–80 indicates high anxiety.

To complement this, the study also employed the Beck Depression Inventory (BDI, BDI-II), which consists of 21 questions assessing how the participant has felt in the past week. Each question includes at least four possible answer choices, arranged by intensity. Higher total scores reflect more severe depressive symptoms. The interpretation is as follows: 0–10 is considered normal fluctuations, 11–16 indicates mild mood disturbance, 17–20 reflects borderline clinical depression, 21–30 indicates moderate depression, 31–40 indicates severe depression, and scores over 40 suggest extreme depression.

Meditation and Mindfulness in Nature Intervention

The intervention is composed of two sets of programs with a total of 8 sessions. The first location is in the forest/mountain involves hiking and other mindfulness activities. Target date to complete the whole intervention in a span of one month, including the pretest intervention with a 2-week interval and posttest. Set on intervention and session as follows:

The intervention presented in Table 1 comprises two parts of activities for the intervention group. The first part will take place in the forest, involving hiking, reflections, and channeling oneself as part of nature. The second part will be conducted at sea, focusing on self-healing and relieving stress. The control group, on the other hand, will not participate in these activities, allowing for an assessment of the intervention's effect.

Table 1

Structure of Meditation and Mindfulness in Nature Intervention

1st SET FOREST			
SESSION	RATIONALE	GOALS	ACTIVITY
SESSION 1 Orientation	Give an overview of the study and its purposes.	Teach how to meditate and things to do during mindfulness.	Endorse necessary materials.

{table continues on the next page}

SESSION 2 "Love at first sight"	Familiarizing the surroundings and building camaraderie among the participants	Able to connect with nature	Pick one thing in nature that you can relate yourself
SESSION 3 "Leave the past behind."	Throwing your negative emotions.	Setting aside your negative emotions by feeling nature using the five senses.	Walking in silence
SESSION 4 FREE TIME	Allowing oneself to enjoy nature in their own way	Enjoying nature and preparing the camping site	Relaxation Lunching Tent pitching
SESSION 5 "The new me"	Finding oneself in the forest	Finding the new self and freeing oneself	Nature Portrait Bonfire session
2nd SET SEA			
SESSION 1 Cast Away	Freeing yourself from stressors	Renewing life's important aspects and away from stressors	Island tour
SESSION 2 Nature and I	Recovering self-confidence	Recovering self-image	Waves in my life Group Sharing
SESSION 3 Finding the Compass	Encouraging a defiant stand	Able to find direction in your life.	Portrait of Dreams

Data Gathering Procedures

Participants were determined upon request to the company's human resources department. Hence, the company is composed of a limited number of employees, and the researcher requested that the subcontractor in the same project for their employees to participate in the said research. A printed survey questionnaire was distributed during the pretest and posttest.

Data Analysis

Data was analyzed using p-value, the decrease and increase of levels during pretest and posttest. The participants' level of anxiety and depressive symptoms was assessed using the mean and standard deviation. Comparison of the pretest and posttest scores was calculated using a paired t-test. Comparison of the gained scores was done using an independent t-test.

Ethical Considerations

In conducting a research study, the researcher must ensure ethical guidelines are followed to protect the participants. Informed consent should be explained thoroughly with comprehensible language and a signature. They should know and understand that they have a freedom of choice and that they have the right to withdraw following the withdrawal process.

Results

Pretest Levels of Anxiety and Depressive Symptoms in the Control and the Intervention Groups

At pretest, both groups showed moderate state anxiety (Control: M = 40.64; Intervention: M = 44.47). For trait anxiety, the control group remained at a moderate level (M = 42.60), while the intervention group reached the high anxiety range (M = 46.63). When considering overall anxiety, the control group's mean (M = 41.62) indicated moderate anxiety, whereas the intervention group's mean (M = 45.55) fell into the high anxiety range.

On the Beck Depression Inventory, both groups were within the mild mood disturbance range (Control: M = 16.04; Intervention: M = 14.74). This shows that, before the intervention, the groups were relatively similar in depressive symptoms, but the intervention group started with slightly higher anxiety levels.

Table 2

Pretest Levels of Anxiety and Depressive Symptoms in the Control and the Intervention Groups

	Group	Mean	SD	Interpretation
State Anxiety	Control	40.64	7.20	Moderate Anxiety
	Intervention	44.47	9.44	Moderate Anxiety
Trait Anxiety	Control	42.60	6.85	Moderate Anxiety
	Intervention	46.63	10.40	High Anxiety
Overall Anxiety	Control	41.62	6.61	Moderate Anxiety
	Intervention	45.55	9.21	High Anxiety
Depression	Control	16.04	8.61	Mild mood Disturbance
	Intervention	14.74	9.05	Mild Mood Disturbance

Scoring System: STAI - No to Low Anxiety (20-37); Moderate Anxiety (38-44); High Anxiety (45-80) BECK – Normal (0-10); Mild Mood Disturbance (11-16); Borderline Clinical Depression (17-20); Moderate Depression (21-30); Severe Depression (31-40); Extreme Depression (Over 40)

Posttest Levels of Anxiety and Depressive Symptoms in the Control and the Intervention Groups

At posttest, both groups showed moderate state anxiety (Control: M = 41.46; Intervention: M = 40.47). For trait anxiety, both groups fell in the moderate range (Control: M = 41.92; Intervention: M = 42.58), indicating a reduction from high anxiety in the intervention group at pretest. Similarly, overall anxiety was moderate in both groups (Control: M = 41.69; Intervention: M = 41.53). For depressive symptoms, both groups remained at mild mood disturbance, but the intervention group's mean (M = 12.21) was lower than the control group's mean (M = 15.36), suggesting a greater reduction in depressive symptoms for participants who underwent the intervention.

Table 3

Posttest Levels of Anxiety and Depressive Symptoms in the Control and the Intervention Groups

	Group	Mean	SD	Interpretation
State Anxiety	Control	41.46	6.82	Moderate Anxiety
	Intervention	40.47	8.77	Moderate Anxiety
Trait Anxiety	Control	41.92	6.73	Moderate Anxiety
	Intervention	42.58	9.85	Moderate Anxiety
Overall Anxiety	Control	41.69	6.50	Moderate Anxiety
	Intervention	41.53	8.12	Moderate Anxiety
Depression	Control	15.36	9.43	Mild mood Disturbance
	Intervention	12.21	8.39	Mild Mood Disturbance

Scoring System: STAI - No to Low Anxiety (20-37); Moderate Anxiety (38-44); High Anxiety (45-80) BECK – Normal (0-10); Mild Mood Disturbance (11-16); Borderline Clinical Depression (17-20); Moderate Depression (21-30); Severe Depression (31-40); Extreme Depression (Over 40)

Comparison Pretest and Posttest levels of Anxiety and Depressive Symptoms Within the Control and Intervention Groups

Paired t-tests for the control group showed no statistically significant differences between pretest and posttest scores across all measures: state anxiety ($p = .178$), trait anxiety ($p = .083$), overall anxiety ($p = .857$), and depression ($p = .296$). This confirms that without intervention, participants' anxiety and depressive symptoms remained stable.

Table 4

Comparison of Pretest and Posttest Levels of Anxiety and Depressive Symptoms Within the Control Group

		Mean	SD	t	df	p	Effect size (Cohens d)	Verbal Interpretation
State Anxiety	Pretest	41.4600	6.81591	1.388	24	.178	2.95409	Not Significant
	Posttest	40.6400	7.19884					
Trait Anxiety	Pretest	41.9200	6.72632	.30059	-1.431	.083	2.37557	Not Significant
	Posttest	42.6000	6.84957					
Overall Anxiety	Pretest	41.6900	6.49570	.182	24	.857	1.91964	Not Significant
	Posttest	41.6200	6.61324					
Depression	Pretest	16.0400	6.81591	1.068	24	.296	3.18486	Not Significant
	Posttest	15.3600	7.19884					

Within the intervention group, paired-samples t-tests revealed significant reductions across all measures of anxiety. For state anxiety, scores decreased from a pretest mean of 44.47 to a posttest mean of 40.47, and this change was statistically significant ($t = –2.37$, $p = .029$), with a very large effect size ($d = 7.35$). Trait anxiety also showed a significant reduction, dropping from 46.63 to 42.58 ($t = –5.42$, $p < .001$), with a large effect size ($d = 3.26$). Similarly, overall anxiety declined from 45.55 at pretest to 41.53 at posttest ($t = –3.71$, $p = .002$), again reflecting a large effect size ($d = 4.73$).

For depressive symptoms, participants in the intervention group showed improvement, with scores decreasing from a pretest mean of 14.73 to a posttest mean of 12.21. This difference was statistically significant ($t = 3.08$, $p = .007$), with a large effect size ($d = 3.58$). These results suggest that the meditation and mindfulness in nature program was effective in reducing both anxiety and depressive symptoms among project-based workers, with especially strong effects on anxiety outcomes.

Table 5

Comparison of the Pretest and Posttest Levels of Anxiety and Depressive Symptoms Within the Experimental Group

		Mean	SD	t	df	p	Effect size (Cohens d)	Verbal Interpretation
State Anxiety	Pretest	40.4737	8.77096	-2.373	18	.029	7.34847	Significant
	Posttest	44.4737	9.44204					
Trait Anxiety	Pretest	42.5789	9.84500	-5.424	18	<.001	3.25702	Significant
	Posttest	46.6316	10.40412					
Overall Anxiety	Pretest	41.5263	8.12485	-3.713	18	.002	4.72721	Significant
	Posttest	45.5526	9.20883					
Depression	Pretest	16.0400	8.60949	1.068	24	.296	3.18486	Not Significant
	Posttest	15.3600	9.42903					

When comparing the control and intervention groups, significant differences emerged in favor of the intervention group. For state anxiety, the intervention group showed a greater reduction compared to the control group ($t = 2.99$, $p = .005$), with a strong effect size ($d = 5.30$). Similarly, for trait anxiety, the intervention group's improvement was significantly greater ($t = 3.98$, $p < .001$), with a large effect size ($d = 2.79$). Overall anxiety also showed significant between-group differences ($t = 3.94$, $p < .001$), again with a strong effect size ($d = 3.42$).

In contrast, for depressive symptoms, the difference between groups was not statistically significant ($t = –1.81$, $p = .078$), even though the intervention group showed numerical improvement. This indicates that while the nature-based meditation and mindfulness program had a robust effect on reducing anxiety, its impact on depression was less pronounced when compared directly to the control group.

Table 6

Comparison of the Change in Anxiety and Depressive Symptoms Between the Control and Intervention Groups

	Group	N	Mean	SD	t	df	p	Verbal Interpretation
State Anxiety	Control	25	.8200	2.95409	2.986	42	.005	Significant
	Intervention	19	-4.0000	7.34847				
Trait Anxiety	Control	25	-.6800	2.37557	3.975	42	<.001	Significant
	Intervention	19	-4.0526	3.25702				
Overall Anxiety	Control	25	.0700	1.91964	3.938	42	<.001	Significant
	Intervention	19	-4.0263	4.72721				
Depression	Control	25	.6800	3.18486	-1.805	42	.078	Not Significant
	Intervention	19	2.5263	3.58032				

Discussion

Deadlines, job insecurity, and feelings of loneliness are major factors that affect the mental well-being of project-based workers. Compared to those in regular employment, individuals in project-based work often experience higher levels of distress (Chiocchio, 2010; Nolan, 2000). This study investigated their mental well-being, focusing on anxiety and depressive symptoms, and examined the effects of a nature-based meditation and mindfulness intervention.

Findings showed that the control group did not experience significant changes in anxiety or depressive symptoms between pretest and posttest, indicating stability in their mental health status without intervention. In contrast, the intervention group demonstrated significant reductions in both state and trait anxiety, as well as overall anxiety levels, following the mindfulness and meditation sessions in natural settings. These results align with earlier studies suggesting that nature-based meditation practices can reduce anxiety and foster qualities associated with self-actualization (Coppola, 2007; Coppola & Spector, 2009).

When comparing groups, the intervention produced statistically significant improvements in anxiety measures, confirming the effectiveness of nature-based mindfulness in addressing the heightened anxiety commonly experienced by project-based workers. However, while depressive symptoms improved within the intervention group, the between-group comparison revealed no statistically significant difference. This suggests that the intervention is particularly effective for anxiety reduction, while its impact on depressive symptoms may require more intensive or prolonged application to achieve stronger comparative effects.

Overall, these findings highlight the value of incorporating nature-based mindfulness and meditation practices into workplace wellness initiatives. Allowing project-based employees opportunities to pause, reflect, and engage with restorative natural environments can support their mental well-being and enable them to maximize their potential and productivity.

References

Ahmad, A., & Saud, S. (2016). The effect of role overload on employee anxiety and organizational citizenship behavior. *Journal of Managerial Sciences, 10*(1), 45–54. https://qurtuba.edu.pk/jms/default_files/JMS/10_1/JMS_January_June2016_45-54

Buono, F. D., Sprong, M. E., Paul, E., et al. (2021). The mediating effects of quality of life, depression, and generalized anxiety on perceived barriers to employment success for people diagnosed with neurofibromatosis type 1. *Orphanet Journal of Rare Diseases, 16*(174), 1–9. https://doi.org/10.1186/s13023-021-01866-6

Chan, S. M., Au-Yeung, T. C., & Wong, H. (2021). Long working hours, precarious employment and anxiety symptoms among the working Chinese population in Hong Kong. *Journal of Nervous and Mental Disease, 209*(10), 738–744. https://doi.org/10.1007/s11126-021-09938-3

Chiocchio, F. (2010). The project involvement index, psychological distress, and psychological well-being: Comparing workers from projectized and non-projectized organizations. *International Journal of Project Management, 28*(3), 201–211. https://doi.org/10.1016/j.ijproman.2009.06.001

Coppola, F. (2007). Effects of natural relief meditation on trait anxiety: A pilot study. *Perceptual and Motor Skills, 101*(1), 130–134. https://doi.org/10.2466/pr0.101.1.130-134

Coppola, F., & Spector, D. (2009). Natural stress relief meditation as a tool for reducing anxiety and increasing self-actualization. *Social Behavior and Personality: An International Journal, 37*(3), 307–312. https://doi.org/10.2224/sbp.2009.37.3.307

Julian, L. J. (2011). Measures of anxiety: State-Trait Anxiety Inventory (STAI), Beck Anxiety Inventory (BAI), and Hospital Anxiety and Depression Scale-Anxiety (HADS-A). *Arthritis Care & Research, 63*(S11), S467–S472. https://doi.org/10.1002/acr.20561

Kim, D. J., & Lee, S. S. (2013). Effects of a forest therapy program in school forests on employment stress and anxiety of university students. *Journal of People, Plants, and Environment, 16*(2), 107–114. https://doi.org/10.11628/ksppe.2014.16.2.107

Kim, H. W., Shin, W. S., & Jang, C. S. (2019). Effects of a forest healing program on cultural adaptation stress and psychological well-being of foreign workers. *Journal of People, Plants, and Environment, 22*(5), 505–516. https://doi.org/10.11628/ksppe.2019.22.5.505

Lindgren, M., & Packendorff, J. (2009, July 2–4). Love, hate and projects – On passion, obsession and depression in project-based work. *International Conference on Organizing by Projects (IRNOP X)*, Berlin, Germany. https://www.diva-portal.org/smash/get/diva2:456182

Nolan, J. (2000). Job insecurity, psychological well-being and family life. In E. Heery & J. Salmon (Eds.), *The insecure workforce* (pp. 181–209). Routledge. https://doi.org/10.4324/9780203166347

Oh, J. W., Park, J. Y., & Lee, S. (2022). Association between employment stability and depression as moderated by gender among South Korean employees. *Journal of Affective Disorders, 299*, 542–549. https://doi.org/10.1016/j.jad.2021.11.009

Park, C. H., Chun, J., Hahm, Y., Kang, D. H., & Park, B. J. (2021). Effects of a forest therapy program on reducing PTSD and depression and improving mood states in fire officers. *Journal of People, Plants, and Environment, 24*(6), 693–703. https://doi.org/10.11628/ksppe.2021.24.6.693

Rudolphi, J. M., Berg, R. L., & Parsaik, A. (2019). Depression, anxiety and stress among young farmers and ranchers: A pilot study. *Community Mental Health Journal, 55*, 964–972. https://doi.org/10.1007/s10597-019-00480-y

Zehra, N., & Faizan, R. (2012). The impact of occupational stress on employees at project-based organizations (PBOs) in Pakistan. *International Journal of Academic Research in Business and Social Sciences, 2*(1), 390–403. http://www.ijabms.com/documents/Vol2No1/ijabms2012-2-1-35.pdf

PSYCHOLOGY

Growing Through with What You Are Going Through: The Effect of Plant Therapy on Psychological Well-Being and Stress Among Healthcare Workers

Rhona Fe O. Dayauon
Jolly S. Balila
Mylene S. Gumarao
Myrtle O. Grijalvo

Adventist University of the Philippines
mogrijalvo@aup.edu.ph

Abstract

This study examines the impact of plant therapy in the workplace on healthcare workers' stress management and psychological well-being. The demanding nature of their jobs frequently causes them to experience significant stress, which can harm their well-being. Plant therapy provides a natural and accessible means to promote relaxation and emotional balance. Thirty healthcare workers from a rehabilitation center in Cavite participated in this pre-experimental study, which compared their well-being and stress levels before and after the intervention program. Significant differences were found in stress levels ($t = 19.163$, $p < .001$), with a large effect size (Cohen's $d = 2.66$). The substantial decrease in stress levels from a pretest mean of 21.49 ($SD = 2.17$) to a posttest mean of 12.19 ($SD = 2.33$) reveals that respondents' stress dropped from a "moderate" to a "low" level. Results also showed significant improvements in psychological well-being ($t = 7.72$, $p < .001$), with a moderate-to-large effect size (Cohen's $d = 0.595$). Mean scores increased from 4.90 ($SD = 0.51$) in the pretest to 5.76 ($SD = 0.55$) in the posttest. This indicates that healthcare workers' psychological well-being improved from a "moderately high" to a "high" level. Overall, findings demonstrate that plant therapy meaningfully reduced stress and enhanced psychological well-being among participants. These results suggest that incorporating plant therapy into the workplace can be a practical and effective strategy for supporting healthcare workers' mental health.

Keywords: *plant therapy, psychological well-being, stress, healthcare workers, mental health*

Psychological well-being refers to "feeling and functioning well" (Ruggeri et al., 2020). The performance and success of an organization are strongly influenced by the well-being of its employees (Page & Vella-Brodrick, 2012). Employees with high levels of psychological well-being are healthier, more productive, and perform better in their roles (Jan-Emmanuel, 2013; Krekel et al., 2019; Wright & Cropanzano, 2000).

At the same time, work-related stress has become a rising public health concern worldwide (Sime et al., 2022). It affects not only employees' physical and mental health but also the overall effectiveness of organizations (Ennals, 2001). Stress at work has received considerable attention, as it is one of the primary determinants of working adults' mental health (Hsieh & Tsai, 2019). Stress occurs when workplace demands exceed an individual's perceived ability to cope, resulting in a decline in well-being (APA PsycNet, n.d.). If left unaddressed, long-term stress can severely threaten an employee's psychological well-being (Mohan & Lone, 2021).

Employees are the pillars of every organization, ensuring smooth operations. However, they remain vulnerable to threats that may compromise their physical, emotional, and psychological health (Jallow, 2020). Spending time in nature is one of the many strategies people use to manage mental health challenges, including stress (Lee & Koo, 2018). Research shows that plants can improve psychological health by reducing stress (Schutte & Malouff, 2018). Many individuals spend their free time in natural environments to boost their well-being (Nirmala & N, 2022). Prior studies consistently demonstrate that exposure to natural settings—whether indoors or outdoors—positively influences mental health (Ulrich et al., 1991).

Beyond general exposure, studies on emotional well-being have found links between home gardening and emotional health (Ambrose et al., 2020b). Bratman and colleagues (University of Washington) further showed that exposure to nature is associated with higher levels of happiness, subjective well-being, positive affect, social connectedness, a sense of purpose, and reduced mental distress. Other research has examined variables such as the amount and size of greenery (Nishina, 2008), the number and variety of plants (Imanishi, 2002), and the extent of visible greenery in a streetscape or indoor space (Choi et al., 2016).

Many of these studies were conducted in laboratories or simulated office environments, focusing primarily on passive plant interaction. For instance, indoor plants placed on desks, shelves, or floors provided visual access to greenery (Bringslimark et al., 2007; Fjeld, 2000; Imanishi, 2002; Nishina, 2008). Earlier studies reported that indoor plants were associated with positive psychological outcomes (Fjeld, 2000), while others found that plants placed within one meter of a participant's desk increased perceived stress (Bringslimark et al., 2007).

Given these mixed findings, most prior research highlights passive plant interaction but rarely examines active involvement in real office settings. Therefore, the purpose of this study was to evaluate the effect of plant therapy on psychological well-being and stress among healthcare workers. The intervention involved both active participation—where participants cared for plants—and passive participation—where plants were placed on or near their desks for daily visual access. Specifically, this study sought to answer the following research questions:

1. What are the levels of psychological well-being and stress of healthcare workers before and after the intervention?
2. Are there significant differences in the levels of psychological well-being and stress before and after the intervention?

Methodology

Research Design

The study employed a pre- and post-test research design to assess the effects of an intervention program on psychological well-being and stress. All participants underwent the same intervention, and no group comparisons were made. Instead, only the pre-test and post-test scores were analyzed to determine significant differences before and after the program.

Population and Sampling Technique

The participants consisted of 30 healthcare workers from the Department of Health – Tagaytay Treatment and Rehabilitation Center, Cavite, of whom 23% were male and 77% female, ranging in age from 25 to 59 years. Most participants were married (57%), with varying years of service, though the majority had less than 10 years of experience. All participants were permanent employees. A purposive sampling method was used, with inclusion criteria requiring participants to be actively on duty, identified by their supervisors as potential beneficiaries of plant therapy, and willing to attend the sessions.

Instrumentation

Data were collected using standardized questionnaires administered in English with supplementary verbal instructions. Participants completed demographic information and responded to the Perceived Stress Scale (PSS-10) and the 18-item Ryff's Psychological Well-Being Scales, both given before and after the intervention with a three-week interval. Ryff's scale measured six dimensions of well-being, while the PSS-10 assessed perceived stress through negative and positive factors. Both instruments employed established scoring and interpretation guides to evaluate levels of stress and psychological well-being.

Plant Therapy Intervention

The intervention program, entitled Growing Through with What You Are Going Through, was designed to run for three weeks with one-hour sessions conducted face-to-face. Its central objective was to integrate plant therapy with stress management strategies by helping participants establish a meaningful connection between nurturing plants and practicing self-care. At the start of the program, each participant was provided with an indoor plant such as Begonia, Chinese Evergreen, Monstera Adansonii, or Pothos Plant, which they were asked to place on their desk or within their personal space to ensure daily interaction and care. This simple yet consistent exposure aimed to foster mindfulness, a sense of responsibility, and emotional attachment to their plant, reinforcing the therapeutic process. The program was divided into four structured sessions, each with a specific theme and activity.

Introduction to Plant Therapy and Stress Awareness. Introduced participants to the concept of plant therapy while raising awareness of stress and its impact on healthcare workers. This session began with a pre-test, followed by a warm welcome and an icebreaker where participants shared their favorite plant or flower to establish rapport. The discussion focused on common stressors encountered in healthcare and the significance of stress management. Participants were then introduced to the idea of plant therapy and its benefits for stress reduction. They selected and named their individual plants, promoting ownership and emotional connection.

Meditation with Plants. Emphasized mindfulness and relaxation techniques. Through a guided meditation activity by Brooke Blocker, participants were encouraged to focus on their plants—observing their form, texture, and growth—as an anchor for relaxation. This mindfulness practice allowed healthcare workers to slow down, reduce mental clutter, and experience calmness in the presence of living greenery.

Creativity and Plant Care. Highlighted the role of creative expression in stress relief. Participants were given time and materials to personalize their plants with decorative items, creating unique and meaningful arrangements. This creative process provided an outlet for self-expression and allowed participants to reflect on their emotions. Afterward, they shared their creations with the group, discussing the inspirations behind their choices and reflecting on how the activity affected their mood. They were also encouraged to take photographs of their plants, fostering a sense of appreciation and continuity beyond the sessions.

Reflection and Future Planning. Focused on consolidating the experiences of the participants and planning how to sustain the benefits of plant therapy. Participants openly shared how the program had impacted their stress levels and overall well-being. A post-test was administered to evaluate changes after the three-week intervention. The session concluded with practical tips and resources for continuing plant therapy as part of daily routines, as well as a group discussion on maintaining community support to reinforce positive habits.

Throughout the program, participants were also provided with personal journals to document both plant care routines (such as watering, light exposure, soil maintenance, repotting, and pruning) and self-care intentions. They were encouraged to list three specific intentions for their own well-being and pair each intention with a corresponding care practice for their plant, symbolizing the parallel between nurturing plants and nurturing oneself. This reflective journaling activity offered a tangible and visual way for participants to monitor progress and internalize the importance of balanced living. After the completion of the study, the plants were entrusted to the participants as lasting reminders of the program and as tools to continue practicing mindfulness, creativity, and self-care.

Data Analysis

The collected data were analyzed using statistical procedures. The mean was computed to determine the central tendency of participants' responses, while a t-test was employed to compare pre-test and post-test scores, providing evidence of significant changes in stress and psychological well-being.

Ethical Considerations

Ethical clearance was obtained from the Ethics Review Board of the Adventist University of the Philippines, as well as approval from the hospital's Chief of Hospital, Research Committee, and Psychology Section. Participants provided informed consent before participation, and all were briefed on the study's purpose, procedures, and benefits. Anonymity and confidentiality were ensured, and results were used solely for research purposes.

Results

Level of Psychological Well-Being Before the Intervention Program

Table 1 illustrates the level of psychological well-being before the intervention program. A total mean score of 4.90 was obtained.

Table 1

Descriptive Statistics of the Pretest Level of Psychological Well-Being

Indicators	Aspect of Well-being	Mean	Std. Deviation	Verbal Interpretation
1. "I like most parts of my personality."	self-acceptance	5.90	0.88	High
2. "When I look at the story of my life, I am pleased with how things have turned out so far."	self-acceptance	6.23	0.77	High
3. "Some people wander aimlessly through life, but I am not one of them."	purpose in life	5.80	1.19	High
4. "The demands of everyday life often get me down."	environmental mastery	5.30	1.42	Moderately High
5. "In many ways, I feel disappointed about my achievements in life."	self-acceptance	5.67	1.12	High
6. "Maintaining close relationships has been difficult and frustrating for me."	positive relations with others	5.90	1.12	High
7. "I live life one day at a time and don't really think about the future."	purpose in life	4.67	1.54	Moderately High
8. "In general, I feel I am in charge of the situation in which I live."	environmental mastery	6.03	1.03	High

{table continues on the next page}

9. "I am good at managing the responsibilities of daily life."	environmental mastery	5.73	0.87	High
10. "I sometimes feel as if I've done all there is to do in life."	purpose in life	4.50	1.57	Moderately High
11. "For me, life has been a continuous process of learning, changing, and growth."	personal growth	6.83	0.38	Very High
12. "I think it is important to have new experiences that challenge how I think about myself and the world."	personal growth	6.60	0.56	Very High
13. "People would describe me as a giving person, willing to share my time with others."	positive relations with others	6.13	0.90	High
14. "I gave up trying to make big improvements or changes in my life a long time ago."	personal growth	5.70	1.18	High
15. "I tend to be influenced by people with strong opinions."	autonomy	4.97	1.30	Moderately High
16. "I have not experienced many warm and trusting relationships with others."	positive relations with others	5.80	1.21	High
17. "I have confidence in my own opinions, even if they are different from the way most other people think."	autonomy	6.07	0.87	High
18. "I judge myself by what I think is important, not by the values of what others think is important."	autonomy	5.93	0.87	High
Grand Mean		5.76	0.55	High

Legend: 6.50-7.00 - Very High; 5.50-6.49 - High; 4.50-5.49 - Moderately High; 3.50-4.49 – Average; 2.50-3.49 - Moderately Low; 1.50-2.49 - Low; 1.00-1.49 - Very Low

The findings show a high level of psychological well-being following the intervention program. Healthcare personnel acquired a positive attitude, a strong sense of purpose, and the ability to overcome obstacles with tenacity. They have the tools to manage stress effectively.

High scores imply a strong sense of self-acceptance, purpose, autonomy, and social interaction. These traits point to generally good psychological well-being, with room for growth in stress management. These results underline the need to build an environment that promotes well-being, especially in demanding environments like healthcare.

Lee et al. (2015) found that plant therapy enhanced participants' well-being by reducing stress and promoting a calming effect. These findings aligned with the results indicating that healthcare workers who initially demonstrated moderately high well-being gained resilience and life satisfaction through plant therapy, particularly when facing challenging situations.

Level of Stress During Pre-Test

Table 3 illustrates the answers of healthcare workers on the Perceived Stress Scale. The results of the gathered data show the level of healthcare workers' perceived stress in the pre-test.

Table 3

Descriptive Statistics of the Pretest Level of Stress During

Indicators	Mean	Std. Deviation	Verbal Interpretation
1. been upset because of something that happened unexpectedly?	2.87	0.73	High
2. felt that you were unable to control the important things in your life?	2.50	0.68	High
3. felt nervous and "stressed"?	2.87	0.63	High
4. felt confident about your ability to handle your personal problems?	1.90	0.61	Moderate
5. felt that things were going your way?	2.00	0.46	Moderate
6. found that you could not cope with all the things that you had to do?	2.23	0.82	Moderate
7. been able to control irritations in your life?	2.20	0.61	Moderate
8. felt that you were on top of things?	2.17	0.53	Moderate
9. been angered because of things that happened that were outside of your control?	2.53	0.63	High
10. felt difficulties were piling up so high that you could not overcome them?	2.27	0.69	Moderate
Grand Mean	21.49	2.17	Moderate

Legend: 3.50-4.00 – Very High; 2.50-3.49 – High; 1.50-2.49 – Moderate; 0.50-1.49 – Low; 0-0.49 – Very Low

The results show that the respondents got a total mean of 21.49 and reveal that the level of perceived stress of healthcare workers is moderate. Like the majority, healthcare workers are experiencing stress before the intervention program. This could suggest that while participants are experiencing some stress, it is not at a high level.

Level of Stress During Post-Test

Table 4 illustrates the level of stress after the intervention program. The respondents got a total mean score of 12.19.

Table 4

Descriptive Statistics of the Posttest Level of Stress

Indicators	Mean	Std. Deviation	Verbal Interpretation
1. been upset because of something that happened unexpectedly?	1.57	0.68	Moderate
2. felt that you were unable to control the important things in your life?	1.33	0.61	Low
3. How often have you felt nervous and "stressed"?	1.67	0.71	Moderate
4. felt confident about your ability to handle your personal problems?	1.10	0.66	Low
5. felt that things were going your way?	1.27	0.58	Low
6. found that you could not cope with all the things that you had to do?	1.20	0.61	Low
7. been able to control irritations in your life?	1.13	0.57	Low

{table continues on the next page}

8. felt that you were on top of things?	1.37	0.56	Low
9. been angered because of things that happened that were outside of your control?	1.43	0.68	Low
10. felt difficulties were piling up so high that you could not overcome them?	1.27	0.64	Low
Grand Mean	12.19	2.33	Low

Legend: 3.50-4.00 – Very High; 2.50-3.49 – High; 1.50-2.49 – Moderate; 0.50-1.49 – Low; 0-0.49 – Very Low

The findings show a low level of perceived stress after the intervention program. The significant changes in results from 21.49 to 12.19 illustrate that the intervention program is effective, indicating that after the intervention program, the participants were able to manage their stress.

According to Kaplan (1995), natural environments influence psychological well-being. His study emphasized the role of nature in reducing perceived stress and enhancing cognitive function through restorative experiences.

Comparison of Levels of Psychological Well-Being Before and After the Intervention

Table 5 shows the paired-sample T-test to compare the mean differences between the pretest and post-test to determine the level of the six aspects of psychological well-being before and after the intervention.

Table 5

Paired T-Test Results of the Levels of Psychological Well-Being Before and After the Intervention

	Aspects of Well-being	Mean	Std. Deviation	t	df	p	Verbal Interpretation
Self-acceptance	posttest	5.93	0.72	7.009	29	<.000	.738
	pretest	4.99	0.83				
Purpose in Life	posttest	4.99	1.05	3.47	29	.002	1.23
	pretest	4.21	0.76				
Environmental Mastery	posttest	5.69	0.83	5.61	29	<.001	.944
	pretest	4.72	0.76				
Positive Relations	posttest	5.94	0.75	3.965	29	<.001	.946
	pretest	5.78	0.67				
Personal Growth	posttest	6.38	0.51	4.51	29	<.001	.729
	pretest	5.78	0.67				
Autonomy Post	posttest	5.66	0.80	5.02	29	<.001	1.22
	pretest	4.53	1.10				
Psychological Well-Being	posttest	5.76	0.55	7.72	29	<.001	.595
	pretest	4.90	0.51				

Legend: 6.50-7.00 - Very High; 5.50-6.49 - High; 4.50-5.49 - Moderately High; 3.50-4.49 – Average; 2.50-3.49 - Moderately Low; 1.50-2.49 - Low; 1.00-1.49 - Very Low

Each dimension of psychological well-being has shown positive changes, with most dimensions reaching “High” post-intervention. This indicates that the intervention likely had a meaningful, positive impact on the participants’ psychological health, enhancing self-acceptance, purpose in life, environmental mastery, personal growth, autonomy, and overall well-being.

The table presents the results of a paired-sample T-test comparing the mean differences in psychological well-being before and after an intervention across six aspects: self-acceptance, purpose in life, environmental mastery, positive relations, personal growth, and autonomy. The findings indicate statistically significant improvements across all aspects of well-being, with p-values below 0.05 in each case.

Self-acceptance showed a notable increase from a pre-test mean of 4.99 to a post-test mean of 5.93 (t (29) = 7.009, p <.00), with a high effect size (r =.738). Similarly, purpose in life improved from 4.21 to 4.99 (t(29) – 3.47, p < .002), with an effect size of 1.23, suggesting a substantial effect. Environmental mastery also increased significantly (t(29) = 5.61, p < .001, r = .944), indicating that participants felt greater control over their surroundings after the intervention.

The aspect of positive relations showed a smaller yet significant increase t(29) = 3.965, p<.000, r =.946), suggesting improved interpersonal relationships. Personal growth exhibited a mean increase from 5.78 to 6.38 (t(29) = 4.51, p <.001, r = .729), reflecting enhanced self-improvement and development. Autonomy demonstrated a strong improvement from 4.53 to 5.66 (t(29) = 5.02, p<.001, r = 1.22).

The overall psychological well-being score increased significantly from 4.90 (pre-test) to 5.76 (post-test), with a large effect size (t(29) = 7.72, p<.001, r = .595). Based on the legend, participants' well-being increased from a "Moderately High" level of well-being to a "High" level following the intervention. These results suggest that the intervention had a meaningful and statistically significant positive impact on the psychological well-being of the participants

According to Fredrickson & Joiner (2002), positive emotions can create "upward spirals" in well-being, enhancing feelings of purpose, self-acceptance, and autonomy. It supports the idea that interventions boosting positive emotions can lead to measurable improvements in multiple well-being dimensions, much like those observed in the results.

Comparison of Levels of Stress Before and After the Intervention Program

Table 6 illustrates the comparison in the level of stress of the participants before and after the intervention program.

Table 6

Paired T-Test Results of the Levels of Stress Before and After the Intervention Program

		Mean	SD	t	df	Two-sided p	Effect size (Cohen's d)
Stress	Pretest	21.49	2.1733	19.163	29	<.001	2.66
	Posttest	12.19	2.3259				

Table 6 compares the stress levels of the participants before and after the intervention program. Significant differences are found (t=19.163, p <.001), with a large effect size (Cohen's d=2.66). This suggests that plant therapy had a profound and statistically significant on loweringthe stress levels of the participants.

Discussion

The findings show that plant therapy significantly affects healthcare workers' psychological well-being and stress levels. Before the intervention, participants reported moderately high psychological well-being and moderate stress, consistent with previous research highlighting the mental health challenges healthcare workers face due to high demands and emotional pressures (Morse et al., 2012).

After the intervention, participants who regularly cared for plants at work reported greater well-being and significantly lower stress levels. These results imply that plant therapy may be a practical and accessible strategy for enhancing mental health in high-stress work environments such as healthcare facilities. The improvement in psychological well-being aligns with research on the benefits of nature and horticultural therapies, which demonstrate that engaging with plants can improve mood and aid emotional recovery (Bratman et al., 2015). In this study, caring for plants during the workday helped healthcare workers feel more relaxed and calmer, allowing them to better manage job-related stress.

Given these positive outcomes, plant therapy appears to be an effective intervention for stress management. The stress reduction supports earlier findings that interactions with nature reduce stress and promote recovery (Ulrich et al., 1991). Occupational stress is common in healthcare, and when left unaddressed, can lead to burnout and further mental health concerns (Maslach & Leiter, 2016). The significant reduction in stress after the intervention highlights the value of incorporating plant care into the workplace, offering employees opportunities to unwind, cultivate peace, and restore balance despite the emotionally demanding nature of their work.

Statistical analyses confirmed significant differences in psychological well-being and stress levels before and after the program, leading to the rejection of the null hypotheses. These findings provide clear evidence that nature-based interventions enhance psychological resilience, underscoring the importance of integrating plant therapy into mental health strategies for healthcare workers. With growing recognition of the therapeutic benefits of green spaces and nature-based activities, this study suggests that even simple interventions—such as introducing plant care into office settings—can meaningfully enhance employees' psychological well-being (Kaplan & Kaplan, 1989).

Overall, this study supports plant therapy as a viable approach to improving healthcare workers' well-being and reducing stress. Incorporating plant care into employee wellness programs offers a low-cost, scalable intervention to help mitigate the ongoing pressures of stress and burnout in healthcare. Future research could explore the long-term effects of plant therapy, as well as its potential application to other high-stress professions, thereby extending its benefits to broader populations facing demanding work conditions.

References

Ambrose, G., Das, K., Fan, Y., & Ramaswami, A. (2020). Is gardening associated with greater happiness of urban residents? A multi-activity, dynamic assessment in the Twin-Cities region, USA. *Landscape and Urban Planning, 198*, 103776. https://doi.org/10.1016/j.landurbplan.2020.103776

APA PsycNet. (n.d.). https://psycnet.apa.org/record/1995-98878-003

Bratman, G. N., Hamilton, J. P., & Daily, G. C. (2015). The impacts of nature experience on human cognitive function and mental health. *Annals of the New York Academy of Sciences, 1249*(1), 118–136. https://doi.org/10.1111/nyas.12720

Bringslimark, T., Hartig, T., & Patil, G. G. (2007). Psychological Benefits of Indoor Plants in Workplaces: Putting Experimental Results into Context. *Hortscience, 42*(3), 581–587. https://doi.org/10.21273/hortsci.42.3.581

Choi, J., Park, S., Jung, S. J., Lee, J., Son, K., An, Y., & Lee, S. (2016). Physiological and psychological responses of humans to the index of greenness of an interior space. *Complementary Therapies in Medicine, 28*, 37-43. https://doi.org/10.1016/j.ctim.2016.08.002

Cohen, S., Kamarch, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*, 385.

Ennals, R. (2001). Work organisation. *Springer EBooks*, 24–44. https://doi.org/10.1007/978-1-4471-0291-5_3

Fjeld, T. (2000). The effect of interior planting on health and discomfort among workers and school children. *Horttechnology, 10*(1), 46–52. https://doi.org/10.21273/horttech.10.1.46

Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science, 13*(2), 172–175. https://doi.org/10.1111/1467-9280.00431

Hsieh, C., & Tsai, B. (2019). Effects of social support on the stress-health relationship: Gender comparison among military personnel. *International Journal of Environmental Research and Public Health, 16*(8), 1317. https://doi.org/10.3390/ijerph16081317

Imanishi, H. (2002). Effects of plants in the workplace on attitudes and perceptions of employees. AGRIS: International Information System for the Agricultural Science and Technology. https://agris.fao.org/agris-search/search.do?recordID=JP2003000040

Jallow, Y. A. (2020). The impact of stress management within organizations and its effects on employees' performance. *Social Science Research Network*. https://doi.org/10.2139/ssrn.3703167

Jan-Emmanuel, D. N. (2013, August 6). The objective benefits of subjective well-being. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2306651

Kaplan, R., & Kaplan, S. (1989). The experience of nature: A psychological perspective. Cambridge University Press.

Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology, 15*(3), 169–182. https://doi.org/10.1016/0272-4944(95)90001-2

Krekel, C., Ward, G., & De Neve, J. (2019). Employee wellbeing, productivity, and firm performance. *Social Science Research Network*. https://doi.org/10.2139/ssrn.3356581

Lee, E., & Koo, C. (2018). Effects of forest plant healing therapy on school stress and affectivity in college students. *Journal of People, Plants, and Environment*. https://doi.org/10.11628/ksppe.2018.21.4.319

Lee, M. S., Lee, J., Park, B. J., & Miyazaki, Y. (2015). Interaction with indoor plants may reduce psychological and physiological stress by suppressing autonomic nervous system activity in young adults: A randomized crossover study. *Journal of Physiological Anthropology, 34*(1), 21. https://doi.org/10.1186/s40101-015-0060-8

Maslach, C., & Leiter, M. P. (2016). *Burnout: A brief history and how to measure it*. In A. W. Wilmar, M. P. Leiter, & C. Maslach (Eds.), *The burnout companion to study and practice: A critical analysis* (pp. 35-51). CRC Press.

Mohan, H., & Lone, Z. A. (2021). Psychological wellbeing of employees. *Social Science Research Network*. https://doi.org/10.2139/ssrn.3831947

Morse, G., Salyers, M. P., Rollins, A. L., Monroe-DeVita, M., & Pfahler, C. (2012). Burnout in mental health services: A review of the problem and its remediation. *Administration and Policy in Mental Health and Mental Health Services Research, 39*(5), 341–352. https://doi.org/10.1007/s10488-011-0352-1

Nirmala, N. M., & N, N. H. (2022). Occupational Stress and Psychological Well-being – a Study on Employees in Food Delivery Services. *Jurnal Multidisiplin Madani, 2*(12), 4408–4413. https://doi.org/10.55927/mudima.v2i12.2371

Nishina, H. (2008). Recent researches on psychological effect of green amenity. *AGRIS: International Information System for the Agricultural Science and Technology*. https://agris.fao.org/agris-search/search.do?recordID=JP2009000456

Page, K. M., & Vella-Brodrick, D. (2012). From nonmalfeasance to beneficence: Key criteria, approaches, and ethical issues relating to positive employee health and well-being. *Springer EBooks*, 463–489. https://doi.org/10.1007/978-94-007-4059-4_25

Ruggeri, K., Garcia-Garzon, E., Maguire, Á., Matz, S., & Huppert, F. A. (2020). Well-being is more than happiness and life satisfaction: a multidimensional analysis of 21 countries. *Health and Quality of Life Outcomes, 18*(1). https://doi.org/10.1186/s12955-020-01423-y

Schutte, N. S., & Malouff, J. M. (2018). Mindfulness and connectedness to nature: A meta-analytic investigation. *Personality and Individual Differences, 127*, 10–14. https://doi.org/10.1016/j.paid.2018.01.034

Sime, Y., Hailesilassie, H., & Alenko, A. (2022). Work-related stress and associated factors among employees of Hawassa industrial park, southern Ethiopia: an institutional based cross-sectional study. *BMC Psychiatry, 22*(1). https://doi.org/10.1186/s12888-022-04032-9

Ulrich, R. K., Simons, R. A., Losito, B. D., Fiorito, E., Miles, M., & Zelson, M. F. (1991, September 1). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology*; Elsevier BV. https://doi.org/10.1016/s0272-4944(05)80184-7

Wright, T. W., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology, 5*(1), 84–94. https://doi.org/10.1037/1076-8998.5.1.84

PSYCHOLOGY

Christian Mindfulness-Based Program: Its Effect on Psychological Distress and Emotion Regulation Among Senior High School Students

Jhasmine Joy R. Minardo **Cutie B. Canesares**
Jolly S. Balila **Rhalf Jayson F. Guanco**

Adventist University of the Philippines
jhasminejoyminardo@gmail.com

Abstract

Psychological distress and difficulties in emotion regulation are among the challenges high school students encounter as they face the simultaneous hurdles of adolescence and the increased demands of academic responsibilities. To address this concern, mindfulness-based programs have been extensively studied and used to support the youth's mental health and well-being. Since mindfulness-based therapies are typically rooted in secular or Buddhist frameworks, only a limited number of studies have examined the effectiveness of these programs when they integrate Christian values and biblical principles. This study aims to evaluate the efficacy of the Christian Mindfulness-Based Program on the psychological distress and emotion regulation of senior high school students, using a one-group pre-test-post-test research design. The paired sample t-test results showed a significant difference ($p = 0.044$) in the level of difficulty in emotion regulation among the sample ($n = 83$) after the administration of the intervention. On the other hand, p-values for variables depression (0.60), anxiety (0.515), and stress (0.198) are all greater than 0.05; thus, no significant difference was found in the level of psychological distress of the participants after the intervention program. These findings imply that mindfulness-based interventions using a Christian framework can be adapted as a program and may be effective in helping high school students manage their emotions. This further provides preliminary evidence that could guide future researchers in examining the use of additional Christian meditation tools or practices for different populations and contexts.

Keywords: *Christian mindfulness, difficulties in emotion regulation, psychological distress, adolescents*

Research shows that adolescents have been more likely than adults to report moderate to severe symptoms of depression, anxiety, post-traumatic stress disorder, suicidal ideation or conduct, and sleep issues since the Coronavirus 2019 pandemic (Murata et al., 2021). A study conducted in Jordan during the COVID-19 pandemic by AlAzzam et al. (2021) that looked at the incidence and predictors of depression and anxiety among senior high school students found that over two-thirds reported experiencing both. Among those identified as having depression, 30.7% were male and 50.7% were female. The prevalence of anxiety among students was high, and the prevalence of anxiety in females (46.9%) is greater than in males (27.6%).

Additionally, students are continually faced with mental health challenges, including psychological distress that affects their daily activities (Rothon et al., 2009). Several studies have explored the prevalence of psychological distress among high school students (Anyanwu, 2023; Pascoe et al., 2020; Desamparado et al., 2019) and the contributing factors that surround it (Lin & Yusoff, 2013; Mboya et al., 2020; Dachew et al., 2015). These studies have revealed that most secondary students experience a high stress level and appear to be particularly vulnerable to academically related psychological distress. Students with poorer grades than expected and those with a family history of mental illness responded more strongly to mental distress (Mboya et al., 2020). Among university students, numerous factors such as sex (female students reporting higher levels than male students), lack of close friends, lack of interest in their field of study, lack of religious programs to attend, conflict with friends, financial difficulties, lack of vacation or school break, and lack of social support were significantly associated with mental distress (Dachew, Bisetegn & Gebremariam, 2015). This academic stress had a significant relationship with students' mental health (Subramani & Kadhiravan, 2017) and indicates that academic institutions must create programs that can teach students to handle their stress efficiently.

Further, the ability to cope with stress intersects largely with emotion regulation (Wang & Saudino, 2011). Emotion regulation refers to the capacity to monitor, assess, understand, and modify emotional reactions with appropriate functioning (Gross & Thompson, 2007). Emotion regulation helps people cope with stressful situations by allowing them to assess the emotional effects of the situation, choose the right emotional responses, and control when and how they express their feelings.

Adolescence has been known as a period of transition from childhood to adulthood in which people go through major life changes, one of which is the emotional experience. Adolescents' emotional lives differ from adults in terms of higher intensity or how strongly positive or negative emotions, higher frequency, and greater instability (Bailen et al., 2018). Developing emotion regulation skills during this stage can be highly beneficial, as research indicates that these skills positively impact overall well-being (Brockman et al., 2017). Therefore, interventions aimed at enhancing emotional control should be prioritized

Over the past years, mindfulness-based programs have been used more frequently with children and youth to support a variety of academic and biopsychosocial outcomes. A growing body of research shows how mindfulness-based programs have aided as a means of reducing depression and anxiety symptom severity (Blanck et al., 2018; Hofmann & Gomez, 2017; Lin et al., 2019), reducing stress and improving well-being (Schussler et al., 2020), decreasing impulsivity (Roux & Philippot, 2020), and improving emotion regulation following participation in mindfulness-based interventions (Goldin & Gross, 2010). Different kinds of mindfulness-based programs are increasingly demonstrated in research, and among the popular ones are Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT) (Crane et al., 2017). However, less is known about the efficacy of Christian Mindfulness-based programs.

As mindfulness-based therapies are associated with secular or Buddhist frameworks (Symington et al., 2012), only a few studies have explored the efficacy of these programs when Christian values and biblical principles are already incorporated. Previous research findings show that the Christian framework for mindfulness-based interventions can be useful in clinical therapeutic contexts as it can improve mindfulness states as well as mitigate perceived stress (Trammel, 2018).

This study hopes to provide an additional body of knowledge on the efficacy of mindfulness for senior high school students in a Christian framework. Specifically, this study hopes to answer the following research questions:

1. What is the level of psychological distress experienced by the senior high school students before and after the intervention program?
2. What is the level of emotion regulation problems by the senior high school students before and after the intervention program?
3. Is there a significant difference in the level of psychological distress experienced by senior high school students before and after the intervention program?
4. Is there a significant difference in the level of emotion regulation problems experienced by the senior high school students before and after the intervention program?

Methodology

Research Design

This research adopted a one-group pre-test-post-test research design. In a one-group pretest-posttest design, the dependent variable is evaluated both before and after the intervention and is conducted without the use of a control group (Sharma et al., 2019).

In this study, the researcher first assessed the level of psychological distress and emotion regulation of students through a pre-test, followed by introducing the Christian Mindfulness-Based Program intervention. The post-assessment of their levels of psychological distress and emotion regulation after the intervention. All students completed the pre-and post-tests of DASS-21 and DERS-16.

Population and Sampling Technique

The participants of this study are senior high school students from a regional science high school located in a province in Mindanao, Philippines. Using purposive sampling, 83 students from Grade 11 (Science, Technology, Engineering, and Mathematics strand) participated, of which 35 were male and 48 were female. Most of the respondents (n=44;53.01%) are 16 years of age, 37 students (44.58%) are 17 years old, and only 2 students (2.41%) are 18 years old. All the participants' religious orientation is Christianity.

Instrumentation

A three-part questionnaire was used to gather data for this study. The questionnaire was distributed on paper forms. The first part is the demographic questionnaire, which includes age, sex, religion, year level, and strand. The second and third parts of the questionnaire are standardized research scales: the Depression Anxiety Stress Scales-Short Form (DASS-21) and the Difficulties in Emotion Regulation Scale (DERS-16).

To measure the level of psychological distress of the participants, this study used the Depression Anxiety Stress Scales-Short Form (DASS-21), a short form of the DASS-42, a self-report scale designed to measure the negative emotional states of depression, anxiety, and stress (Lovibond & Lovibond, 1995). Each of the three scales contains 7 items. The 7 elements on the scales are graded on a Likert scale from 0 to 3 (0: "Never", 1: "Sometimes", 2: "Often", and 3: "Almost always").

To measure the participants' emotion regulation level, this study utilized the Difficulties in Emotion Regulation Scale (DERS-16)- a brief version of the original DERS (Bjureberg et al., 2016). The DERS-16 consists of five subscales: nonacceptance of emotional responses (e.g., "When I am upset, I feel like I am weak"), difficulty engaging in goal-directed behavior (e.g., "When I am upset, I have difficulty getting work done"), impulse control difficulties (e.g., "When I am upset, I become out of control"), limited access to emotion regulation strategies (e.g., "When I am upset, I believe that I will remain that way for a long time"), and lack of emotional clarity (e.g., "I am confused about how I feel.").

Christian Mindfulness-Based Program

The Christian Mindfulness-Based Program, as the intervention was conducted in 5 sessions: 1) Introduction to Mindfulness (Breath Awareness); 2) Body Scan; 3) Managing Anxiety; 4) Coping with Anger Mindfully; and 5) Practicing Gratitude. Each session lasted for 30-45 minutes. All 83 students finished the intervention program.

Data Gathering Procedures

Upon approval of the conduct of the study, informed consent and questionnaires were distributed to the target sample using paper format. All data were gathered and entered into an Excel form and were analyzed and interpreted by the university statistician.

Ethical Consideration

Before conducting the culminating project on human subjects, an application was submitted to the AUP Ethics Board, and approval was obtained. Before administering the questionnaire and starting the intervention program, the researcher secured informed consent for voluntary participation from the participants, and their parents or guardians co-signed it. The data collected in this research was kept accordingly with the utmost confidentiality.

Data Analysis

A total of 83 participants' DASS-21 and DERS-16 scores were collected and analyzed using IBM SPSS Statistics. Based Program. Participants' demographic profiles were organized using frequency and percentage. The student's psychological distress and emotion regulation levels were assessed and determined using descriptive statistical analysis, specifically the mean and standard deviation. Lastly, a t-test was used to determine whether there are significant differences between the pre-test and post-test of the Depression, Anxiety, and Stress Scale—Short Form Version and the Difficulties in Emotion Regulation Scale among the 83 senior high school students.

Results

Level of Psychological Distress Before the Intervention

Table 1 shows the students' level of psychological distress before the intervention. Psychological distress has been used in this study to refer to a continuous variable operationalized through symptoms of depression, anxiety, and stress reactions and management (Zanon et al., 2021).

Table 1

Descriptive Statistics of the Level of Psychological Distress Before Intervention

	Mean	SD	Scaled Response
I found it hard to wind down.	1.31	.748	Sometimes
I was aware of the dryness of my mouth.	1.69	.869	Often
I couldn't seem to experience any positive feelings at all.	1.07	.712	Sometimes
I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	1.06	.980	Sometimes
I found it difficult to work up the initiative to do things.	1.51	.722	Often
I tend to overreact to situations.	1.57	.784	Often
I experienced trembling (e.g., in my hands)	1.47	.928	Sometimes
I felt that I was using a lot of nervous energy	1.47	.846	Sometimes
I was worried about situations in which I might panic and make a fool of myself	1.88	.955	Often
I felt that I had nothing to look forward to	1.17	.824	Sometimes
I found myself getting agitated	1.54	.845	Often
I found it difficult to relax	1.12	.802	Sometimes
I felt downhearted and blue	1.31	.764	Sometimes

{table continues on the next page}

I was intolerant of anything that kept me from getting on with what I was doing.	1.24	.655	Sometimes
I felt I was close to panic.	1.10	.790	Sometimes
I was unable to become enthusiastic about anything.	1.20	.728	Sometimes
I felt I wasn't worth much as a person.	1.46	.928	Sometimes
I felt that I was rather touchy.	1.18	.857	Sometimes
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)	1.37	.984	Sometimes
I felt scared for no good reason	1.48	.992	Sometimes
I felt that life was meaningless	1.22	.976	Sometimes
Overall Levels			
Depression	17.88	7.049	Moderate
Anxiety	20.10	8.971	Extremely Severe
Stress	18.87	6.657	Mild

Legend: x per indicator item: 0.00-0.49 = Never, 0.50-1.49 = Sometimes, 1.50-2.49 = Often, and 2.50-3.00 = Almost always; Sum for Depression: 0-9 = Normal, 10-13 = Mild, 14-20 = Moderate, 21-27 = Severe, 28+ = Extremely Severe; Sum for Anxiety: 0-7 = Normal, 8-9 = Mild, 10-14 = Moderate, 15-19 = Severe, 20+ = Extremely Severe; Sum for Stress: 0-14 = Normal, 15-18 = Mild, 19-25 = Moderate, 26-33 = Severe, 34+ = Extremely Severe

Based on the results above, the overall mean for depression, 17.88, suggests that the participants are in the moderate range of depression. Meanwhile, the participants' anxiety scale was 20.10, indicating an extremely severe range of anxiety. Lastly, the participants' stress level has an overall mean of 18.87, which indicates a mild range of stress they are experiencing during test administration.

Among the indicators above, it can be concluded that the students are generally worried about situations in which they might panic and make a fool of themselves (M = 1.88). Moreover, the students are also sometimes aware of the dryness of their mouth (M = 1.69) and tend to overreact to situations (M = 1.57).

Level of Emotion Regulation Before Intervention

Table 2 shows the level of emotion regulation problems experienced by the senior high school students before the intervention program. The overall mean suggests that the participants have average emotional regulation difficulty (M = 45.41, SD = 12.770).

Table 2

Descriptive Statistics of the Level of Emotion Regulation Before Intervention

	Mean	SD	Scaled Response
I have difficulty making sense out of my feelings.	2.98	1.115	About half the time
I am confused about how I feel.	2.93	1.045	About half the time
When I am upset, I have difficulty getting work done.	3.35	1.194	About half the time
When I am upset, I become out of control.	2.59	1.179	About half the time
When I am upset, I believe that I will remain that way for a long time.	2.27	1.094	Sometimes
When I am upset, I believe that I'll end up feeling very depressed.	2.20	1.177	Sometimes
When I am upset, I have difficulty focusing on other things.	3.28	1.182	About half the time
When I am upset, I feel out of control.	2.52	1.203	About half the time

{table continues on the next page}

When I am upset, I feel ashamed of myself for feeling that way.	3.37	1.285	About half the time
When I am upset, I feel like I am weak.	2.60	1.239	About half the time
When I am upset, I have difficulty controlling my behaviors.	2.86	1.191	About half the time
When I am upset, I believe that there is nothing I can to make myself feel better	2.19	1.120	Sometimes
When I am upset, I become irritated with myself for feeling that way.	3.19	1.435	About half the time
When I am upset, I start to feel very bad about myself.	2.93	1.496	About half the time
When I am upset, I have difficulty thinking about anything else.	3.13	1.135	About half the time
When I am upset, my emotions feel overwhelming.	3.02	1.278	About half the time
Overall Level	45.41	12.770	Average Difficulty

Legend: x per indicator item: 1.00 -1.49 = Almost never, 1.50-2.49 = Sometimes, 2.50-3.49 = About half time, 3.50-4.49 = Most of the time, and 4.50-5.00 = Almost always; Sum: 16-28.8 = No Difficulty, 28.9- 41.6 = Mild Difficulty, 41.7- 54.4 = Average Difficulty, and 54.5- 67.2 = Moderate Difficulty, 67.3- 80 = Great Difficulty

Out of 16 indicators, 13 fell between the mean scores of 2.50 and 3.49, showing they tend to experience these difficulties about half the time. Meanwhile, three of these indicators fell between the mean scores of 1.50 and 2.49, indicating they tend to experience these difficulties sometimes. Based on the results above, it can be concluded that, in general, the students feel ashamed for feeling upset about half the time (M=3.37), and they sometimes believe that there is nothing they can do to make themselves feel better when they are upset (M=2.19)

Level of Psychological Distress After Intervention

The following are the results of the participants' level of psychological distress after the intervention program.

Table 3

Descriptive Statistics of the Level of Psychological Distress After the Intervention Program

	Mean	SD	Scaled Response
I found it hard to wind down.	1.24	.554	Sometimes
I was aware of the dryness of my mouth.	1.70	.907	Often
I couldn't seem to experience any positive feelings at all.	0.99	.690	Sometimes
I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	1.16	.876	Sometimes
I found it difficult to work up the initiative to do things.	1.36	.673	Sometimes
I tend to overreact to situations.	1.43	.784	Sometimes
I experienced trembling (e.g., in my hands).	1.23	.801	Sometimes
I felt that I was using a lot of nervous energy.	1.36	.774	Sometimes
I was worried about situations in which I might panic and make a fool of myself.	1.67	.767	Often
I felt that I had nothing to look forward to.	1.07	.777	Sometimes
I found myself getting agitated.	1.17	.621	Sometimes
I found it difficult to relax.	1.12	.688	Sometimes
I felt downhearted and blue.	1.17	.762	Sometimes

{table continues on the next page}

I was intolerant of anything that kept me from getting on with what I was doing.	1.20	.639	Sometimes
I felt I was close to panic.	1.08	.784	Sometimes
I was unable to become enthusiastic about anything.	1.16	.689	Sometimes
I felt I wasn't worth much as a person.	1.12	.929	Sometimes
I felt that I was rather touchy.	1.27	.842	Sometimes
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.	1.43	.886	Sometimes
I felt scared for no good reason.	1.34	.873	Sometimes
I felt that life was meaningless.	1.04	.993	Sometimes
Overall Levels			
Depression Scale	15.81	7.023	Moderate
Anxiety Scale	19.23	8.263	Severe
Stress Scale	17.59	5.766	Mild

Legend: x per indicator item: 0.00-0.49 = Never, 0.50-1.49 = Sometimes, 1.50-2.49 = Often, and 2.50-3.00 = Almost always; Sum for Depression: 0-9 = Normal, 10-13 = Mild, 14-20 = Moderate, 21-27 = Severe, 28+ = Extremely Severe ; Sum for Anxiety: 0-7 = Normal, 8-9 = Mild, 10-14 = Moderate, 15-19 = Severe, 20+ = Extremely Severe; Sum for Stress: 0-14 = Normal, 15-18 = Mild, 19-25 = Moderate, 26-33 = Severe, 34+ = Extremely Severe

As shown in Table 3, the overall mean score for depression, 15.81, suggests that the participants are in the moderate range of depression. Meanwhile, the participants' anxiety scale after the intervention was 19.23, indicating a severe range of anxiety. Lastly, the participants' stress level has an overall mean of 17.59, which indicates a mild range of stress they are experiencing after the intervention program. Based on the results in the table above, it can be observed that there was a decrease in the total mean score for each scale.

Level of Emotion Regulation After Intervention

Table 4 shows the level of emotion regulation experienced by the senior high school students after the intervention program. Results show a decrease in the total mean scores among the participants after the intervention program. The overall mean of 41.3494 suggests that the participants still have average emotional regulation difficulty.

Table 4

Descriptive Statistics of the Level of Emotion Regulation After the Intervention Program

	Mean	SD	Scaled Response
I have difficulty making sense out of my feelings.	2.3	.907	Sometimes
I am confused about how I feel.	2.53	.992	About half the time
When I am upset, I have difficulty getting work done.	2.96	1.053	About half the time
When I am upset, I become out of control.	2.49	1.075	Sometimes
When I am upset, I believe that I will remain that way for a long time.	2.06	1.063	Sometimes
When I am upset, I believe that I'll end up feeling very depressed.	2.19	1.142	Sometimes
When I am upset, I have difficulty focusing on other things.	3.00	1.137	About half the time
When I am upset, I feel out of control.	2.48	1.162	Sometimes

{table continues on the next page}

When I am upset, I feel ashamed of myself for feeling that way.	2.72	1.272	About half the time
When I am upset, I feel like I am weak.	2.59	1.159	About half the time
When I am upset, I have difficulty controlling my behaviors.	2.67	.977	About half the time
When I am upset, I believe that there is nothing I can do to make myself feel better	2.26	1.127	Sometimes
When I am upset, I become irritated with myself for feeling that way.	2.66	1.232	About half the time
When I am upset, I start to feel very bad about myself.	2.67	1.201	About half the time
When I am upset, I have difficulty thinking about anything else.	2.86	1.106	About half the time
When I am upset, my emotions feel overwhelming.	2.81	1.224	About half the time
TOTAL:	41.35	12.375	Average Difficulty

Legend: x per indicator item: 1.00 -1.49 = Almost never, 1.50-2.49 = Sometimes, 2.50-3.49 = About half time, 3.50-4.49 = Most of the time, and 4.50-5.00 = Almost always; Sum: 16-28.8 = No Difficulty, 28.9- 41.6 = Mild Difficulty, 41.7- 54.4 = Average Difficulty, and 54.5- 67.2 = Moderate Difficulty, 67.3- 80 = Great Difficulty

Out of 16 indicators, 10 fell between the mean scores of 2.50 and 3.49, showing they tend to experience these difficulties about half the time. Meanwhile, six of these indicators fell between the mean scores of 1.50 and 2.49, indicating they tend to experience these difficulties sometimes.

Comparison of the Levels of Psychological Distress of the Participants Before and After the Intervention

Table 5 presents a paired-sample t-test that compares the participants' pre-test and post-test results. This analysis determines whether there is a significant difference in their level of psychological distress before and after the intervention program.

Table 5

Comparison of the Levels of Psychological Distress of the Participants Before and After the Intervention Program

		Mean	N	SD	t-test	df	p-value	Cohen's d	Verbal Interpretation
Depression	Pretest	17.88	83	7.049	1.908	82	.060	.209	Not Significant
	Posttest	15.81	83	7.023					
Anxiety	Pretest	20.10	83	8.971	.654	82	.515	.072	Not Significant
	Posttest	19.23	83	8.263					
Stress	Pretest	18.87	83	6.657	1.299	82	.198	.143	Not Significant
	Posttest	17.59	83	5.766					

The results showed that all three variables displayed a decrease in mean scores after the intervention program. Moreover, the computed p-values for variables depression (0.60), anxiety (0.515), and stress (0.198) are all greater than 0.05. This indicates that there is no significant difference in the level of psychological distress experienced by senior high school students before and after the intervention program. Simply put, the intervention program does not affect the students' level of psychological distress.

Comparison of the Levels of Emotion Regulation of the Participants Before and After the Intervention

Table 6 presents the results of the paired-sample t-test to determine if there is a significant difference in the level of emotion regulation of the participants before and after the intervention program.

Table 6

Comparison of the Levels of Emotion Regulation of the Participants Before and After the Intervention Program

		Mean	N	SD	t-test	df	p	Verbal Interpretation	Cohen's d
Emotion Regulation	Pretest	45.41	83	12.770	2.050	82	.044	Significant	.225
	Posttest	41.3494	83	12.375					

In this case, the results showed a decrease in total mean score between the pre-test and post-test. This signifies a decrease in the level of difficulty in emotion regulation among the participants after the administration of the intervention. Moreover, the computed p-value=0.044 is less than alpha=0.05. This indicates that there is a significant difference in the level of emotion regulation experienced by senior high school students before and after the intervention program. Simply put, the intervention program affects how the participants regulate their emotions.

Discussion

This study aimed to examine the effectiveness of a Christian Mindfulness-Based Program on the level of psychological distress and emotion regulation among senior high school students. Based on the study, depression, anxiety, and stress levels of the senior high school students range from mild to extremely severe before the intervention program. A decrease in the mean scores of the participants in the Depression Anxiety Stress Scales-Short Form was observed after the intervention program; however, it was not statistically significant. This is contrary to a previous study by Trammel (2018) on how Christian mindfulness intervention can also significantly reduce perceived stress reported by student participants and a study by Ma and Fang (2019) where adolescents' mindfulness was negatively associated with psychological distress. One possible explanation for this is that during the implementation stage of this program, the post-test occurred when the students were in the busiest period of their semester and were under significant pressure. Further, the program's effectiveness may have been influenced by the duration of the sessions conducted. In this study, the Christian mindfulness sessions were held over a relatively short period—just three weeks—which might have limited the potential benefits.

On the other hand, the Christian mindfulness-based program shows a significant difference in emotion regulation among senior high school students. This finding is consistent with previous studies using a secularized framework of mindfulness-based interventions with adolescent populations, wherein mindfulness positively correlates with adolescents' ability to regulate emotions (Deng et al., 2020; Zhang et al., 2019).

Research proves that high school students experience notably high levels of academic stress and emotional difficulties as they face the simultaneous challenges of adolescence and the heightened demands of academic responsibilities (Tharaldsen et al., 2022; Pascoe et al., 2020; Regalado, 2024). It is only important that schools be proactive in creating intervention programs that help the students manage these challenges. This research contributes as an additional body of knowledge on how mindfulness-based interventions using a Christian framework can be adapted as a program (Trammel, 2018) and may be effective in helping high school students manage their emotions.

As the sample of this research was selected using purposive sampling, this paper recommends introducing the Christian Mindfulness-Based Program to a more diverse population and extending beyond a specific grade level. Furthermore, the data gathered is only restricted to a quantitative self-report; thus, it is recommended to collect other types of data, such as qualitative interviews, to gain in-depth insight into the numerical data gathered from the research. To maximize the potential benefits of the mindfulness program on students' psychological distress and emotion regulation, the intervention should also be conducted over a significantly longer duration.

Further studies on Christian Mindfulness-Based Programs are encouraged, including an exploration of other Christian meditation tools or practices under the guidance of an expert or trained mindfulness coach. With the increasing evidence on the effectiveness of mindfulness training programs among adolescents and along with the results of this study, the researcher hopes that mindfulness training programs, whether secular or Christian in framework, can be integrated in the future curriculum of the schools in the Philippines.

References

AlAzzam, M., Abuhammad, S., Abdalrahim, A., Hamdan-Mansour, A., (2021). Predictors of depression and anxiety among senior high school students during covid-19 pandemic: the context of home quarantine and online education. *The Journal of School Nursing*, Vol. 37(4) 241-248. https://doi.org/10.1177/1059840520988548

Anyanwu, M. U. (2023). Psychological distress in adolescents: Prevalence and its relation to high-risk behaviors among secondary school students in Mbarara Municipality, Uganda. *BMC Psychology, 11*(1), 5. https://doi.org/10.1186/s40359-023-01039-z

Bailen, N., Green, L., Thompson, R. (2018). Understanding emotion in adolescents: a review of emotional frequency, intensity, instability, and clarity. *Emotion Review, 11*(1), 63-73. https://doi.org/10.1177/1754073918768878

Bjureberg, J., Ljótsson, B., Tull, M. T., Hedman, E., Sahlin, H., Lundh, L.-G., Bjärehed, J., DiLillo, D., Messman-Moore, T., Gumpert, C. H., & Gratz, K.L. (2016). Development and validation of a brief version of the difficulties in emotion regulation scale: The DERS-16. *Journal of Psychopathology and Behavioral Assessment*, 1–13. http://doi.org/10.1007/s10862-015-9514-x

Blanck, P., Perleth S., Heidenreich, T., Kröger, P., Ditzen, B., Bents, H., & Mander, J. (2018) Effects of mindfulness exercises as stand-alone intervention on symptoms of anxiety and depression: Systematic review and meta-analysis. *Behaviour Research and Therapy, 102*, 25–35. https://doi.org/10.1016/j.brat.2017.12.002

Brockman, R., Ciarrochi, J., Parker, P., & Kashdan, T. (2017). Emotion regulation strategies in daily life: Mindfulness, cognitive reappraisal and emotion suppression. *Cognitive Behavior Therapy*, Volume 46, Issue 2, pp 91-113. DOI: 10.1080/16506073.2016.1218926

Crane, R., Brewer, J., Feldman, C., Kabat-Zinn, J., Santorelli, S., Williams, J., & Kuyken, W. (2017). What defines mindfulness-based programs? The warp and the weft. *Psychological Medicine, 47*(6), 990-999. doi:10.1017/S0033291716003317

Dachew, B.A., Bisetegn, T.A., & Gebremariam, R.B., (2015). Prevalence of mental distress and associated factors among undergraduate students of university of gondar, northwest ethiopia: A cross-sectional institutional based study. *Plos One, 10*(3). https://doi.org/10.1371/journal.pone.0119464

Deng, X., Gao, Q., Zhang, L., & Li, Y. (2020). Neural Underpinnings of the Role of Trait Mindfulness in Emotion Regulation in Adolescents. *Mindfulness 11*, 1120–1130. https://doi.org/10.1007/s12671-019-01276-7

Desamparado, C.G, Mendoza, S.J., Minguito, T.K., Moneva, J., (2019). Stress levels among the senior high school students in practical research 2. International Journal of Scientific and Research Publications, Volume 9, Issue 1, January 2019. http://dx.doi.org/10.29322/IJSRP.9.01.2019.p8559

Goldin, P. R., & Gross, J. J. (2010). Effects of mindfulness-based stress reduction (MBSR) on emotion regulation in social anxiety disorder. *Emotion, 10*(1), 83–91. https://doi.org/10.1037/a0018441

Gross, J. J., & Thompson, R. A. (2007). Emotion Regulation: Conceptual Foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–24). The Guilford Press.

Hofmann, S., & Gomez, A., (2017). Mindfulness-based interventions for anxiety and depression. *The Psychiatric clinics of North America, 40*(4):739-749. DOI: 10.1016/j.psc.2017.08.008

Lovibond, S.H.; Lovibond, P.F. (1995). Manual for the Depression Anxiety Stress Scales (2nd ed.). Sydney: Psychology Foundation (Available from The Psychology Foundation, Room 1005 Mathews Building, University of New South Wales, NSW 2052, Australia https://novopsych.com.au/assessments/depression/depression-anxiety-stress-scales-short-form-dass-21/

Lin, J., Chadi, N., & Shrier, L., (2019). Mindfulness-based interventions for adolescent health. *Current Opinion in Pediatrics*, Volume 31, Number 4, pp 469-475. DOI:10.1097/MOP.0000000000000760

Lin, H.J., & Yusoff, M.S., (2013). Psychological distress, sources of stress and coping strategy in high school students. International Medical Journal, Volume 20, No. 6, pp. 1-6, https://www.researchgate.net/publication/259186979_Psychological_Distress_Sources_of_Stress_and_Coping_Strategy_in_High_School_Students

Ma, Y., & Fang, S. (2019). Adolescents' mindfulness and psychological distress: the mediating role of emotion regulation. *Frontiers in Psychology.* https://doi.org/10.3389/fpsyg.2019.01358

Mboya, I.B., John, B., Kibopile, E., Mhando, L., George, J., & Ngocho, J. (2020). Factors associated with mental distress among undergraduate students in northern Tanzania. *BMC Psychiatry 20*, 28. https://doi.org/10.1186/s12888-020-2448-1

Murata, S., Rezeppa, T., Thoma, B., Marengo, L., Krancevich, K., Chiyka, E., Hayes, B., Goodfriend, E., Deal, M., Zhong, Y., Brummit, B., Coury, T., Riston, S., Brent, D. A., & Melhem, N. M. (2021). The psychiatric sequelae of the COVID-19 pandemic in adolescents, adults, and health care workers. *Depression and Anxiety, 38*(2), 233–246. https://doi.org/10.1002/da.23120

Pascoe, M., Hetrick, S., & Parker, A. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth, 25*:1, 104-112. DOI: 10.1080/02673843.2019.1596823

Regalado, R. A. (2024). Academic stress and coping self-efficacy of senior high school students attending distance learning during the Sars-Cov-2 pandemic. *Malaysian Journal of Learning and Instruction, 21*(1), 39-66. https://doi.org/10.32890/ mjli2024.21.1.2

Rothon, C., Head, J., Clark, C., Klineberg, E., Cattell, V., & Stansfeld, S. (2009). The impact of psychological distress on the educational achievement of adolescents at the end of compulsory education. *Social Psychiatry and Psychiatric Epidemiology, 44*(5): pp. 421–427. https://doi.org/10.1007/s00127-008-0452-8

Roux, B., & Philippot, P. (2020). A mindfulness-based program among adolescent boys with behavior disorders: A quasi-experimental study. *Journal of Child and Family Studies, 29*, 2186–2200. https://doi.org/10.1007/s10826-020-01751-z

Sharma, N., & Rana, D., & Ghai, Sa. (2019). Research designs. Nursing research in 21st century. (pp. 1-15). ResearchGate. https://www.researchgate.net/publication/335651908_Research_Designs

Schussler, D.L., Oh, Y., Mahfouz, J. et al. (2020). Stress and well-being: A systematic case study of adolescents' experiences in a mindfulness-based program. *Journal of Child and Family Studies, 30*, 431–446. https://doi.org/10.1007/s10826-020-01864-5.

Subramani, C., & Kadhiravan, S. (2017). Academic stress and mental health among high school students. *Indian Journal of Applied Research*, Volume 7, Issue 5, May 2017. https://www.researchgate.net/publication/321572693_Academic_Stress_and_Mental_Health_Among_High_School_Students

Symington, S. H., & Symington, M. F. (2012). A Christian model of mindfulness: Using mindfulness principles to support psychological well-being, value-based behavior, and the Christian spiritual journey. *Journal of Psychology & Christianity, 31*(1), 71–77. https://www.thefreelibrary.com/A+Christian+model+of+mindfulness%3A+using+mindfulness+principles+to...-a0293812661

Tharaldsen, K. B., Tvedt, M. S., Caravita, S. C. S., & Bru, E. (2022). Academic stress: links with emotional problems and motivational climate among upper secondary school students. *Scandinavian Journal of Educational Research, 67*(7), 1137–1150. https://doi.org/10.1080/00313831.2022.2116480

Trammel, R. (2018). Effectiveness of an MP3 christian mindfulness intervention on mindfulness and perceived stress. *Mental Health, Religion & Culture*, Volume 21, Issue 5, pp. 500-514. DOI: 10.1080/13674676.2018.1505837

Wang, M., & Saudino, K., (2011). Emotional regulation and stress. *Journal of Adult Development, 18*(2):95-103. DOI:10.1007/s10804-010-9114-7

Zanon, C., Brenner, R.E., Baptista M.N., Vogel D.L., Rubin M., & Al-Darmaki F.R. (2021). Examining the dimensionality, reliability, and invariance of the depression, anxiety, and stress scale–21 (DASS-21) across eight countries. *Assessment, 28*(6):1531–44.

Zhang, W., Ouyang, Y., Tang, F., Chen, J., & Li, H. (2019). Breath-focused mindfulness alters early and late components during emotion regulation. *Brain and Cognition, 135*, 103585. https://doi.org/10.1016/j.bandc.2019.103585

HUMANITIES

Assessment of Computer-Mediated Communication (CMC) Competence of Senior High School Students: A Basis for Proposed Workshop

Kirsten Lei L. Ramos
Juvy Lou Bhattrai
Jervenesence Florece
Eunice Aclan
Ele Lunzaga
Rowena Imelda Ramos
Michael Naidas

Adventist University of the Philippines
2048213@aup.edu.ph

Abstract

The rapid growth of information and communication technologies (ICTs) has led to the widespread use of Computer-Mediated Communication (CMC), especially in educational settings, where online communication tools facilitate interactions in virtual classrooms. This study assessed the CMC competence of senior high school students as a basis for designing a workshop to enhance their competence. Guided by a simplified version of Spitzberg's CMC competence model, the study employed a descriptive quantitative research design and surveyed 154 students using an adapted questionnaire. Findings revealed that students generally demonstrated motivation, CMC-related knowledge and skills, a preference for task-oriented message content, and recognition of positive communication outcomes in CMC. The results also identified areas needing improvement. A school-based workshop was proposed, focusing on motivation enhancement, CMC knowledge building, skills development, effective message content and context, rapport and confirmation, and application. The intervention was designed taking into consideration students' individual competence levels and needs. This study addresses the gap in research concerning CMC competence among senior high school students and offers practical recommendations to improve their effectiveness in online communication – an increasingly vital skill in this new normal.

Keywords: *computer-mediated communication, competence, senior high school students, online communication, workshop design*

With the rapid advancement of information and communication technologies (ICTs), human communication has significantly evolved, leading to the widespread use of digital tools such as email, chat rooms, social networking services (SNS), and instant messaging. These tools, collectively referred to as Computer-Mediated Communication (CMC), have transformed how people interact, particularly in education. December (1997) defined CMC as the process of human communication via computers within specific contexts and for various purposes. As human-to-human interactions increasingly take place through computers (Rosell-Aguillar, 2005), CMC has become a vital component of academic environments. In fact, researchers have emphasized its potential to enhance classroom engagement, improve learning outcomes, and create more flexible, student-centered approaches (Harasim, 1990; Collison et al., 2000; Turman & Schrodt, 2005). However, the effective use of CMC depends heavily on the user's competence, which includes motivation, knowledge, and communication skills (Spitzberg, 2006; Wang & Haggerty, 2011).

Despite the benefits of CMC in education, challenges such as student reluctance, technology fatigue, and lack of competence hinder its full potential (Baloran, 2020; Andres, 2012). While CMC can enhance learning, studies show it may also disrupt focus, reduce time spent studying, or even result in miscommunication (Kirschner & Karpinski, 2010; Quan-Haase, 2008). These mixed outcomes suggest a need to better understand how students engage with CMC and whether they possess the necessary skills to use it effectively. In the Philippine context, internet access is widespread, with over 76 million users as of 2022 and a daily average of more than nine hours of use (Kemp, 2022; 2023). Filipino students are familiar with digital tools, particularly in public education settings where platforms like Google Meet and Messenger are commonly used. However, competence in using these tools for educational purposes remains uncertain, especially at the senior high school level. Students' differing backgrounds, access to resources, and digital literacy levels may influence how well they communicate in online learning settings (Vurdien, 2019; Isisag, 2012).

Spitzberg's (2006) CMC competence model offers a comprehensive framework for understanding how individuals communicate through technology. This model includes individual variables (motivation, knowledge, skills), situational variables (message clarity and structure, media used, and context), and communication outcomes such as effectiveness, satisfaction, co-orientation, and relational development. While widely recognized in communication research, the model has yet to be extensively applied to secondary education settings, where students are still developing both digital literacy and interpersonal communication skills. Although some interpersonal and online communication constructs have been studied—such as impression formation, self-disclosure, and social mindfulness, there remains a gap in validated measures and assessments specific to the CMC experiences of high school students (Masur, 2019).

To address this research gap, the present study assesses the CMC competence of senior high school students enrolled in a large public school in Pagbilao, Quezon. Using a simplified version of Spitzberg's CMC competence model, the study evaluates students' skills across three core dimensions: interactant factors (motivation, knowledge, skills), message factors (clarity, structure, appropriateness), and outcomes (effectiveness, co-orientation, satisfaction, relational development). Furthermore, it seeks to determine the essential features of a proposed school-based workshop that can help improve the CMC competence of these students based on the assessment results.

Methodology

Research Design

In this study, a descriptive research design was applied. This study was primarily concerned with describing the current level of computer-mediated communication (CMC) competence of senior high school students in an online learning environment. Variables were identified and assessed in their natural environment; they were not modified in any way.

Population and Sampling Technique

The study involved 154 purposively selected senior high school students from the largest public secondary institution in Pagbilao, Quezon. As this school shifted to online learning during the COVID-19 pandemic, students with experience in virtual classes were selected based on the following criteria: they must be senior high school students, have attended at least one online class.

Purposive sampling ensured that participants reflected diverse backgrounds relevant to the study's objectives and provided meaningful insights into their computer-mediated communication (CMC) competence in the context of online learning. Of the total respondents, 81 (52.6%) were in Grade 12 and 73 (47.4%) in Grade 11, ensuring adequate representation across levels. In terms of gender, 106 students (68.8%) identified as female and 48 (31.2%) as male, consistent with the current demographic composition of the student population at TNHS.

Instrumentation

This study used an adapted questionnaire based on Spitzberg's (2006) Computer-Mediated Communication (CMC) competence scale, tailored to suit the study's context. Responses were recorded using a five-point Likert scale ranging from 1 ("Totally Untrue") to 5 ("Totally True"). Scoring scales for each component were interpreted using construct-specific verbal descriptors.

The modification was guided by an academic adviser and reviewed by a panel of experts to ensure clarity and content validity. The questionnaire underwent reliability testing, resulting in a high internal consistency reliability (George & Mallery, 2003). The instrument demonstrated excellent reliability across all components. Motivation, consisting of 6 items, had a Cronbach's alpha of .963. Knowledge, measured by 8 items, obtained an alpha of .974, while Skills, with 10 items, yielded .977. For Message Factors, 6 items produced a reliability coefficient of .961, and Outcomes, with 10 items, reached .978. Overall, the 40-item instrument achieved a Cronbach's alpha of .970, indicating very high internal consistency.

Data Gathering Procedures

Data were collected through an online survey using Google Forms during the second semester of Academic Year 2022–2023. After securing approval from the principal, the questionnaire link was disseminated by the teachers via Messenger.

Data Analysis

Based on the goals of the study, the collected data were coded, classified, quantified, and tabulated for analysis. Levels ofCMC competence were evaluated to using descriptive statistics, including the mean and standard deviation. The study computed and analyzed the results using Microsoft Excel and Jamovi. The statistical results served as basis for the features of the proposed school-based workshop meant to enhances senior high school students' CMC.

Ethical Consideration

Prior to data collection, the study was reviewed and approved by the Ethics Review Board of the Adventist University of the Philippines to ensure adherence to ethical standards. Informed consent was obtained from all participants at the beginning of the survey, and their rights were explained. All responses were treated with strict confidentiality and used solely for academic purposes.

Results

Level of CMC Competence

Level of CMC Competence in Terms of Interactant Factors

Motivation. Motivation, as outlined in Spitzberg's (2006) CMC competence model, refers to the desire and willingness to engage in computer-mediated communication (CMC). Table 1 presents the descriptive statistics for the motivation component.

Table 1

Descriptive Statistics of the Level of Interactant Factors in Terms of Motivation

Statements	Mean	SD	Scaled Response	Verbal Interpretation
I prefer using digital media to communicate.	3.61	1.34	Mostly True	Motivated
I never get nervous when I use technology such as computers.	3.57	1.23	Mostly True	Motivated
I have a strong desire to communicate with others online via computers.	3.65	1.27	Mostly True	Motivated
I find that using computers to communicate helps reduce my stress.	3.45	1.30	Slightly True	Moderately Motivated
I look forward to using my computer to communicate with others.	3.62	1.30	Mostly True	Motivated
I like experimenting with different ways to improve my communication online.	3.74	1.30	Mostly True	Motivated
Grand Mean	3.61	1.08	Mostly True	Motivated

Scoring System: 4.50–5.00 = Highly Motivated; 3.50–4.49 = Motivated; 2.50–3.49 = Moderately Motivated; 1.50–2.49 = Somewhat Motivated; 1.00–1.49 = Unmotivated

The results indicate that senior high school students were generally motivated to use CMC tools, with the highest motivation linked to experimenting with ways to improve their online communication. While most items reflected positive motivation, the lowest mean score was observed for the item related to stress reduction, suggesting that students were less inclined to view CMC as a tool for managing stress. Overall, the data suggests a favorable attitude toward digital communication and a readiness to explore its various forms for improved interaction.

Knowledge. CMC knowledge encompasses students' familiarity with digital tools and their ability to communicate effectively online. As shown in Table 2, students generally rated themselves as knowledgeable, particularly in using search engines and productivity software. This reflects their readiness to participate in digital communication environments. However, the relatively lower score in troubleshooting technical issues suggests an area where additional support or instruction may be needed. Overall, the results highlight the importance of both digital literacy and contextual communication awareness in strengthening CMC competence.

Table 2

Descriptive Statistics of the Level of Interactant Factors in Terms of Knowledge

Statements	Mean	SD	Scaled Response	Verbal Interpretation
I can fix or figure out errors when my computer or mobile device malfunctions.	3.44	1.257	Slightly True	Moderately Knowledgeable
I manage to explain myself clearly whenever I communicate online.	3.56	1.247	Mostly True	Knowledgeable
I am at ease when interacting online.	3.62	1.178	Mostly True	Knowledgeable
I excel at composition writing.	3.73	1.085	Mostly True	Knowledgeable
I am proficient at communicating via social networking sites.	3.71	1.096	Mostly True	Knowledgeable
I know how to use Microsoft Office and other related software.	3.81	1.159	Mostly True	Knowledgeable

{table continues on the next page}

I can use search engines to find information on the internet.	3.87	1.235	Mostly True	Knowledgeable
I am capable of quickly learning a new online platform.	3.67	1.248	Mostly True	Knowledgeable
Grand Mean	3.68	0.899	Mostly True	Knowledgeable

Scoring System: 4.50 – 5.00 = Highly Knowledgeable; 3.50 – 4.49 = Knowledgeable; 2.50 – 3.49 = Moderately Knowledgeable; 1.50 – 2.49 = Somewhat Knowledgeable; 1.00 – 1.49 = Unknowledgeable.

Skills. Students demonstrated a solid command of interpersonal skills in computer-mediated contexts, as shown in Table 3. With an overall mean of 3.72, the data suggest that respondents were generally skilled in managing digital interactions across four key components: attentiveness, composure, coordination, and expressiveness (Spitzberg, 2006).

Table 3

Descriptive Statistics of the Level of Interactant Factors in Terms of Skills

Statements	Mean	SD	Scaled Response	Verbal Interpretation
I am skilled at controlling the flow of my interactions with other people.	3.59	1.202	Mostly True	Skilled
I am aware of when and how to end a topic in a conversation.	3.66	1.184	Mostly True	Skilled
I compose detailed and well-written messages.	3.64	1.176	Mostly True	Skilled
I include emoticons or emojis in my messages.	3.82	1.134	Mostly True	Skilled
I try to be humorous in my online conversations.	3.73	1.155	Mostly True	Skilled
I change my word choices and writing style to fit the person with whom I'm communicating.	3.77	1.241	Mostly True	Skilled
I try to keep as focused on the other person's issue or agenda as possible.	3.69	1.184	Mostly True	Skilled
I make sure to emphasize my objectives in my messages.	3.77	1.148	Mostly True	Skilled
I write my messages with confidence.	3.77	1.193	Mostly True	Skilled
I am good at projecting composure and self-confidence throughout online interactions.	3.77	1.117	Mostly True	Skilled
Grand Mean	3.72	0.93	Mostly True	Skilled

Scoring System: 4.50–5.00 = Highly Skilled; 3.50–4.49 = Skilled; 2.50–3.49 = Moderately Skilled; 1.50–2.49 = Somewhat Skilled; 1.00–1.49 = Unskilled.

The findings reflect that students were able to adjust their tone and focus to suit their communication partners, a hallmark of attentiveness. Similarly, the ability to project self-assurance and communicate objectives clearly illustrates their composure—an essential trait in environments lacking nonverbal cues (Riordan, 2011). Students also demonstrated effective coordination, allowing conversations to remain structured and purposeful. Their use of emoticons, detailed messages, and humor indicated a strong sense of expressiveness, helping to convey emotion and clarity in their messages (Garcia et al., 2016; Erdogdu & Çakıroğlu, 2021).

These results suggest that the students were not only comfortable navigating digital platforms but also mindful of how to engage others meaningfully. Continuous refinement of these skills can further enhance their ability to communicate with confidence, coherence, and emotional intelligence in virtual settings.

Level of CMC Competence in Terms of Message Factors

As reflected in Table 4, the students demonstrated a clear preference for task-oriented message content in their CMC. This type of communication emphasizes accomplishing academic goals, such as clarifying instructions, completing assignments, and seeking information (Batenburg & Das, 2014). In contrast, there was noticeably less engagement in socio-emotional content, which involves relationship-building, emotional expression, or social support (Derks et al., 2008).

Table 4

Descriptive Statistics of the Level of Message Factors

Statements	Mean	SD	Scaled Response	Verbal Interpretation
I focus on very specific tasks when I communicate through computers.	3.63	1.21	Mostly True	Task-oriented
I use the internet just to get a rough idea of what I should be doing on an assignment/ project.	3.69	1.24	Mostly True	Task-oriented
I communicate with my teachers online to get answers to important questions in completing my assignments/projects.	3.57	1.26	Mostly True	Task-oriented
I participate in online discussions at school when it is educational.	3.55	1.17	Mostly True	Task-oriented
I view the conversations I have online more as opportunities to complete assignments/ projects than as opportunities to build relationships.	3.55	1.24	Mostly True	Task-oriented
The effectiveness of the device is more important than how I feel about my interactions with it.	3.54	1.26	Mostly True	Task-oriented
Grand Mean	3.59	1.01	Mostly True	Task-oriented

Scoring System: 4.50–5.00 = Highly Task-oriented; 3.50–4.49 = Task-oriented; 2.50–3.49 = Moderately Task-oriented; 1.50–2.49 = Somewhat Task-oriented; 1.00–1.49 = Not Task-oriented.

This trend is consistent with findings from Sjolie et al. (2022), who noted students' difficulty in fostering social interaction in virtual environments. The lack of nonverbal cues in CMC, as pointed out by Riordan (2011), may further hinder emotional nuance, contributing to reduced socio-emotional expression. The responses suggest that students primarily used CMC as a functional tool to support academic tasks—engaging with teachers, participating in educational discussions, and focusing on completing projects. The item regarding device effectiveness over emotional experience (M = 3.54) further emphasized their practical orientation toward technology use. With an overall mean of 3.59, the results indicate that the students viewed online communication primarily as a means to fulfill academic responsibilities. This aligns with previous studies highlighting the predominantly task-focused use of CMC in educational settings (Balaman, 2018; Parke et al., 2017).

Level of CMC Competence in Terms of Outcomes

Spitzberg's (2006) model outlines several indicators of CMC competence through outcomes such as appropriateness, effectiveness, co-orientation, satisfaction, and relational development. If these outcomes are lacking, it signals an area for improvement in CMC competence. Table 5 presents the students' self-assessment of CMC outcomes, beginning with appropriateness. Students generally saw themselves as mindful communicators, avoiding harmful language (M = 3.86) and adjusting their comments based on context (M = 3.82). These results suggest an awareness of online decorum and align with findings by Waterloo et al. (2018), which emphasized the importance of appropriateness in digital discourse.

Table 5

Descriptive Statistics of the Level of Outcomes

Statements	Mean	SD	Scaled Response	Verbal Interpretation
I avoid saying things that are hurtful to the other person online.	3.86	1.132	Mostly True	Good Outcome
I make appropriate online comments based on the situation.	3.82	1.167	Mostly True	Good Outcome
I use devices such as computers or smartphones to accomplish my objectives.	3.89	1.088	Mostly True	Good Outcome
I am productive when I use a computer.	3.51	1.178	Mostly True	Good Outcome
I have positive experiences when I interact online.	3.61	1.122	Mostly True	Good Outcome
The use of electronic devices often meets my expectations.	3.71	1.071	Mostly True	Good Outcome
I clearly convey my ideas when I interact with others.	3.88	1.068	Mostly True	Good Outcome
I avoid sending messages that are misinterpreted.	3.75	1.158	Mostly True	Good Outcome
I can win someone over by starting up a conversation with them.	3.5	1.127	Mostly True	Good Outcome
I am good at making online friends.	3.55	1.258	Mostly True	Good Outcome
Grand Mean	3.71	0.86	Mostly True	Good Outcome

Scoring System: 4.50–5.00 = Excellent Outcome; 3.50–4.49 = Good Outcome; 2.50–3.49 = Average Outcome; 1.50–2.49 = Poor Outcome; 1.00–1.49 = Very Poor Outcome

In terms of effectiveness, students reported using digital tools like computers and smartphones to accomplish their objectives (M = 3.89) and considered themselves productive in online environments (M = 3.51). These responses point to their ability to meet communication goals, supporting Spitzberg's (2006) theory that CMC competence leads to goal attainment. Boss and Krauss (2018) also highlighted the growing necessity of such skills in the digital age.The dimension of co-orientation, or aligning perspectives with others, was also evident. Students reported that they could clearly convey their ideas (M = 3.88) and avoid misinterpretation (M = 3.75), indicating efforts to ensure mutual understanding in online exchanges. This supports the observations of Bubaš et al. (2003) who noted that clarity and shared understanding are vital in effective CMC.Satisfaction was also a notable outcome. Students reported positive online experiences (M = 3.61) and found that their use of digital devices generally met their expectations (M = 3.71). These results echo Spitzberg's (2006) assertion that satisfaction is a key marker of successful digital communication and align with Pornsakulvanich et al.'s (2008) findings.

Lastly, regarding relational development, students expressed confidence in initiating conversations (M = 3.50) and making online friends (M = 3.55). These scores suggest students can form and maintain relationships in digital contexts, aligning with Knapp and Daly's (2011) view of relational development. With an overall mean of 3.71, the students demonstrated good CMC outcomes across all dimensions. They exhibited competency in maintaining appropriate behavior, achieving communication goals, fostering mutual understanding, experiencing satisfaction, and building digital relationships—highlighting their effectiveness in navigating online communication.

Proposal for a School-Based Workshop for CMC Competence

Based on the study's findings, several areas of CMC competence showed room for improvement among senior high school students. In response, a two-day school-based workshop titled DigitalCommX: Unleash Tomorrow's Communicators is proposed to strengthen students' digital communication skills.

The workshop focuses on five core features derived from the study: (1) motivation enhancement, (2) CMC knowledge building, (3) skills development, (4) message content and context training, and (5) competence excellence. These features are integrated into sessions aimed at enhancing both technical and interpersonal communication in digital environments.

Day 1 covers motivation and knowledge-building through interactive discussions, reflections on digital media use, and practical training in navigating digital platforms. Day 2 focuses on skill development, message crafting, and competence excellence through role-playing, scenario-based activities, and guided discussions on digital citizenship.

A pre- and post-assessment using the study's validated questionnaire will evaluate the workshop's effectiveness. Collaboration among teachers, ICT staff, administrators, and student leaders is crucial for successful implementation and sustainability of the program. DigitalCommX ultimately aims to empower students to communicate more effectively, appropriately, and confidently in online settings.

Discussion

The findings of this study underscore the importance of developing CMC competence among senior high school students as they navigate increasingly digital academic environments. While students generally showed motivation, knowledge, and basic communication skills, the results suggest that their competencies are still developing and require structured support. Motivation was evident, but without guided strategies, it may not lead to effective digital communication. Similarly, students demonstrated familiarity with CMC tools and message composition, yet showed gaps in deeper contextual understanding and relational engagement.

The tendency to prioritize task-oriented communication over socio-emotional expression indicates a need to foster more balanced CMC use that includes empathy and interpersonal connection. The proposed school-based workshop addresses this by offering targeted interventions across five core features: motivation enhancement, CMC knowledge building, skills development, message content and context training, and competence excellence. By focusing on practical activities and real-world scenarios, the workshop aligns with Spitzberg's framework and aims to develop well-rounded, confident digital communicators.

Overall, this study highlights that while students possess foundational CMC skills, further interventions are necessary to ensure effective and appropriate digital communication. Future research should explore contextual factors affecting CMC, assess the impact of interventions, and consider longitudinal or mixed-method designs to deepen understanding of how digital competence evolves in education.

References

Andres, H. P. (2012). Technology-mediated collaboration, shared mental model and task performance. *Journal of Organizational and End User Computing, 24*(1), 64–81. https://doi.org/10.4018/joeuc.2012010104

Balaman, U. (2018, June 1). *Task-induced development of hinting behaviors in online task-oriented L2 interaction*. https://doi.org/10125/44640

Baloran, E. T. (2020). Knowledge, attitudes, anxiety, and coping strategies of students during COVID-19 pandemic. *Journal of Loss and Trauma, 25*(8), 635–642. https://doi.org/10.1080/15325024.2020.1769300

Batenburg, A., & Das, E. (2014). Emotional disclosure in online support groups: The impact of anonymity and group orientation. *Journal of Medical Internet Research, 16*(5), e3670. https://doi.org/10.2196/jmir.3050

Boss, S., & Krauss, J. (2018). Reinventing project-based learning: Your field guide to real-world projects in the digital age (3rd ed.) [Google Books]. *International Society for Technology in Education.*

Bubaš, G., Radošević, D., & Hutinski, Ž. (2003). Assessment of computer mediated communication competence: Theory and application in an online environment. *Social Science Research Network*. https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID2507288_code2305335.pdf?abstractid=2507288&mirid=1&type=2

Collison, G., Elbaum, B., Haavind, S., & Tinker, R. (2000). *Facilitating online learning: Effective strategies for moderators.* Rowman & Littlefield Pub Incorporated.

December, J. (1997, January). Notes on Defining of Computer-Mediated Communication. *CMC Magazine*. https://www.december.com/cmc/mag/1997/jan/december.html

Derks, D., Fischer, A. H., & Bos, A. E. R. (2008). The role of emotion in computer-mediated communication: A review. *Computers in Human Behavior, 24*(3), 766–785. https://doi.org/10.1016/j.chb.2007.04.004

Erdogdu, F., & Çakıroğlu, Ü. (2021). The educational power of humor on student engagement in online learning environments. *Research and Practice in Technology Enhanced Learning, 16*(1). https://doi.org/10.1186/s41039-021-00158-8

Garcia, D. A., Kappas, A., Küster, D., & Schweitzer, F. (2016). The dynamics of emotions in online interaction. *Royal Society Open Science, 3*(8), 160059. https://doi.org/10.1098/rsos.160059

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference*. 11.0 update (4th ed.). Boston: Allyn & Bacon.

Harasim, L. M. (1990). *Online education: Perspectives on a new environment*. Greenwood Press.

Isisag, K. U. (2012, November). The positive effects of integrating ICT in foreign language teaching. In *International Conference Proceedings*. ICT for Language Learning.

Kemp, S. (2022, February 15). Digital 2022: The Philippines. *DataReportal – Global Digital Insights.* https://datareportal.com/reports/digital-2022-philippines

Kemp, S. (2023, January 28). The Global State of Digital in October 2022. *DataReportal – Global Digital Insights.* https://datareportal.com/reports/digital-2022-october-global-statshot

Kirschner, P. A., & Karpinski, A. C. (2010). Facebook® and academic performance. *Computers in Human Behavior, 26*(6), 1237–1245. https://doi.org/10.1016/j.chb.2010.03.024

Knapp, M. L., & Daly, J. W. (2011). The Sage handbook of interpersonal communication. In *Sage eBooks*. https://ci.nii.ac.jp/ncid/BB07403662

Masur, P. K. (2019). Situational privacy and self-disclosure. *Springer.* https://doi.org/10.1007/978-3-319-78884-5

Parke, K., Marsden, N., & Connolly, C. (2017). Lay theories regarding computer-mediated communication in remote collaboration. *Open Praxis, 9*(1), 17. https://doi.org/10.5944/openpraxis.9.1.502

Quan-Haase, A. (2008). Instant messaging on campus: Use and integration in University Students' Everyday Communication. *The Information Society, 24*(2), 105–115. https://doi.org/10.1080/01972240701883955

Riordan, M. A. (2011). *The use of verbal and nonverbal cues in computer-mediated communication: when and why?* University of Memphis Digital Commons. https://digitalcommons.memphis.edu/etd/158?utm_source=digitalcommons.memphis.edu%2Fetd%2F158&utm_medium=PDF&utm_campaign=PDFCoverPages

Rosell-Aguilar, F. (2005). Task design for audiographic conferencing: Promoting beginner oral interaction in distance language learning. *Computer Assisted Language Learning, 18*(5), 417–442. https://doi.org/10.1080/09588220500442772

Sjolie, E., Espenes, T. C., & Buø, R. (2022). Social interaction and agency in self-organizing student teams during their transition from face-to-face to online learning. *Computers & Education, 189*, 104580. https://doi.org/10.1016/j.compedu.2022.104580

Spitzberg, B. H. (2006, January). Preliminary development of a model and measure of Computer-Mediated Communication (CMC) competence. *Journal of Computer-Mediated Communication, 11*(2), 629–666. https://doi.org/10.1111/j.1083-6101.2006.00030.x

Turman, P. D., & Schrodt, P. (2005, June). The influence of instructional technology use on students' affect: Do course designs and biological sex make a difference? *Communication Studies, 56*(2), 109–129. https://doi.org/10.1080/00089570500078726

Vurdien, R. (2019). Videoconferencing: Developing students' communicative competence. *Journal of Foreign Language Education and Technology, 4*(2), 269–298. https://www.learntechlib.org/p/208828/article_208828.pdf

Wang, Y., & Haggerty, N. (2011). Individual virtual competence and its influence on work outcomes. *Journal of Management Information Systems, 27*(4), 299–334. https://doi.org/10.2753/mis0742-1222270410

Waterloo, S. F., Baumgartner, S. E., Peter, J., & Valkenburg, P. M. (2018). Norms of online expressions of emotion: Comparing Facebook, Twitter, Instagram, and WhatsApp. *New Media & Society, 20*(5), 1813–1831. https://doi.org/10.1177/1461444817707349

HUMANITIES

Non-Adventist Students' Perceptions and Participation in Bible-Related Subjects, Events, and Activities

Amishka Leianne D. Elloran
Rica Zandra C. Macaraig
Arianne Joy R. Sevilla
Mercedes M. Ibañez
Sean V. Durante
Jude Raymond F. Aguilar
Franz Luis F. Chan

Adventist University of the Philippines
2058272@aup.edu.ph

Abstract

Religious education plays a crucial role in faith-based institutions, yet the experiences of non-Adventist students in Adventist academic settings remain understudied. This research examines how social influences, religious affiliation, and a Bible-based curriculum shape their perceptions and participation in Bible-related subjects, events, and activities. Using descriptive quantitative design, the study surveyed 100 non-Adventist students from Grades 7 to 12 in an Adventist Academy. Findings reveal that non-Adventist students generally hold positive perceptions of Bible-based education, appreciating its educational, moral, and intellectual benefits. However, their actual participation in Bible-related activities is slightly lower. A strong positive correlation (Pearson's $r = 0.869$) was found between perceptions and participation, indicating that with more favorable perceptions tend to participate more. However, regression analysis revealed a weak negative coefficient ($\beta = -0.450$, $p = 0.025$), implying that external factors may also influence student participation. The R^2 value of 0.755 suggests that perceptions explain 75.5% of the variation in participation, though other external variables may also play important roles. Based on these findings, the study recommends that schools implement more interactive and inclusive Bible-related activities, integrate biblical teachings into real-life applications, and encourage open discussions to foster a more engaging and respectful learning environment for non-Adventist students.

Keywords: *bible-based curriculum, non-Adventist students, religious education, perceptions, social identity*

The Adventist International Institute for Advanced Studies (AIIAS) highlights the importance of education that goes beyond academics to focus on moral values, character formation, and spiritual growth. This emphasis is especially strong on Adventist schools, which operate in over 100 countries worldwide. In places like the United States and Brazil, Adventist education aligns more closely with societal values, making it easier for non-Adventist students to adapt. However, in countries like the Philippines, where the curriculum is deeply rooted in faith-based teachings. This situation raises the need for greater inclusivity in Adventist schools (General Conference of Seventh-day Adventists, 2019).

Adventist education is distinct from secular schools due to its God-centered, Bible-based, and service-oriented philosophy (Taylor, 2022). While it encourages intellectual and spiritual development, the experiences of non-Adventist students in these schools remain underexplored. Some research suggests that religious teachings and participation in such institutions may make non-Adventist students feel excluded or alienated, particularly when those teachings conflict with their personal beliefs (Sibanda, 2022). This raises concerns about inclusivity and the well-being of non-Adventist students in faith-based schools.

Sibanda (2022) suggests that an Adventist school environment, when guided by Christ-centered values, can foster greater religious understanding among students from different faith backgrounds. Religious beliefs and participation are shaped by social and cultural settings (NeuroLaunch, 2024). The way students engage with religious topics is often influenced by community interactions, which can either support or challenge their beliefs.

Since non-Adventist students come from diverse religious backgrounds, their beliefs may not always align with Adventist teachings. The Adventist education system aims to develop students holistically, helping them grow in wisdom, health, and service (General Conference of Seventh-day Adventists, 2019). Understanding the experiences of non-Adventist students is crucial for making faith-based schools more inclusive and supportive. Schools should continue to provide a nurturing environment where students feel respected and valued, regardless of their religious background.

Methodology

Research Design

This study employed a descriptive quantitative research design to examine the perceptions and participation of non-Adventist students regarding Bible-related subjects, events, and activities. This design is appropriate as it allows for the collection and analysis of numerical data to identify trends and patterns in students' responses.

Population and Sampling Techniques

The population of this study consists of 100 non-Adventist students from Grades 7 to 12 at the Adventist University of the Philippines Academy. The study utilized purposive sampling, ensuring that only non-Adventist students were included in the research.

Instrumentation

A questionnaire was used as the primary data-gathering tool. The questionnaire was designed to assess students' perceptions and participation regarding Bible-related subjects, events, and activities. No pilot study was conducted to test the reliability of the instrument.

Data Analysis

The gathered data were analyzed using frequency, percentage, mean, standard deviation, comparison of mean scores, and reliability statistics to interpret students' responses effectively and identify patterns within the data.

Ethical Considerations

To ensure ethical compliance, informed consent was obtained from all participants before they answered the questionnaire. The study respected the confidentiality and anonymity of respondents, and participation was entirely voluntary. No further ethical clearance was required as the research posed no potential risks to the participants.

Results and Discussion

Non-Adventist Students' Perceptions of Bible-Related Subjects, Events, and Activities

Table 1 shows that non-Adventist students generally have a positive view of Bible-related subjects, events, and activities, with an overall mean of 4.00 (SD = 0.719), which falls under the agree category. The highest-rated response is that Bible events encourage meaningful conversations (M = 4.32, SD = 0.862). Students also strongly agree that Bible events welcome people from all faiths (M = 4.24, SD = 0.990) and that Bible activities provide practical moral lessons (M = 4.21, SD = 0.942). They find Bible subjects useful in daily life (M = 4.21, SD = 0.921) and interesting (M = 4.21, SD = 0.855). However, attending worship services had the lowest mean (M = 3.42, SD = 1.282), though still rated agree. This suggests that while students appreciate the lessons and values from Bible-related activities, their level of participation in religious participation varies.

Table 1

Descriptive Statistics of Perceptions of Non-Adventist Students in Bible-Related Subjects, Events, and Activities

Statement	Mean	SD	Interpretation
1. Bible subjects help me learn about different cultures.	4.15	0.911	Favorable
2. Bible subjects teach me about history.	4.13	0.871	Favorable
3. I enjoy studying Bible subjects.	3.98	0.935	Favorable
4. Bible subjects give lessons I can use in daily life.	4.21	0.921	Very Favorable
5. Bible subjects are interesting.	4.21	0.855	Very Favorable
6. I like attending the Week of Prayer sessions.	3.56	1.077	Favorable
7. Bible events make me think about spiritual topics.	4	0.935	Favorable
8. Bible events welcome students from all faiths.	4.24	0.99	Very Favorable
9. Bible events encourage meaningful conversations.	4.32	0.862	Very Favorable
10. I go to worship services.	3.42	1.282	Favorable
11. I enjoy Bible-related activities.	3.78	0.934	Favorable
12. Participating in Bible activities motivates me to join more.	3.71	1.058	Favorable
13. Bible activities give practical moral lessons.	4.21	0.942	Very Favorable
Grand Mean	4	0.719	Favorable

Scoring System: 1.00-1.49 = Strongly Disagree/Very Unfavorable; 1.50-2.49 = Disagree/Unfavorable; 2.50-3.49 = Moderately Agree/Moderately Favorable; 3.50-4.49 = Agree/Favorable ; 4.50-5 = Strongly Agree/Very Favorable

Non-Adventist Students' Participation in Bible-Related Subjects, Events, and Activities

Table 2 shows that non-Adventist students generally take part in Bible-related subjects, events, and activities, with an overall mean of 3.92 (SD = 0.712), which falls under the high category. The highest-rated participation is respecting different views on religious teachings (M = 4.42, SD = 0.784), followed by listening to others share their faith stories (M = 4.27, SD = 0.803) and deepening their understanding of Bible values (M = 4.12, SD = 0.969). Many students also apply Bible lessons in their daily lives (M = 4.11, SD = 1.004) and follow the participation of Adventist students (M = 4.06, SD = 0.868). The lowest-rated participation is in attending Bible-related events (M = 3.52, SD = 1.101), but it is still considered high. This suggests that while students respect and apply Bible teachings, their participation in organized events varies.

Table 2
Descriptive Statistics of the Participation of Non-Adventist Students in Bible-Related Subjects, Events, and Activities

Statement	Mean	SD	Interpretation
1. I join discussions in Bible classes.	3.79	1.030	High
2. I attend Bible-related events.	3.52	1.101	High
3. I take part in group Bible studies or devotional meetings.	3.60	1.051	High
4. I listen to guest speakers or pastors during Bible-focused programs.	3.94	0.912	High
5. I participate in Bible events like Week of Prayers.	3.81	1.115	High
6. I talk about Bible-related activities with family or friends.	3.50	1.079	High
7. I think about Bible lessons outside of class.	3.70	1.087	High
8. I have respectful discussions about Bible topics with friends.	3.94	1.022	High
9. I use Bible principles in real-life situations.	4.00	1.024	High
10. I respect different views on religious teachings in the curriculum.	4.42	0.784	Very High
11. I apply Bible lessons in my daily life.	4.11	1.004	High
12. I follow the practices of Adventist students.	4.06	0.868	High
13. I pray or meditate during Bible activities.	3.79	1.067	High
14. I deepen my understanding of Bible values.	4.12	0.969	High
15. I listen to others share their faith stories.	4.27	0.803	Very High
Grand Mean	3.92	0.712	High

Scoring System: 1-1.49 = Never/Very Low; 1.50-2.49 = Rarely/Low; 2.50-3.49 = Sometimes/Moderate; 3.50-4.49 = Frequently/High; 4.50-5 = Always/Very High

Relationship of Perceptions and Participation of Non-Adventist Students in Bible-Related Subjects, Events, and Activities

Table 3 presents the relationship between the perceptions and participation of non-Adventist students on Bible-related subjects, events, and activities. The statistical analysis used was Pearson's r, with the correlation coefficient and significance level noted for both variables.

Table 3
Relationship of Perceptions and Participation of Non-Adventist Students in Bible-Related Subjects, Events, and Activities

		Perceptions
Participation	r	0.869***
	df	100
	p	<0.001

The data revealed a Pearson's r value of 0.869, which indicates a strong positive correlation between perceptions and participation of non-Adventist students regarding Bible-related subjects, events, and activities. The p-value of <0.001 confirms that this correlation is highly significant at the 0.001 level.

The findings suggest that as non-Adventist students' perceptions toward Bible-related content improve, their participation or engagement in corresponding participation also increases, and vice versa. The strong positive correlation implies that the students who view Bible-based education, events, and subjects positively are also likely to exhibit more active participation in them. This relationship emphasizes the importance of fostering positive perceptions to enhance student involvement. The highly significant result supports the

consistency and reliability of this association and suggests that perceptions greatly influence behavior in the context of religious education, even among those not of the Adventist faith.

Perceptions as a Predictor of Participation of Non-Adventist Students in Bible-Related Subjects, Events, and Activities

Table 4 presents the results of a linear regression analysis used to determine whether the perceptions of non-Adventist students significantly predict their participation regarding Bible- related subjects, events, and activities.

Table 4

Perceptions as a Predictor of Non-Adventist Students on Bible-Related Subjects, Events, and Activities

Predictor	Estimate	SE	t	p
Intercept	0.443	0.2010	2.20	
Perceptions	0.866	0.0493	17.57	0.869

$R = 0.869$, $R^2 = 0.755$, Adjusted $R^2 = 0.753$, $F(1,100) = 309$, $P = < .001$

The regression analysis yielded an R value of 0.869 and an R^2 of 0.755, indicating that 75.5% of the variance in participation can be explained by the students' perceptions. The model's significance value of 0.025 indicates that this prediction is statistically significant. Since the p- value is 0.025, which is below 0.05, the result is statistically significant. It is concluded that perceptions significantly predict participation of non-Adventist students concerning Bible-related subjects, events, and activities.

Discussion

The study examined the perceptions and participation of non-Adventist students regarding Bible-related subjects, events, and activities in a faith-based educational setting. The findings revealed that non-Adventist students generally hold positive perceptions of Bible-related subjects and activities, with an overall mean of 4.00. They appreciate the educational value, moral lessons, and intellectual benefits these subjects offer, including learning about different cultures and history. However, while their perceptions are favorable, their actual engagement in Bible- related activities is slightly lower. Participation in activities such as Bible discussions, devotional meetings, and religious events varied, with the overall mean for participation being lower than the perception scores. A strong positive correlation (Pearson's $r = 0.869$) was found between students' perceptions and participation, indicating that as perceptions improve, participation also tends to increase. However, regression analysis revealed a significant but weak negative relationship ($\beta = -0.450$, $p = 0.025$), suggesting that while students' positive perceptions contribute to their engagement, other external factors influence their level of participation. The R^2 value of 0.755 indicates that 75.5% of the variation in participation can be explained by perceptions, implying that other variables, such as personal beliefs, social influences, or institutional expectations, may also play a role.

Based on these findings, it can be concluded that non-Adventist students in faith-based institutions generally view Bible-related subjects and activities positively, recognizing their educational and moral significance. However, while their perceptions are favorable, their actual participation in Bible-related activities is not as high, indicating that interest does not always translate into practice. The strong correlation between perception and practice suggests that students with more positive perceptions tend to participate more, but regression analysis highlights that external factors may also affect their level of engagement. Although students respect and appreciate Bible-based teachings, their participation may be influenced by personal religious affiliations, peer influence, or institutional norms.

To enhance student engagement, schools should create more interactive and inclusive Bible-related activities that align with students' interests and backgrounds, making them more inviting for non-Adventist participants. Teachers should also integrate Bible teachings into real- life applications to make them more

relatable and engaging for students of different faith backgrounds. Additionally, further research should explore the external factors that influence non-Adventist students' participation in Bible-related activities, such as peer influence, family background, and institutional policies, to better understand the barriers to engagement. Lastly, schools should encourage open and respectful discussions about religious topics to foster a more inclusive learning environment where students feel comfortable participating, regardless of their faith background.

References

General Conference of Seventh-day Adventists (2019). Philosophy of Adventist education. Adventist.org. https://www.adventist.org/philosophy-of-adventist-education/

Taylor, V. (2022). *Adventist Education, Philosophy of Encyclopedia of Seventh Day Adventists.*

Sibanda, T. (2022). Exploring lived experiences of non-Adventist students in an Adventist Academy. *Journal of Educational Studies, 4*(1), 53-80.

NeuroLaunch.com. (2024, September 22). Religion's Impact on Human Behavior: Exploring the Profound Influence. https://neurolaunch.com/how-religion-influence-human-behavior/?fbclid=IwZXh0bgNhZW0CMTEAAR3oGkZx0TDMXLjf3EoAatg5ZVwg8Ri6Apynp KJ0CDVkH_vAG5lOVQkRjnM_aem_T5KGh4zwir1JxLO5-Xs6_w

HUMANITIES

The Art of Uninterrupted Practice: A Case Study

Xyla Kryzlei C. Guelos
Junu Yang
Aera Jean S. Apalat
Nerilyn R. Beratio
Michael S. Naidas
Duchess Shailah C. Sucuaje
Danilo Dolar Yarte Jr.
Rowena Imelda A. Ramos
Sheryl Ann De Dios

Adventist University of the Philippines
2058272@aup.edu.ph

Abstract

Uninterrupted practice is crucial for musicians in developing technical proficiency, artistry, and long-term mastery, yet many struggle with distractions and lack of structured strategies. This case study investigated how music students sustain concentration during practice and the strategies they use to minimize interruptions. Four advanced pianists and violinists from a faith-based institution in Silang, Cavite, were purposively selected based on proficiency levels. Data were gathered through video-recorded observations and semi-structured interviews, analyzed narratively to identify themes. Results revealed practical strategies including structured planning, intentional repetition, elimination of distractions, use of models, preparation of environment and materials, intrinsic motivation, and expressive refinement. Participants also reported growth in focus, patience, and discipline, with narratives highlighting both common and individualized approaches. These findings confirm theories of deliberate practice, self-regulated learning, and motivation, while offering implications for music students, educators, and enthusiasts. The study recommends integrating focused practice training in curricula and pursuing longitudinal research to explore long-term effects of uninterrupted practice.

Keywords: *uninterrupted practice. practice strategies, self-regulated learning, piano and violin practice, deliberate practice*

Every musician knows that nobody becomes an excellent musician overnight. It takes years of training to develop skills that are essential to musicians. Spending time practicing allows musicians to explore their musicality, build muscle memory, and helps them to improve their strengths and work on their weaknesses. It takes hours of regular practice to develop skills; however, in the modern day, distractions abound maintaining an uninterrupted practice session and creating strategies for focused practice has been a problem for many musicians. Getting distracted during an intense practice session will disrupt the momentum of the musician. This issue will then interfere with their concentration, leading to boredom, unproductivity, and frustration (Nolen-Hoeksema, 2011).

To understand the importance of uninterrupted practice, it is common for accomplished musicians to practice for several hours a day (Ericsson et al., 1993). Diligent practice—"learning through systematic experience or exercise" is necessary when learning a musical instrument because it not only builds skills but also improves cognitive understanding and emotional expression, thus improving both musical proficiency and creativity. Geiersbach (2000) found that individuals develop motivation for the process when organizing learning strategies through positive reinforcement of progress toward personal goals, playing without interruption, evaluating the effectiveness of methods, and reflecting on playing holistically or expressively.

On a similar note, feedback is also an important motivator for music learners. For instance, many students find that feedback helps them improve and stay engaged in their practice. Another study by Girgin (2020) supports this, revealing that the students' motivation toward learning an instrument, their musical instrument performance, self-efficacy beliefs, and attitudes were important indicators for their burnout.

Despite its unique challenges, learning to play an instrument can be a rewarding experience. Issues arise when the strategies or practice methods prove ineffective, resulting in hindrances and even frustration. Physical injuries can result from improper practice and a failure to comprehend the physical movements involved in the piece, with both students and professional musicians may struggle with the loss of automatic muscle memory (Lam, 2020). Ultimately, the lack of interest can create obstacles for piano learners to stay motivated and focused during practice, which leads to a stagnant learning process. Some people may find learning an instrument dull and uninteresting if they lack the desire to perform for others (Cheng & Southcott, 2023).

While many studies explore the benefits of learning an instrument, it is also important to examine how the quality of that learning and commitment to focused music practice can influence overall musical development. This paper will explore the various strategies that are effective and used to have uninterrupted practice by the participants of the selected music students from one of the one-faith-based universities of Silang, Cavite. This research will help musicians, students, and researchers learn the art of uninterrupted practice and create effective strategies for focused music practice.

This study aimed to identify the challenges faced by individuals involved in music during practice. It explored the methods and strategies they used to maintain focused, uninterrupted sessions and assessed how effective they found these approaches in enhancing their practice.

Methodology

Research Design

This study used a qualitative case study design to explore how music students sustain uninterrupted practice. Data were collected in the students' natural practice environments, allowing the researchers to capture authentic behaviors and experiences. Video observations served as the main tool, providing a close look at both visible and subtle aspects of practice—such as time management, self-correction, productivity, and responses to distractions. This approach followed the case studies that are most effective when the phenomenon is closely tied to its context, and it echoed Creswell and Plano Clark's (2017) emphasis on triangulation to strengthen credibility. By combining these perspectives, the study aimed to identify practical strategies for focused practice that could enrich music education.

Population and Sampling Techniques

Participants were chosen through purposive sampling to ensure they met the study's criteria and could share meaningful insights on uninterrupted practice. Four music students from a faith-based institution in Silang, Cavite, were included: two piano majors—Lalah (Level 4B) and Hannah (Level 4A)—and two violin majors—Lily and Kaka, both at Level 3B. Their early-advanced proficiency levels suggested readiness for complex repertoire and independent practice, making them well-suited for the study. This mix of instruments and skill levels provided varied perspectives and enriched the findings. Data came from video-based observations and semi-structured interviews, both of which allowed for a narrative analysis of patterns and strategies.

Instrumentation

Video-based observation was the primary tool, with each session lasting at least an hour. This method captured practice behaviors in real time, offering both authenticity and nuanced insights (Angrosino, 2007; Bryman, 2016). To support and deepen the findings, semi-structured interviews were conducted in person or online, giving students a chance to expand on what was observed. Taken together, these tools provided a fuller picture of the students' practice strategies and experiences.

Data Gathering Procedure

Data collection began with the purposive selection of students who met the proficiency requirements (piano Level 4A or higher, violin Level 3B or higher). After explaining the purpose of the study, participants gave informed consent. Orientation sessions clarified procedures and expectations before scheduling observations and interviews. Video recordings documented practice sessions, while interviews were facilitated by one researcher and noted by another. All files were securely stored, pseudonyms were used to protect identities, and access was limited to the research team, ensuring ethical compliance.

Framework of Observation

The study which highlights the value of video observation in capturing strategies such as self-regulation and memorization. Observations focused on goal setting, time management, and responses to distractions during practice. This approach was supported by Biasutti (2023) and Skoe and Kraus (2010), who emphasized the benefits of combining video with self-monitoring. Recordings were reviewed repeatedly, and codes and themes were identified in line with theories of self-regulated learning (Zimmerman, 2000) and deliberate practice (Ericsson et al., 1993).

Data Analysis

Practice sessions were recorded and stored securely, then reviewed alongside semi-structured interviews to clarify observations. Interviews were transcribed verbatim, checked by participants, and analyzed using narrative analysis. Themes were identified by examining transcripts and observation notes together, which provided insights into strategies, challenges, and progress in uninterrupted practice. Triangulation of video data, transcripts, and interviews ensured a deeper and more reliable understanding of the findings.

Trustworthiness of the Study

Trustworthiness was established using criteria of confirmability, credibility, transferability, and dependability. Confirmability was supported through member checks and careful handling of bias. Credibility was achieved by accurately reflecting participants' perspectives. Transferability was addressed by connecting findings to broader educational contexts. Dependability came from consistent procedures, acknowledgment of limitations, and triangulation. These strategies together ensured rigor and validity.

Ethical Considerations

The study prioritized participants' rights, safety, and privacy. Consent was obtained after clear explanations of the study's scope, procedures, and the right to withdraw at any time. Pseudonyms were used to protect identities, and all data were stored securely with access restricted to the researchers. Sources were properly credited to avoid plagiarism, and researchers took care to minimize personal bias during collection and analysis. These measures safeguarded authenticity and upheld ethical standards.

Results

Strategic Planning Within Uninterrupted Practice

Participants consistently began their sessions with clear, structured routines that shaped the flow of their practice. Warm-ups such as scales or bowing exercises were common entry points, creating both physical readiness and mental focus for more demanding repertoire. Participant 1 shared, "I always begin with scales before moving on to my piece—it helps me settle my mind." Starting with the simple before moving to the complex allowed students to maintain order and a natural sense of progression throughout their sessions.

In addition to warm-ups, students also set specific goals for what they hoped to accomplish. Participant 2 noted, "I decide beforehand what section I will work on, so I don't waste time thinking while I practice." This forward planning was evident in the recordings, where students moved deliberately from one task to the next, keeping momentum and avoiding idle pauses.

Intentional Repetition as a Focused Strategy

Repetition stood out as a key technique for sustaining uninterrupted practice. Students revisited difficult passages until they noticed real improvement. Participant 3 explained, "When I make a mistake, I don't stop right away. I try again and see how I can fix it." Video observations confirmed this: participants often stopped at tricky measures and repeated them several times before moving on.

This was not rote drilling but targeted repetition, focused on solving specific technical or expressive challenges. Violinists concentrated on bowing and intonation, while pianists worked on coordination and control. Through this cycle of trial, adjustment, and mastery, students managed to preserve the flow of their sessions rather than getting derailed by mistakes.

Elimination of Distractions to Enhance Focus

Another strong theme was the conscious effort to eliminate distractions. Participants worked to block out interruptions such as background noise or movement around them. Participant 4 said, "Even when people are noisy outside, I just keep playing until I finish." Recordings showed that these disturbances rarely broke their flow.

Some students also prepared their practice areas ahead of time, arranging music sheets and setting aside phones. Their ability to focus despite interruptions reflected discipline and resilience, showing how uninterrupted practice relied not only on technical strategies but also on mental determination.

Incorporating Models as a Supplementary Strategy

At times, participants drew on models such as teacher demonstrations, recordings, or even mental imagery. Participant 2 shared, "Sometimes I remember how my teacher played it, and I try to copy that style." These references gave students a standard to aim for, guiding both technique and interpretation.

Recordings captured moments when students paused briefly to hum a line or visualize a phrase before playing. These strategies, though supplementary, enriched their practice without breaking its continuity.

Preparation of Environment and Materials

The readiness of the practice environment also played a crucial role. Students made sure instruments were tuned, sheets were arranged, and tools like metronomes were within reach before they began. Participant 1 explained, "If everything is ready, I don't have to stop in the middle just to fix something."

This preparation reduced unnecessary breaks and kept their energy directed toward music-making. By staying proactive, they preserved both time and focus.

Intrinsic Motivation Sustained by Uninterrupted Flow

Motivation often came from within. Students described practicing because they wanted to improve, not simply because someone told them to. Participant 3 noted, "I practice because I want to be better, not just because someone told me to." Recordings showed moments of deep immersion, where expressions and body movements revealed full engagement.

Even when they grew tired, students kept going—suggesting that intrinsic drive, combined with the momentum of uninterrupted flow, helped sustain effort.

Expressive Refinement Through Focused Repetition

Repetition was also used for artistry. Pianists, for instance, replayed passages to refine dynamics and phrasing. Participant 2 explained, "I repeat the part because I want it to sound more expressive, not just correct."

This artistic shaping was visible in recordings as students slowed sections down, exaggerated dynamics, or experimented with phrasing. Repetition here became a tool for both precision and creative growth.

Improved Focus, Patience, and Discipline

Students reflected that uninterrupted sessions strengthened their concentration and patience. Participant 4 said, "The more I practice without stopping, the more patient I become with myself." Their discipline showed in their willingness to revisit sections, handle mistakes calmly, and keep working through challenges.

Video evidence supported this: participants showed steady focus with few signs of frustration. Over time, uninterrupted practice appeared to build not only skill but also personal qualities like persistence and self-control.

Narrative Observations for Each Participant

Participant 1 began with scales and moved systematically into repertoire. Their materials were well prepared, and repetition was used heavily to tackle technical challenges. Despite outside noise, they stayed motivated and balanced technical drills with expressive refinement.

Participant 2 also started with warm-ups, then focused on repertoire with frequent reference to teacher demonstrations. Their repetitions targeted both accuracy and expression. Strong intrinsic motivation kept them engaged, even in the face of distractions.

Participant 3 showed resilience by immediately correcting mistakes rather than breaking the flow. They experimented with fingerings and bowing patterns while repeating difficult measures. Motivation was clearly self-driven, and focus remained steady throughout.

Participant 4 faced multiple external distractions yet persisted. Their repetition centered on intonation, and their organized setup prevented avoidable interruptions. Their practice highlighted patience, focus, and determination.

Discussion

The deliberate sequencing of tasks and goal setting aligns with Zimmerman's (2000) model of self-regulated learning, where planning strengthens performance outcomes. The routines also reflect Ericsson et al.'s (1993) concept of deliberate practice, which stresses purposeful preparation to optimize learning. By starting with scales before tackling complex repertoire, participants built not only technical readiness but also mental conditions that supported long-term focus.

The intentional use of repetition echoes that repetition is key for correcting errors and consolidating skills. Here, repetition was adaptive rather than mechanical, as students refined both technique and

interpretation. This supports Biasutti's (2023) claim that focused repetition enables technical accuracy as well as interpretive growth, showing how persistence can transform mistakes into meaningful progress.

Students' resilience in managing distractions highlights the importance of attentional control. By blocking noise and preparing their practice environments, participants showed that sustaining flow often depends as much on discipline and mental toughness as it does on musical skill.

The reliance on teacher models, recordings, and mental rehearsal reflects the social and cognitive aspects of music learning. By tuning instruments and arranging music before starting, participants reduced avoidable breaks, reinforcing that organization is as much a part of practice as technical drills. Students' immersion mirrors concept of flow, showing how uninterrupted, goal-directed practice can heighten motivation and engagement. The focus on expressive refinement, beyond technical accuracy, reflects Ericsson et al.'s (1993) broader view of deliberate practice, which includes artistry.

Students also emphasized growth in patience and discipline, supporting argument that consistent practice builds self-regulation. The evidence here suggests that uninterrupted sessions contribute to both musical outcomes and personal development.

Despite differences, the shared reliance on planning, repetition, motivation, and resilience shows that uninterrupted practice is best understood as a flexible process shaped by both personal and environmental factors.

Based on these findings, recommendations can be offered. For music students, minimizing distractions and setting specific goals enhances productivity, while intentional repetition helps refine both skill and expression. For music educators, incorporating strategies for uninterrupted practice into training can guide students toward reflective, engaged routines. For music enthusiasts, creating distraction-free environments and gradually increasing difficulty can build confidence and artistry. For future researchers, exploring how uninterrupted practice works across genres, instruments, and levels—especially through longitudinal designs—could reveal its long-term impact on musicianship.

References

Angrosino, M. (2007). Doing ethnographic and observational research. Thousand Oaks, CA: Sage Publications.

Biasutti, M. (2023). Video-based observation in music education research: Methodological perspectives and practical applications. *Music Education Research, 25*(1), 1–16.

Bryman, A. (2016). Social research methods (5th ed.). Oxford, UK: Oxford University Press.

Cheng, Z., & Southcott, J. (2023). Practice and learning the piano: Motivation and self-regulation. *International Journal of Music Education, 41*(3), 345–357.

Creswell, J. W., & Plano Clark, V. L. (2017). Designing and conducting mixed methods research (3rd ed.). Thousand Oaks, CA: Sage Publications.

Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition and maintenance of expert performance. Psychological.

Geiersbach, F. J. (2000). Musical thinking in instrumental practice: An investigation of practice strategies used by experienced musicians (Doctoral dissertation). Teachers College, Columbia University.

Gırgın, D. (2020). Motivation, self-efficacy, and attitude as predictors of burnout in musical instrument education in fine arts high schools. *Eurasian Journal of Educational Research, 20*(85), 93–108.

Lam, M. (2020). The physicality of music production: Investigating the roles of mindful practice and kinesthetic learning. *Music Educators Journal, 106*(3), 23–28.

Nolen-Hoeksema, S. (2011). Boredom and the role of distraction: How distraction drives boredom. *Journal of Applied Social Psychology, 41*(3), 785–808.

Skoe, E., & Kraus, N. (2010). Auditory brainstem response to complex sounds: A tutorial. *Ear and Hearing, 31*(3), 302–324.

Zimmerman, B. J. (2002). Becoming a Self-Regulated Learner: An Overview. *Theory Into Practice, 41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2

HUMANITIES

Edgar Allan Poe's Life in His Selected Works of Fiction

Raphael Gertrudo B. Mirasol
Rowena Imelda A. Ramos
Belle Manlapig
Yuni Fan
Kathleen B. Flores
Michael S. Naidas

Adventist University of the Philippines
kbflores@aup.edu.ph

Abstract

Edgar Allan Poe, a prolific writer of short stories, brought many of his painful life experiences into his writing. This research analyzed the similarities between Edgar Allan Poe's life and experiences and his characters in the selected three literary works, namely, *The Black Cat, The Cask of Amontillado,* and *The Tell-Tale Heart*, and explored how those similarities are reflected in the stories. Utilizing qualitative content analysis and drawing on biographical criticism and psychoanalytic theories, this study employed a conventional approach to content analysis in analyzing data, following the framework of Hsieh and Shannon (2005). Results of analysis showed that both EAP and his characters were slaves of the bottle, experienced unraveled sanity, and were chained by death. Moreover, such themes were reflected in his three literary works through various literary elements such as characterization, symbolism, plot devices, and dramatic irony, to name a few. These results suggest a strong relationship between the author's life experiences and the content of his fictional works. It is therefore recommended that one should avoid unhealthy coping mechanisms. Additionally, readers are encouraged to be mindful of their thoughts and emotional processes and accept death as a normal part of life. Finally, future research can be done on EAP's other literary works with the utilization of other theories to explore other parallelisms in the life of the author and his characters, uncover further literary elements, and glean a better understanding of the texts and the author.

Keywords: *Edgar Allan Poe, biographical criticism, psychoanalysis, literary elements*

Edgar Allan Poe is a writer whose subconscious effort is to bring his painful life experiences into writing. He has produced the macabre and timeless innovative Gothic horror literary masterpieces. He is the author of *The Cask of Amontillado, The Tell-Tale Heart, The Black Cat*, and poems like *Annabel Lee, A Dream Within a Dream*, and *The Raven*. Edgar Allan Poe—prolific, talented, and eccentric—had faced his own share of misfortunes as a man and author, bringing forth into existence the *Master of the Macabre* and the *Father of American Gothic* (Pagan, 2019). What stands out even more prominently than his tragedies was his philosophy of death (Lombardi, 2019). Death is applied in literature to create emotional effects, plot twists, suspense, and mysteries. In other words, storytelling and death are equally substantial since they are fundamentally and existentially related (Hakola & Kivistö, 2014).

Although death is inevitable and mysterious, it is also unavoidable that grief and subsequent vices come along. There are already studies on grief and alcoholism. Nineteenth-century America was obsessed with life, literature, and popular culture of that age, which were permeated with representations of death and its consequences for the living. Even in the present-day contemporary media, it exposes us to images of death on a global scale. While Edgar Allan Poe's brand of writing may find many strangely groping for the motivations that inspired him to write what he writes, there might be a more definitive reason for his finding consolation in writing about pain beyond the grimness of his works.

Edgar Allan Poe often demonstrates a type of madness in his fiction. Some critical views of Poe's fiction have attempted to explain the characters' bizarre behavior within a physiognomic or psychoanalytical framework. Wing-chi (2008) describes that the reason and cause for murder, including the murder confession, in EAP's *The Tell-Tale Heart*, was due to his "Ego-Evil" or a behavior brought out of selfish calculation and avarice. Piacentino (1998) then stated that the motive of the narrator for murdering his wife is subconscious—out of an emotional and irrational motivation—hence, making the crime not consciously premeditated. The narrator is unable to comprehend with a sound, sane mind, nor persuade convincingly the reasons for his ill deeds.

Most of the studies done on Edgar Allan Poe's works dealt only with the text itself in exploring the character's motivation and behaviors. Additionally, there seems to be no study done yet on the author's biographical influences. Therefore, the purpose of this study is not only to understand the mind and perception of the characters, their motives, and to explore the text in connection with Edgar Allan Poe's personal life using biographical criticism.

Based on Miles' (2017) taxonomy of research gaps, the researchers identified an apparent population gap. Previous research papers focused on EAP's fictional works separately, but little research has been done on an exploration of *The Black Cat, The Tell-Tale Heart*, and *The Cask of Amontillado.*

Edgar Allan Poe finds consolation in certain life themes, and these themes can also be found expressed in his works of fiction. Poe gives meaning to Gothic literature in his own eccentric way by employing dark and picturesque scenery and imagery, coupled with startling and melodramatic narrative devices. This study explores the parallelisms of Poe's life and his literary works and how it is reflected in the characters and themes. Particularly, it attempts to see parallelisms in Edgar Allan Poe's life through his major characters in selected fictional literary pieces.

Methodology

Research Design

This research utilized a qualitative method with conventional content analysis. In qualitative research, a naturalistic method is taken by researchers, meaning that their understanding of the subject originates from what they believe to be significant (Bhandari, 2020), promoting an understanding of one's personality traits and human behaviors inherently. In other words, it is to comprehend and interpret social interactions.

In this literary research, the researchers focus on analyzing the three selected literary works of Edgar Allan Poe—*The Black Cat, The Tell-Tale Heart*, and *The Cask of Amontillado*—by using biographical criticism, allowing the researchers to find out all possible information about a particular text and discover new ideas that need further exploration by reviewing past research.

Data Selection

The researchers chose the three selected literary works of Edgar Allan Poe: *The Black Cat, The Cask of Amontillado*, and *The Tell-Tale Heart* as the main data source. It is appropriate for this study as the works are chosen based on the following criteria: short stories written by Edgar Allan Poe; they apply a first-person point of view, being told by a character; main characters are described as unreliable narrators who committed murder in the stories.

Data Collection

To collect the data needed to decode the major themes reflected in the selected works, the researchers used close reading, taking notes, and reading memos. These reading techniques are all part of the process of extracting information from the three selected literary pieces: *The Black Cat, The Tell-Tale Heart*, and *The Cask of Amontillado*.

The literary analysis method of Close Reading focuses on the finer points and details of a passage or text to deduce a deeper meaning that may be present within the said text. (Close Reading [BCCC], 2019). In terms of literary criticism, however, close reading is the methodical and thorough analysis of a brief segment of a text. In this study, the researchers pay close attention to a text, including reading carefully and looking at the details of the text. By using close reading, information was gathered as a means to identify the themes and connections between the author's life story and his writings.

Data Analysis

Data gathered for this study were analyzed using a conventional approach of content analysis (Hsieh & Shannon, 2005). Moreover, Samuel Johnson's biographical criticism is used in analyzing the author's personal experiences and the literary works' elements.

In this study, the following steps of data analysis based on the work of Hsieh and Shannon (2005) were utilized. The first step of data analysis starts with reading the chosen three works of Edgar Allan Poe repeatedly, including *The Black Cat, The Cask of Amontillado*, and *The Tell-Tale Heart*. The second step is to extract codes from the gathered data by identifying the precise textual terms that encapsulate important details or ideas. The next stage for the researchers is to approach the text by noting down their initial thoughts, observations, impressions, and analysis. The codes are then grouped according to the connections and relationships between them. Throughout the process of this study, the researchers will delve into the underpinnings of *The Tell-Tale Heart, The Cask of Amontillado*, and *The Black Cat* while discussing alcoholism, grief, violence, and dominance of unreliable characters or narrators, which turns the readers into active participants. The literary works in reflection of the author's life experiences would then later develop definitions for each category, subcategory, and code. In the end, the researchers are to prepare to report the findings, examples for each code and category, a conclusion, and provide recommendations to students, teachers, and future researchers.

Results

Similarities Between Edgar Allan Poe and His Characters

By using biographical criticism, a discussion on Edgar Allan Poe's personal life experiences and their similarities to his characters is provided. Specifically, it was found that Edgar Allan Poe and his characters in the three mentioned short stories were slaves of the bottle, had unraveled sanity, and were chained by death.

Slave of the Bottle

Alcohol dependence signifies the concept of being a slave to the bottle. Alcoholism is a multifaceted, intricate phenomenon with numerous formal definitions. It is defined simply as a disease brought on by obsessive, long-term drinking. It is a form of substance addiction that results in withdrawal symptoms when drinking is stopped and necessitates progressively higher dosages to achieve desired benefits (Keller & Vaillant, 2024). Individuals living with alcoholism frequently feel as though they cannot operate regularly

without alcohol.

Poe's life was full of misfortunes and disappointments, which led him to drink. A prominent example was during the death of his wife. In 1835, Poe worked as a writer after his marriage to Virginia (Kaas, 2019). Later, Virginia died due to a prolonged and dangerous illness in 1847. Therefore, Poe's loss led him to episodes of melancholy and excessive drinking. In 1848, Poe wrote a letter to George W. Eveleth and mentioned his feelings of loss and how these feelings drove him to alcoholism. He writes, *"During these fits of absolute unconsciousness I drank, God only knows how often or how much"* (Ostrom, 1966, p. 357).

Poe's personal habit of consuming alcohol was reflected in his characters. In *The Black Cat*, Poe depicted a narrator who became an alcoholic. *"I began to drink too much wine and other strong drinks"* (p. 35). Once the narrator started drinking, his irritability became constant. He started losing his manners and mistreating his wife, including his favorite pet named Pluto.

As the story progresses, he spends more time drinking and has a hard time going back to living the way he lived before. It appears that the narrator changed from being a kind person to a violent monster due to his drinking issue. As a slave of the bottle, he has lost all sense of morality and reason when he went from loving animals to killing his favorite pet, Pluto, and consequently ended the murder of his wife.

> *In sudden anger, I took a knife and struck wildly at the cat. Quickly, my wife put out her hand and stopped my arm. This only increased my anger and, without thinking, I turned and put the knife's point deep into her heart! She fell to the floor and died without a sound. (p.37)*

Additionally, alcoholism is also a major theme in The Cask of Amontillado. In the story, Montresor decides to use Fortunato's fondness for wine against him. Therefore, Amontillado becomes a bait that Montresor used for his revenge plan against Fortunato. He had one great weakness: he liked to drink good wine, and indeed he drank much of it. Fortunato was obsessed with drinking and good wine, even at the expense of his own life.

During the carnival season, Montresor approaches Fortunato carefully and invites Fortunato to his vaults. Meanwhile, Fortunato cannot wait to taste the wine and tell Montresor if it is indeed Amontillado. From the following lines, Fortunato insists that they go to Montresor's vaults.

> *'"Ho! — Come. Let us go.'*
> *'Go where?'*
> *'To your vaults. To taste the wine.'*
> *'No, my friend, no. I can see that you are not well. And the vaults are cold and wet.'*
> *'I do not care. Let us go. I'm well enough. The cold is nothing" (p.69).*

Eventually, Fortunato's alcohol addiction led to his death since Montresor trapped him and left him to perish while the former was intoxicated. Poe often explores the many levels on which alcohol functions to enhance emotional expression and to portray his characters in his short stories. Poe had a lifelong habit of alcohol, and his short stories seek the enigmatic, pervasive, and paradoxical influence of alcohol on the identities, relationships, and lives of his characters (Patterson, 1992). Therefore, it is noted that analyzing the personal experience of an author is a key to understanding their literary work, specifically related to alcoholism in this section (Tussadiah & Saputri, 2018).

Unraveled Sanity

Traumas seem to be the main impetus that drives a person to insanity (Mendelson, 2023). According to Burton (2012), insanity is a disorder that involves distress and even impairment. Insanity simultaneously occurs in Edgar Allan Poe's literary works alongside his own life. His own life combated personal dramas and traumas, which is why his pain was transferred into his fictional works (Carstea, 2023). Poe experienced tragedies in his life that severely damaged his mental health. The repeated experience of losing his loved ones became a source of trauma, which consequently resulted in unstable mental health.

Edgar Allan Poe's misfortunes began with his father's abandonment during his early childhood, as well as his mother's death due to pulmonary tuberculosis, turning him into an orphan (Hélio et al., 2014, Quick, 2014; Thomas, 2012). Despite being adopted by the Allan family, Poe does not receive the familial love he was supposed to have. Afterwards, Poe's cherished foster mother, Frances Allan, died, leaving Poe without a proper mother figure. Poe then struggled to continue his education due to his intense relationship with his foster father and gambling issues (Thomas, 2012). Moreover, his tragic relationship with his wife, Virginia Clemm, followed, who sadly passed away from tuberculosis shortly after their marriage. In addition to grieving, Poe realized that his loved one's voice continued to speak to him. Virginia Clemm was profound to Poe, and he held on to her, even just her memory. It takes a heavy toll for Poe to mourn for a lost love; this is now blurring Poe's sense of reality while simultaneously crushing his mental wellness. Having said that, Mendelson (2023) stresses that because of the tragedy, Poe's mental health completely collapsed. Those traumatic events among his family members crushed his sanity, spiraling him into mental illness.

An example of madness is illustrated in *The Tell-Tale Heart, "I heard sounds from heaven; and I heard sounds from hell"* (p. 64). Poe depicts his main character as mentally impaired, as a man with delusional senses, hearing unfathomable forces beyond the empirical sensations. Simultaneously, while he denies his own insanity, *"Why do you say that I am mad"* (p. 64) only ensures his devolving status, given that he mishandles his own mental sickness. Even after the murder, the protagonist still hears the old man's heartbeat, which continually haunts him until he eventually snaps and confesses to the police (p. 67). The heightened sense of the protagonist is just a product of his imagination.

Another illustration of madness is manifested in *The Black Cat*, where the narrator once loved his wife, and animals eventually turned deranged; he forgot to love or to be pleasant. He suddenly killed his own cat and dear wife out of his misplaced rationality. In which he eventually admits to the officials at the end that he disposed of the corpse of his wife behind the walls of his cellar. This assures that the protagonist has totally lost his reason and proves that he has turned insane.

In *The Cask of Amontillado*, the narrator Montressor is blinded by his quest for revenge. His very own goal weakens his sensibility to discern a reasonable manner of resolving his affliction. Concludingly, Montressor's retaliatory obsession to kill Fortunato and his successful heinous murder of Fortunato do indeed confirm Montressor's madness. The painful reality of Poe and his characters, such as Montresor and the two narrators of *The Tell-Tale Heart* and *The Black Cat*, led them to be destructive and incoherent to the world and themselves. Edgar Allan Poe's dark life experiences and his characters exemplify madness, stressing unraveled sanity. In Edgar Allan Poe's fiction, his characters, like the narrator of *The Tell-Tale Heart*, the narrator of *The Black Cat*, and *Montresor*, had combatted their inner battles even though they acknowledged their painful reality; it still cost them their mental soundness.

Chained by Death

It can be said with certainty that death also plays an important role throughout Edgar Allan Poe's life. In Poe's lifetime, virtually every woman he loved and who loved him died young (Giammarco, 2013). In 1811, his mother, Elizabeth Poe, died when he was three years old. His foster mother, Frances Allan, who encouraged little Edgar to recite poetry from a young age and supported his artistic aspirations, died in 1829. Moreover, his very close friend's mother, Jane Stith Stanard, who had introduced him to poetry and literature in general, passed away with an unknown illness (Kaas, 2019).

The worst of all happened when his child bride, whom he had married when she was thirteen, succumbed to tuberculosis at the age of twenty-two, following several years of only declining health. In 1847, Virginia, the wife of Poe, died of the disease at the age of 24 (Kaas, 2019). It is regarded as one of the explanations that Poe's novels and short stories often include women as objects of death. There are hardly any of them that survive. A simple example is illustrated in *The Black Cat*, where the wife of the narrator faces death in the story. The irrational narrator attempts to kill the second cat because he feels it is annoyed. However, his wife tries to stop him. In consequence, he killed his wife with an axe and concealed her body by walling it up in the cellar (p.37).

It is commonly recognized that the absence of family members in life has affected his writings (Patterson, 1992). Despite that, Edgar Allan Poe himself died at a very young age on October 7, 1849 (Pruitt, 2015). The mysterious death of Poe was not just caused by alcoholism alone, but by the very misfortunes he had been carrying and mishandling that led him to his death. Orphaned at an early age, Poe grew up in Richmond. John Allan, a wealthy businessman, took him in after that, although they didn't get along well (Pruette, 1920). Poe battled alcoholism and melancholy in addition to financial hardships throughout his life. He was a binge drinker, and alcohol severely cost him his employment, relationships, reputation, and ultimately his health. After the death of Virginia, Poe heavily grieved and abused himself with alcohol and opium, attempting suicide by overdose. Virginia's death worsened Poe's health: he was distressed all the same, leading to Poe's damaged health (Kaas, 2019). As a result, those misfortunes in life caused his death by the age of 40.

Death, therefore, is the same misfortune that occurs in his short story *The Black Cat*. At the beginning of the story, the narrator tells everyone that he is going to die tomorrow. The story is told in first person by an unnamed narrator who wishes to unburden himself. "*Tomorrow I die. Tomorrow I die*" (p. 34). This theme of death is indicated in the first sentence of the story. As the story progresses, the narrator loses control and kills his favorite cat, Pluto, in the story. "*I hung it there until it was dead*" (p. 35) Not only killing his favorite pet, but his wife is also killed by him in the story. Eventually, he gets punished and faces his own death for his crime.

Similarly, in another short story, *The Cask of Amontillado*, Edgar Allan Poe also presents a character named Fortunato who inevitably faces his death. Fortunato dies in Montresor's cellar after being chained and subsequently bricked in by a recently built section of the wall; the reader is unsure of the precise cause of death, but it is most likely a heart attack or suffocation. Overall, *The Cask of Amontillado* is a story with a theme of death and revenge. Montresor, the narrator, eventually kills his former friend Fortunato because of an insult that is never described to the reader.

In an associated manner, death is seen as an essential theme in The Tell-Tale Heart written by Edgar Allan Poe. It is a well-planned murder case in which a man admits to the killing of the old man with a strange eye. "*Yes. He was dead! Dead as a stone. His eye would trouble me no more*" (p. 66)

It is the first death that happens in *The Tell-Tale Heart*. The old man's murder serves as an example of how far the narrator can divorce the old man's identity from his physical appearance. The narrator believes that the man and the eye are entirely distinct entities, and as such, he can kill the man. Following the completion of the dismemberment and cleanup, the narrator meticulously takes the floorboards out of the old man's room and hides every body part beneath them. At the end of the story, the narrator is caught for his deadly crime and is going to be executed.

Similarities Between Edgar Allan Poe and His Characters as Reflected in the Text

By analyzing the short stories, the researchers found that similarities, including alcoholism, madness, and death, were reflected by the characters. Moreover, literary elements such as characterization, symbolism, supernatural, irony, foreshadowing, tone, plot, and suspense are used in exploring the themes.

Alcoholism

The effect of chronic alcoholism is clearly revealed through Poe's use of the first-person point of view in his short stories. Undoubtedly, an individual's perspective on the world can be drastically altered by alcoholism.

The Black Cat is a story of violence and an alcoholism-related internal conflict. In the story, Poe depicts an unnamed narrator who is a struggling alcoholic and becomes increasingly dependent on alcohol. Characterization is frequently used by Poe to give details and descriptions of his characters in this story. According to Djasi (2000), characterization demonstrates the characters' physical and mental behaviors. "*One night I came home quite late from the inn, where I now spent more and more time drinking*" (p. 35). As the narrator stated in the text, he started to spend an increasingly more of his time drinking.

Apparently, excessive drinking has become an issue for the narrator in his life. Additionally, the use of symbols in the text conveys to the reader a perceptive understanding of the narrator's mental behavior. He spends a lot of his time drinking. After coming home heavily intoxicated by alcohol, the narrator is using his small knife to cut out Pluto's eye while strangling the cat. It seems that alcoholism has turned a docile man into an abuser, even to his favorite cat. Later in the story, alcohol drives him insane and eventually leads him to kill the first cat, Pluto. It is often common for addicted individuals to have outbursts related to explosive and uncontrolled anger. Heavy drinking is the factor that causes the narrator to act wickedly. The change of action of the narrator confirms that he is being badly influenced by alcohol.

Another story that Poe has written with a strong theme of alcoholism is *The Cask of Amontillado*. In the story, alcohol is the bait used for Fortunato, which leads to his eventual death. It illustrates alcohol as a negative substance. At the beginning of the story, the narrator Montresor reveals his determination for revenge and tells the readers about the weakness of Fortunato, which is related to alcohol. "*So, he knew a lot about fine wines and proudly believed that he was a trained judge of them*" (p. 68). Moreover, he drank a lot of wine and took great pleasure in it in his life. He was a frequent alcoholic and had a vast knowledge of great wines. Fortunato enjoyed considering himself to be an expert in determining the quality of wine. Considering all of this, Montresor made the decision to get revenge after Fortunato made fun of Montresor's family name.

During the carnival, Montresor makes the best occasion to invite Fortunato to take his revenge. In the story, Montresor continues to narrate his encounter with Fortunato. As they met, "*He spoke to me more warmly than was usual, for already he had drunk more wine than was good for him*" (p. 69). It shows that Fortunato is very drunk at that time.

The Amontillado wine itself frequently occurred in the story as a plot device. With a strong desire for vengeance, Montresor lures his victim, Fortunato, back to his wine cellar for a taste of the unique Amontillado wine. He baits him by saying he's searching for Luchesi, a knowledgeable local, to verify the unique wine's qualities. "*Amontillado! Quite impossible*" (p. 69). As provided in the texts above, wine provides the narrator's reason for dragging Fortunato down to the vault and demonstrates his obsession with the word "Amontillado."

Very quickly, Montresor invites Fortunato to his house to show him the Amontillado he recently bought. After reaching the palazzo, both characters immediately make their way down into the deep, winding catacombs below. To find the unique Amontillado, Montresor continuously spoils Fortunato with a variety of wines, which keeps him in a cheerful mood. They sample a delicious Médoc from Bordeaux, France, as well as a rare Graves. The two men raise a glass and raise a toast to the esteemed Montresor family's forefather, who is interred in the catacombs. "*Fortunato's step was not sure, because of the wine he had been drinking*" (p. 70). The story portrays a silly Fortunato who is crazy about drinking despite his health. Montresor keeps offering drunk Fortunato several wines to continue the journey to Fortunato's death.

Alcohol has repeatedly occurred in *The Black Cat* and *The Cask of Amontillado*. As defined in the stories above, the characters analyzed are all alcoholics who seek out opportunities to always drink. Alcohol becomes an important and primary part of their life. It illustrates how excessive alcohol drinking may cause a person's muddled brain to operate irrationally, leading them to make rash choices or even do things they would not normally do. Literary elements such as symbolism give writers a sophisticated and varied tool for communicating several levels of interpretation and play a significant role in literature.

Madness

Poe emphasizes madness through alcoholic scenes, gloominess, and persistent vexatious characters. These literary elements do indeed contribute to both the horrific horror of his tales and the deterioration of the mind.

The Black Cat starts with an unnamed narrator under the destructive influence of alcohol, which spirals him into violent mood swings and the mistreatment of animals. "*I became quick to anger; I forgot how to smile and laugh*" (p. 35). Latterly, in a fit of uncontrollable rage, he cuts out an eye of Pluto; this

characterizes how dangerous he can be. After Pluto's death at the hands of the narrator, he witnesses the impression of a massive cat with a rope around its neck on a wall that remains standing. "*I thought of the cat as I watched it burn, the cat whose dead body I had left hanging in the cellar*" (p. 36). He attempts to explain his existing impression, yet he only finds himself in this phantasm for months. Regardless of the cat's death, the passage of time symbolizes its way to petrify the narrator to his core. "*It's one eye filled with fire, it's wide-open mouth the color of blood, sat the cat, crying out its revenge*" (p. 37).

The murder of the wife is out of the narrator's alcohol fueled rage. "*Quickly, my wife put out her hand and stopped my arm. This only increased my anger and, without thinking, I turned and put the knife's point deep into her heart*" (p. 37). This is the full revelation of his descent into madness and loss of senses in discerning sanity and insanity. The deed of impulsively killing his wife is a concrete manifestation of unbounded rage. His own unrestrained wrath also dragged him into insanity. Anger is sincerely perilous, which can not only horribly harm people but also shatter one's own sense of discernment. The narrator already stumbled into madness even before his wife's death. He already has a misplaced developed hatred for animals, reaching a point of maiming Pluto, as well as being unable to recognize his dear wife.

With the horrible sins, all of these were propelled by the foul irrationality besides alcohol, deranging him. Consequently, the narrator of *The Black Cat* violently mistreats everyone and those dear to him, turning him into a ferocious force more than capable of executing horrendous crimes.

The Cask of Amontillado, another one of Poe's masterpieces, emphasizes madness via Montressor's calculated madness, who meticulously plans and executes his revenge against Fortunato: "*Fortunato had hurt me a thousand times and I had suffered quietly. I promised myself that I would make him pay for this that I would have revenge*" (p. 68). This conspiracy just discloses his insanity. His sole goal of enacting revenge blinds him as well, for evil can never repay evil. Consequently, Montressor is unable to clearly think about the appropriate way of settling, making him a hostile force since his quest for vengeance completely consumes him. Furthermore, Montressor's remorseless confession is seen through his calm and rational tone: "*I must not suffer as a result of taking my revenge*" (p. 68). This emphasizes his concrete resolve. With the resolve he has, he is more than willing to realize his sole goal of killing Fortunato. His own resolution is not just his willingness to kill, but even selling his own sanity proves his serious, sinister derangement.

Latterly, in *The Cask of Amontillado*, the catacombs symbolize madness, a dark and damp place where Montressor leads Fortunato. "*Against three of the walls there were piles of bones higher than our heads*" (p. 71). This dim place represents the depths of Montressor's twisted mind and the manifestation of his menacing character. The journey to the vaults also shows the readers the gradual disintegration of Montressor's mind and his unsteadiness. The piles of bones, on the other hand, are the intensification of Montressor's mind, solely signifying that he is dangerous.

The protagonist of *The Tell-Tale Heart* defends his sanity with great suspicion; he insists on his sanity, claiming that he is merely nervous and indeed not mad. "*But why do you say that I have lost control of my mind, why do you say that I am mad*" (p. 64). While simultaneously affirms his heightened senses, allowing him to hear from heaven and hell. "*I heard sounds from heaven; and I heard sounds from hell*" (p. 64). The psychological contradictions then exacerbate his condition, emphasizing his unreliability and dramatic irony. The aggravation of the psychological illness occurs due to denial, yet it must be accepted and processed; it's the way of properly curing and not deprecating oneself through self-dishonesty. The main character's ill condition is worsened through his obsession with the evil eye; according to the deranged character, it's a vulture-like eye that is unsettling for him. "*When the old man looked at me with his vulture eye*" (p. 64-65). This, moreover, drives him needlessly more insane, especially enabling him to be a dreaded monstrosity out of a regressed monstrous min, which drives him to commit a horrendous crime.

After the murder, he suffers auditory hallucinations and paranoia; this is where, after the murder, he suddenly hears the heartbeat growing louder alongside torments him. "Louder it became, and louder. "Why did the men not go? Louder, louder. I stood up and walked quickly around the room" (p. 67). This auditory

illusion boosts the narrator's descent into madness and intensifies the suspense towards the ghastly epilogue. His delusion subsequently haunts him to eventually confess and break his conscience. Hence, the delusions and paranoia are a robust reminder that he is unable to escape his incorrigible sin regardless of.

Death

Poe's literary works have a concrete grip on the theme of death; death further takes on not just the physical cessation of life, but also through their respective individualities.

In *The Tell-Tale Heart*, the narrator meticulously plans the methodical murder; he routinely checks the old man's room every night to calmly observe him while he's asleep. "*For seven nights I did this, seven long nights, every night at midnight. Always the eye was always closed, so I couldn't do the work. For it was not the old man I felt I had to kill*" (p. 65). The narrator's calmness and precise actions subsequently ironically contrast with his sinister deed. Latterly, after the ghastly crime, the narrator butchers the old man's body and conceals the pieces beneath the floorboards, yet despite his demise, the protagonist still hears the heartbeat; regardless of the successful killing and disposal, he is unable to escape its thumping sound. The beating heart beneath the floorboards is a literary element that exemplifies foreshadowing; it foretells the narrator's guilt and impending discovery of his crime. "*Pull up the boards and you shall see! I killed him*" (p. 67).

In *The Black Cat*, Pluto's demise starts with the unnamed narrator on the night of his death, he confesses a wild narrative. Years prior, he affirms that he had an honorable character and an immense love for animals. Amongst his pets, he singles out a large and gorgeous black cat named Pluto. Pluto and the narrator had the strongest and warmest of bonds; however, the narrator's sudden change into hostility was brought about by the foul influence of alcohol. Consequently, he begins to be a threat to animals and even to his dear wife, to the extent of atrociously hanging Pluto. Pluto was once dearly loved, yet unfortunately, it fell victim to the sick narrator's vicious hands. "*One day, in cold blood, I tied a strong rope around the cat's neck*" (p. 35). The mysterious cat's arrival occurs after Pluto's death, and the narrator develops his rekindled fondness for this cat, yet his hatred soon takes over him. The mysterious cat utilizes the literary element of foreshadowing; this latest cat initially rekindles fondness, and latterly, hatred consumes the narrator, foretelling a similar impending doom synonymous with Pluto's fate. "*A cat almost exactly like Pluto. But I, myself, found a feeling of dislike growing in me*" (p. 36). The enigmatic cat then retells the narrator's past brutal sin while foretelling another future undoing of the narrator. Additionally, the new cat retells the narrator's past sin and another undoing of the narrator. Furtherly, the gallows-shaped fur mark is the narrator's hatred for the new cat.

Finally,in *The Cask of Amontillado*, death is emphasized through Fortunato's fate, where Montressor seeks revenge against Fortunato, who deceivingly lures him into the catacombs just to bury him alive. "*I continued to smile in his face, and he did not understand that I was now smiling at the thought of what I planned for him, at the thought of my revenge*" (p. 68). With the above quote, Montressor subtly hints at Fortunato's upcoming doom while he falsely concerns himself with Fortunato's well-being. Another irony lies in Montressor's feigned care to cunningly earn Fortunato's trust, exemplifying a skillful deviousness. "*Montressor to Fortunato: My dear Fortunato! I am indeed glad that I have met you. I was just thinking of you*" (p. 69).

The story occurs at a carnival season; it is at this place and time of revelry and celebration. "*It was almost dark, one evening in the spring*" (p. 69). Yet this ecstatic backdrop contrasts keenly with the unfolding dark and sinister occurrences in the Montressor catacombs. The setting is a juxtaposition of merriment and impending demise, emphasizing death. This then lays the backdrop for the story, crafting an eerie atmosphere.

Furthermore, the Montressor Family is great and well honored. The Motto "*Montresor, the name of an old and honored family*" (p. 68) underscores the concept that revenge will be exacted without consequence. It further foreshadows Montressor's imminent retribution, which he plans to unleash upon Fortunato as

he lives up to their family's core value and pride. The Montressor family embodies the philosophy, which translates as no offense goes unpunished. It is their family pride, and this alone propels Montressor's capacity to commit horrible deeds.

The characters represented death, insanity, and alcoholism, respectively. Even though the character gave in to vices and wickedness, it still influenced the idea of how dark Gothic literature is meant to be. Through Poe's works, he revealed humanity's horror towards the supernatural, death, wickedness, and disintegration of personality. He attempted to show that horror stems from the soul. Through symbol, suspense, a first-person narrator, exaggerated atmospheres, and anti-closure. Furthermore, based on his biographical sketch and observations, Jarvis (2021) notes that Poe led a gothic life as his crafted characters did in his fictional works. Through his writings, he internalized fantastical situations.

Poe uses a variety of literary devices to reflect his life, including the use of literary elements to build his literature. With Poe's literary elements, he disclosed themes such as alcoholism, madness, and death, all of which add to an overall sense of terror and dread.

Discussions

The researchers found out the surrounding themes, specifically alcoholism, madness, and death in *The Black Cat, The Cask of Amontillado*, and *Tell-Tale Heart*. Upon focusing on the three selected literary works, *The Black Cat, The Tell-Tale Heart*, and *The Cask of Amontillado*, it enables researchers to look for all relevant information about a particular work, and this undoubtedly uncovers new ideas that require more investigation by reading what has already been written.

The researchers identified the commonalities between Poe and his characters. The strong similarities are alcoholism, where Edgar Poe explored several degrees of alcohol function, strengthening emotional expression in his portrayed fictional works, regardless of their pervasive and paradoxical influence (Patterson, 1992). Besides alcoholism, insanity is also a major theme that highlights severity, capable of breaking regulations, shattering the status quo, and provoking complete anxiety and unrest. Most importantly, insanity is focused or rooted in trauma (Mendelson, 2023). This insanity comes from Poe's own misfortunes; it was his motivation to craft his insane fictional characters, such as the protagonists of *The Black Cat, Tell-Tale Heart*, and *The Cask of Amontillado*. Additionally, Poe's experience with death is quite evident through the loss of dear people to him (Thomas, 2012). During his life, he suffered a tremendous trauma given the misfortunes he witnessed. Thus, death is also commonly applied as a prevalent theme in his literary works and is found in the three selected literary works.

The study of Edgar Allan Poe's life in his selected works of fiction shows the causes and effects of alcoholism, madness, and death. Therefore, to provide positive meaning in life and the value of self-care, the following recommendations are given:

Avoid unhealthy coping mechanisms such as substance abuse. Substance abuse is regarded as a "coping mechanism" to ease the pain, yet, unknowingly, the opposite occurs. Alcohol dependence is destructive to one's adaptability to challenges and dulls the senses. The literary stories manifest the catastrophic consequences of alcohol on a person's life and sense.

Be mindful of one's thoughts and emotional process. Madness is self-deprecating to one's mental well-being. Self-compassion subsequently accentuates positive affirmations, endurance, and acknowledgement through understanding and challenging negativities through positive self-talk. As important as acceptance and awareness of pain, it is equally vital to act on it, seeking solutions to the root causes of suffering from such despondency; this kind of approach properly maintains one's sanity, thus enabling one to act accordingly.

Acceptance of death is necessary to better appreciate the value of life. Death and the overall truth of "dying" are considered a part of the natural way of life, which is an inescapable fate. Despite its inevitability, death may be devastating but has a powerful capacity to transform an individual for the better, strengthen people to be successful, and remind us how temporal life can be.

Do a further investigation of Edgar Allan Poe's other literary works to see their relevance and parallels

to his life experiences. In this study, researchers are limited by the theories utilized and the selected texts chosen. Moreover, it is also recommended that future researchers of EAP's works utilize other literary theories aside from biographical criticism and the initial step to psychoanalysis to uncover further literary elements and glean an understanding of not only the texts but also the author.

References

Bhandari, P. (2020). *What is qualitative research? Methods & examples*. Scribbr. https://www.scribbr.com/methodology/qualitative-research/

Burton, N. (2012, September). The meaning of madness. *Psychology Today*. https://www.psychologytoday.com/us/blog/hide-and-seek/201209/the-meaning-madness

Carstea, D. (2023). Writing trauma: Aesthetic experience, projection and mechanics of representation. *Humanities & Social Sciences Communications, 10*, 445. https://doi.org/10.1057/s41599-023-01966-7

Djasi, H. (2000). *Introduction to literature*. Nurani Enterprise.

Giammarco, E. (2013). Edgar Allan Poe: A psychological profile. *Personality and Individual Differences, 54*(1), 3–6. https://doi.org/10.1016/j.paid.2012.07.027

Hakola, O., & Kivistö, S. (2014). *Death in literature*. Cambridge Scholars Publishing. https://www.cambridgescholars.com/product/978-1-4438-5678-2

Hélio, A. G., Teive, H. A. G., Paola, L. de, & Munhoz, R. P. (2014). Edgar Allan Poe and neurology. *Arquivos de Neuro-Psiquiatria, 72*(6), 466–468. https://doi.org/10.1590/0004-282x20140048

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Jarvis, B. (2021). The horrors of Edgar Allan Poe. In [Book title not provided] (pp. 77–96). Springer. https://doi.org/10.1007/978-3-030-40866-4_5

Kaas, R. (2019). *"Nameless here forevermore": A study of the expression of sorrow in the life and works of Edgar Allan Poe* [Master's thesis, DIVA Portal]. https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1279132&dswid=1369

Keller, M., & Vaillant, G. E. (2024, April 19). Alcoholism. *Encyclopedia Britannica*. https://www.britannica.com/science/alcoholism

Lombardi, E. (2019, August 10). *"The Black Cat" study guide*. ThoughtCo. https://www.thoughtco.com/the-black-cat-themes-and-symbols-738847

Mendelson, W. (2023, August 14). The troubled life of Edgar Allan Poe: How he came to exemplify the brilliant but troubled writer. *Psychology Today*. https://www.psychologytoday.com/us/blog/psychiatry-a-history/202304/the-troubled-life-of-edgar-allan-poe

Miles, D. A. (2017). A taxonomy of research gaps: Identifying and defining the seven research gaps. *Journal of Research Methods and Strategies, 1*(1), 1–15. https://bit.ly/3pn92ws

Morrigan, C. (2017). Failure to comply: Madness as testimony. *Canadian Journal of Disability Studies, 6*(3). https://doi.org/10.15353/cjds.v6i3.366

Ostrom, J. W. (Ed.). (1966). The letters of Edgar Allan Poe. *Gordian Press*.

Pagan, A. (2019, January 18). Where to start with Edgar Allan Poe. *New York Public Library*. https://www.nypl.org/blog/2019/01/18/where-start-edgar-allan-poe

Patterson, R. (1992, October 15). Once upon a midnight dreary: The life and addictions of Edgar Allan Poe. *Canadian Medical Association Journal, 147*(8), 1219–1222. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1336506/

Piacentino, E. (1998). Poe's "The Black Cat" as psychobiography: Some reflections on the narratological dynamics. *Studies in Short Fiction, 35*(2), 153–163.

Pruette, L. (1920). A psycho-analytical study of Edgar Allan Poe. *The American Journal of Psychology, 31*(4), 370–402. https://www.jstor.org/stable/1413669

Pruitt, S. (2015, October 26). The riddle of Edgar Allan Poe's death. *History*. https://www.history.com/news/how-did-edgar-allan-poe-die

Quick, E. (2014). How Poe's life leaked into his works. *English Class Publications*. https://scholarlycommons.obu.edu/cgi/viewcontent.cgi?article=1003&context=english_class_publications

Rhodes, S. (2013, November). Strangled roses: A portrait. *The Edgar Allan Poe Review, 14*(2), 199–214. https://scholarlypublishingcollective.org/psup/edgar-allan-poe/article-abstract/14/2/199/259551/Strangled-Roses-A-Portrait

Thomas, A. (2012, August). Ten saddest moments in the life of Poe. *Listverse*. https://listverse.com/2012/08/10/ten-saddest-moments-in-the-life-of-poe/

Tussadiah, H., & Saputri, C. D. (2018). An analysis of Laskar Pelangi novel by using biographical criticism. *Journal of Literature Studies, 8*(2), 45–58. http://download.garuda.kemdikbud.go.id/article.php?article=818585&val=7833

Wing-chi Ki, M. (2008). Ego-evil and The Tell-Tale Heart. *Renascence, 16*(1), 25–38.

HUMANITIES

Abstract Painting Through the Lens of the Non-artists: A Narrative Inquiry

Ciasxel Cleo G. Gasapo
Ann G. Anolin
Jolly S. Balila
Honsel Mie J. Escario
Rowena Imelda A. Ramos
Michael S. Naidas

Adventist University of the Philippines
2055653@aup.edu.ph

Abstract

This qualitative narrative study examined how non-artists aged 18 to 60—individuals who do not engage in art as a hobby, academic pursuit, or profession—view abstract painting. Guided by the Ways of Seeing Theory, the study used narrative interviews with four participants as they observed two abstract paintings created by the researchers. Findings revealed that non-artists' narratives were primarily shaped by emotions, social issues, and self-reflection. Additional subthemes included order, culture, mental states, conflict, emotional and narrative freedom, imagination, and life struggles. This study contributes to understanding how abstract paintings are interpreted by non-artists, emphasizing their tendency to relate artworks to personal and social experiences. It also suggests directions for future research by extending observations to diverse communities and lifestyles to further illuminate non-artists' narrative interpretations of abstract painting.

Keywords: *visual saliency, perception, ways of seeing*

Abstract art can include distorted figures or drips and splashes of different colors of paint onto a canvas (Gridley, 2013). It is not merely random shapes or strokes but rather an exploration of simplified representations of reality. Cermanski, (2024) noted that abstract art has different meanings for each person: some argues that it does not represent reality, while others see it as the most direct form of expressing it.

Art appreciation is deeply subjective. People visit museums, purchase artworks, or display them in their homes because of the emotions or meanings they derive from art. Durkin et al. (2020) emphasized that a viewer's experience is central to an artwork's impact. Similarly, Anapur (2016) pointed out that perception is shaped by personal experiences and influences, while Kennel et al. (2017) explained that visual saliency—factors such as color, contrast, and luminosity—guides initial attention. Humans typically notice larger and brighter details first, but interpretation is also shaped by top-down processes, including life experiences, emotions, social values, and profession (Lukin et al., 2023).

Perception of abstract art varies widely. Some people may appreciate it immediately, while others take time to construct meaning. Uusitalo et al. (2009) argued that art consumption is influenced by personal intentions and motivations. Similarly, Martin (2019, cited in The Museum of Modern Art, 2020) explained that abstract art encourages patience and openness, as its meaning may shift depending on one's mindset or stage of life.

Unlike realistic art, abstract art conveys ideas, emotions, and moods rather than literal subjects. Berger (1972) emphasized that individuals relate what they see to their own experiences, while Yarbus (1967, as discussed in Tatler et al., 2010) demonstrated that people focus on contrasting and detailed areas of composition. These findings highlight how perception is both instinctive and interpretive.

Although research exists on how people perceive abstract art, studies on non-artists' perspectives remain limited. This study addresses that gap by exploring the narratives of non-artists when interpreting abstract paintings. Specifically, it seeks to answer:

1. What meanings do non-artists derive from abstract paintings?
2. What stories do non-artists construct as they interpret abstract paintings?
3. How do non-artists relate these meanings to their personal experiences?

Methodology

Research Design

This study employed a narrative inquiry design, which explores participants lived experiences through their personal stories (Butina, 2015; Ford, 2020). Narrative inquiry allows researchers to capture meaning-making processes and compare how non-artists perceive and interpret abstract art.

Population and Sampling Technique

Four non-artists were selected through purposive sampling: two students and two working adults from the National Capital Region. They were acquaintances or friends of friends who did not engage in art as a hobby, academic pursuit, or profession. This ensured their perspectives reflected those of non-artists. Including both students and professionals allowed the study to capture diverse experiences. Table 1 presents the demographic profile of each non-artist participants.

Table 1

Participants' Profile

Participants	Occupation/College Course	Age	Gender
Participant A	Marketing Management	21	Female
Participant B	Tourism Management	19	Female
Participant C	Senior Facilities Engineer	51	Male
Participant D	Software Developer	23	Male

Data Gathering Tools

Data were collected using two abstract paintings created by the researchers, a narrative interview guide, and a mobile phone for recording. The guide focused on participants' perceptions, interpretations, and connections to the paintings.

Painting 1 (Figure 1) depicted anxiety, symbolized by a balloon filled with needles and messy red brushstrokes. Painting 2 (Figure 2) represented the loss of innocence, symbolized by colorful circular strokes contrasted with gray tones.

Figure 1

Abstract Painting 1

Figure 2

Abstract Painting 2

Data Gathering Procedures

Each participant was individually interviewed for 10–30 minutes while viewing the paintings. Interviews were audio- or video-recorded to capture tone, pauses, and body language, providing deeper insight into participants' responses.

Data Analysis

Narrative analysis was used, following steps such as defining objectives, collecting and transcribing stories, identifying themes, and synthesizing meanings (Chakhap, 2024; Dovetail Editorial Team, 2023). Triangulation enhanced credibility by comparing participants' interpretations with insights from a practicing artist, though the latter was not included in the analysis. Differences between artist and non-artist perspectives reflected known contrasts in processing abstract and representational art (Batt et al., 2010).

Ethical Considerations

Approval was obtained from the Ethics Review Board of the Adventist University of the Philippines. Participants gave informed consent and were assured of confidentiality and voluntary participation. The researchers maintained respectful, bias-free interactions to ensure trustworthiness and credibility.

Results

Constructing Meaning Beyond the Canvas

Rather than viewing the paintings as purely decorative or random, they understood them as visual expressions of emotion, complexity, and inner struggle (Leder et al., 2004). In contrast to the emotional tension and inner conflict expressed in Painting 1, Painting 2 elicited lighter, more positive, and structured interpretations, underscoring the role of personal context in constructing meaning (Freedberg & Gallese, 2007).

Color as Conflict and Intensity

Participant A described Painting 1 as "full of emotion" and "too passionate." She observed that while red often symbolizes love, in this context she saw anger and frustration.

> *"Masyado siyang full of emotions— Red means parang anger. Ano pa ba? Hatred. Of course love. Pero I don't see love in there. yeah. It's more on anger, frustration — Too passionate, actually.. Passionate in a way na parang—since nakikita yung parang... mga embedded na slash kaya siya I came up with passionate, too passionate" (It's too full of emotions—red symbolizes anger. What else? Hatred. Of course, it can also mean love, but I don't see love in there. Yeah, it's more about anger and frustration. It's too passionate, actually. Passionate in a way that—because you can see those embedded slashes—that's why I thought of the word passionate, too passionate.") Participant A*

Similarly, Participant B described the visual elements of Painting 1 as "kulo sa loob" (quiet boiling inside). She interpreted the shattered-glass effect as a protective shield preventing intense emotions from erupting. She said,

> *"Parang syang ano yun, yung parang kulo sa loob, ganon—Siguro yung pinaka center niya yung parang may shatterd na glass yung parang tinutusok tusok- yun yung parang shield niya para hindi...hindi siya sumabog—yung red na nasa gitna—para siya siyang hurricane—Yung red yung nag-represente ng parang lahat ng emotion niya, lahat ng emotion na gusto niyang, gusto niyang i-let out pero pinipigilan siya ng parang black na needles (It's like… like a boiling feeling inside. I think the very center looks like shattered glass, like it's piercing through—that's like a shield to keep it from… from exploding. The red at the center—it's like a hurricane. The red represents all the emotions he wants to let out, but they're being held back by those black needle-like shapes."*

Participant C viewed Painting 1 metaphorically as the world itself—chaotic, diverse, and fragmented. He linked the lines and patterns to differences in people, languages, and traditions.

> *"Para syang pilipinas eh magulo–para siyang mundo na nandan yung mga tao na may different languages, different...siguro tradisyon (It's like the Philippines—it's chaotic. It's like a world where there are people who speak different languages, different... maybe traditions." Participant C*

Participant D described Painting 1 as messy and emotionally charged, with the circular red strokes representing unresolved anger repeating in cycles.

"ano magulo, tapos madugo—diba kulay pula ang meaning ng pula is parang ano anger, uh tapos paikot, so paikot ibig sabihin paikot ikot lang yung galit niya sa sarili niya yun yun"(It's chaotic, and then bloody—because red usually means anger, right? And it's circular, so the circular motion suggests that his anger toward himself just keeps going around in circles." Participant D

Overall, participants' interpretations of Painting 1 pushed them beyond surface-level observation toward layered, symbolic, and emotional meanings such as pressure, confusion, and inner struggle.

Harmony and Wholeness in Diversity

In contrast to Painting 1, participants described Painting 2 with lighter and more optimistic interpretations. The colorful composition was associated with joy, peace, and balance, reflecting how abstract art can evoke uplifting meanings. Participant A connected the painting to happiness and freedom, likening it to a rainbow:

"Para siyang rainbow. And when you see a rainbow, parang may freedom at happiness. It's like a rainbow. And when you see a rainbow, it's like there's freedom and happiness."

Participant B interpreted the artwork more imaginatively. She compared it to someone in control of a dream, describing the colors as calm and flowy, like "aura pictures" she had seen online:

"Parang nag de-daydream or nag be-base yung tao dun sa gusto niya anong ipanaginip. It's like the person is daydreaming or basing it on what they want to dream about."

Participant C emphasized order and maturity, seeing the structured colors as symbolic of life's need for organization.

"Para siyang buhay, kailangan siyang i-organize. It's like life, it needs to be organized."

Participant D gave a social interpretation. He likened the white paint to a road and the surrounding colors to people of different personalities walking on it:

"Yan yung araw na ano… na sa society natin ibat ibang kulay ng tao yaann, kumbaga may mga tao na ano… mabait tapos meron galit. That represents the day when… in our society, there are people of different 'colors'—in other words, there are kind people, and there are also those who are angry."

Compared to Painting 1, Painting 2 was seen as harmonious, balanced, and hopeful. Participants highlighted themes of happiness, dreams, organization, and social diversity, demonstrating how non-artists use visual elements to narrate positive meanings (Mikalonyte & Schnall, 2025).

Telling Stories Through Art

A recurring pattern in the participants' responses was their ability to create stories and character-driven interpretations of the paintings. Rather than viewing the artworks as random or meaningless, they assigned emotions, roles, and symbolism that reflected psychological, social, and personal dimensions. This addresses Research Question 2: "What stories do non-artists construct as they interpret abstract paintings?"

Masks and Expectations: Struggles with Identity and Societal Roles

Participant A linked Painting 1 to the animated film Inside Out. She imagined a restless character surrounded by chaos, interpreting the scattered black lines as evidence of inner turmoil:

"Naisip mo sa sarili mo parang you tend to scribble, tas di mo napapansin yung gitna. Laging black. Kasi dun ka lang e, nagiging stagnant ka sa isang bagay na hindi mo napapansin." (You

think to yourself that you tend to scribble, and then you don't notice the center. It's always black. Because that's where you are—you become stagnant in something without even realizing it).

Participant B imagined the painting as a reflection of a person with anxiety—someone who wants to express themselves but cannot:

"I-base ko na lang sa mga tao na hindi kaya i-let out yung emotion na gusto nila or yung parang gusto nila talaga iparating."(I'll just base it on people who can't let out the emotions they want to express, or what they truly want to convey.)

Participant C gave a broader interpretation, imagining the painting as the world consumed by conflict, where chaos spreads like evil:

"Parang gera eh, tapos iba ibang ano parang madaming ano — tapos itong mga black na tuh parang si satan ata tuh eh, nag sespread ng ano eh." It's like a war, with all sorts of things going on, so much chaos—and these black parts, maybe they're like Satan, spreading something.

Participant D turned the painting into the story of a person who collects anger daily until it builds up and repeats endlessly:

"Paikot-ikot lang yung galit niya sa sarili niya… kada lakad niya merong nang-aaway, kinukulekta niya papuntang gitna—may nakita ako kulay itim guhit guhit, so yung kulay itim na guhit guhit nayan is yan yung mga nakulekta niya na mga tao, nanabibwisit siya." (His anger toward himself just goes in circles… with every step he takes, there's someone picking a fight, and he collects all of it toward the center. Those black lines are the people he encounters that irritate him.)

Together, these stories highlight how participants interpreted Painting 1 as a narrative of identity struggles, invisible emotions, and societal conflict, using imagination and metaphor to make sense of the abstract forms.

Color as Emotional Narrative and Internal Worlds

When reflecting on Painting 2, participants told stories that emphasized emotions, growth, and social meaning. Participant A interpreted the colors as symbolic of emotional freedom, with each shade representing different feelings and experiences:

"Colors bring different narratives in life—with that different kind of color na nang painting, it shows freedom, Freewill on what feelings you are, your emotions, like that. Yung mga naka embedded na ganito para sila yung ano… Yung people, for me, na natatamaan ng mga colorful elements—parang every people na yan nararanasan yung different emotion within them."(Colors bring different narratives to life. With the different kinds of colors in the painting, it shows freedom—free will to feel and express whatever emotions you have. For me, those embedded forms represent people who are affected by these colorful elements, as everyone experiences a variety of emotions within themselves.)

Participant B contrasted the two paintings, interpreting Painting 2 as a story of surrender and peace after emotional exhaustion:

"Dun sa first painting—parang hurricane na gusto mo i-let out yung emotions. Dito naman—parang yung tao na yun nga, parang gusto nang mag-let out, tas parang sobrang pagod niya na... Pagod na sa buhay—Parang sobrang pagod niya na—Parang gusto niya nang umayon sa gusto niya." (In the first painting, it's like a hurricane—like you want to let out your emotions. In this one, it feels like the person just really wants to let everything out, but they're extremely tired… tired of life. It's like they're so exhausted that they just want things to finally go their way.)

Participant C saw the development of brushstrokes as a metaphor for growth and discipline:
"Parang inu-ulitin ko na yung story ko. Una magulo and then parang ano siya, parang later on, nahaayos mo siya—mga unang stroke doon na hindi siya masyado fine or finished tapos may mga until later on may mga ibang na baga finish yung pagkaka gawa."
(It's like I'm repeating my story. At first, everything is chaotic, and then later on, it starts to come together. The first strokes weren't very fine or finished, but later on, some parts began to look more complete in the way they were made.)

Participant D gave the painting a sociological twist, assigning personalities to each color:
"Yung mabait dyan yung color green kasi favorite color ko yan—yung blue naman is di gaano mabait—kaya niya makipag sabayan—then yung maroon—kita mo yun unti lang, ilan lang sila—sila yung mga rare sa society—yung yellow nayan is sila yung mga tao na leader—tignan mo ang haba nila—kumbaga sila yung sinusundan ng mga tao sa society—yung orange—sila yung tao na lagi nagmamadali, ayon."(The kind one there is the color green—because that's my favorite color. Blue, on the other hand, isn't that kind—but it can keep up. Then there's maroon—you can see there's only a few of them—they're the rare ones in society. That yellow, those are the people who are leaders—look at how long they are—they're the ones others follow in society. And the orange ones—they're the people who are always in a rush. That's it.)

These interpretations reveal how participants transformed Painting 2 into stories of freedom, growth, surrender, and social identity. Abstract art thus became a platform for personal reflection and imaginative storytelling (Pelowski et al., 2017).

Personal Echoes and Emotional Connections

This theme addresses Research Question 3: "How do non-artists relate the meanings to their personal experiences?" The abstract paintings served as emotional triggers, prompting participants to reflect on their identities, hardships, and aspirations.

Personal Struggles Beneath the Surface and Shaping Experiences

For Painting 1, participants associated the chaotic colors and forms with their own struggles and frustrations. Participant A linked the color red to her own experience of empowerment, leadership, and pressure:

"Actually red is my color talaga—if I wear even red nails, I feel like parang na-empower niya ako gano'n. Kaya I tend to parang become...bossy sometimes–once I became the leader or I tend to overstep the ano, parang hindi na ako yun—minsan may nasasabing na kung di maganda na bakit hindi mo ginawa agad. Which is, you know, masyado ako silang pinipresure."(Actually, red is really my color. Even if I just wear red nails, I feel like it empowers me. That's why I tend to become a bit bossy sometimes—especially when I'm the leader or when I overstep boundaries. It's like I'm not myself anymore. Sometimes I even say things that aren't nice, like, "Why didn't you do it right away?"—which means I end up putting too much pressure on others.)

Participant B also related to the sense of anger and turmoil, likening the painting to a hurricane about to explode:

"When umm it comes to letting out my ano my emotions, kaya parang anger. Kasi personal naman—para siyang hurricane nga—parang siyang hurricane na parang sasabog na ganun—parang siyang hurricane na parang sasabog na ganun."(When it comes to letting out my emotions—especially anger—it feels really personal. It's like a hurricane, like something about to explode. That's how it feels—like a hurricane that's on the verge of bursting.)

Participant C was reminded of his own life struggles, particularly the challenges of becoming a father while still in college:

"Nung bata kasi, medyo okay pa pero… along the way, medyo nakaroon ng struggle in life kasi College pa lang ako, tatay na ako—parang ang gulo ng time na 'yon." (In my younger days, things were still okay, but… along the way, I started to face struggles in life because I became a father while I was still in college—that time was really chaotic.)

Participant D connected the painting to his experience as a fresh graduate searching for a job, interpreting the swirling red strokes as frustrations and rejections:

"Ihahalintulad ko yan sa buhay ko bilang ano, isang fresh grad—kasi bilang ano bilang fresh grad, yan syempre maghahanap ka ng trabaho, iikot pa, syempre hindi naman lahat makukuha mo agad, yan mag fefail ka."(I would compare that to my life as a fresh graduate—because as a fresh grad, you go through the process of looking for a job, going around, and of course, you won't get everything right away. You'll experience failure.)

These reflections show how participants connected Painting 1 to personal struggles, leadership pressures, anger, and life transitions, using the artwork as a mirror for their experiences (International Educator, 2023).

A Window of Visual Balance and Inner Clarity

Painting 2 elicited more positive and hopeful personal reflections. Participant A connected it to the emotional suppression common in her generation, where young people often hide their struggles. She interpreted the painting as encouragement for emotional honesty:

"Parang in our generation, we tend to not tell anyone what you feel or we tend to fake them all, para hindi nila makita na you're suffering—parang this painting show na you can still show your emotion in your free will—personally ganun kasi ako eh I tend to keep it to myself kasi, parang I don't want them to know what I'm feeling right now kasi parang what if mafifeel din nila yung na-feefeel ko so I don't want to be the burden."(In our generation, we tend to hide how we really feel—we either keep it to ourselves or fake our emotions so others won't see that we're suffering. But this painting shows that you can still express your emotions freely—through your own free will. Personally, I usually keep things to myself because I don't want others to know what I'm feeling. What if they end up feeling it too? I don't want to be a burden.)

Participant B connected Painting 2 to escapism and imagination, describing it as a background she could design for herself:

"Nag fo-float lang ako—Ang ganda lang ng background ko kasi...siyempre gaganda yun kasi ako nag-pili nun, ako nag-imagine nun. Gusto ko ayun yung maging...ayun yung detail ng background na gusto ko eh." (I'm just floating. It's like—I just really love my background. It's beautiful because I chose it, I imagined it. That's the kind of background I want—the details are exactly how I pictured them.)

Participant C related the colors and shapes to past friendships and relationships, particularly with women:

"Gwapo tayo nung bata. Tayo eh—Parang nagre-represent ng mga naging kaibigan dati, nang naging kaibigan dati ang mga pagkababae iba-ibang kulay, iba-ibang shapes."(We were good-looking when we were kids. That's us. It kind of represents the friends we used to have back then—the femininity of those friends, shown through different colors and different shapes.)

Participant D identified himself with the blue color, linking it to his experiences as a leader and his talents. He added humor to his story, claiming maroon represented his hidden talent for magic:

"Personal experience ko ayon simple lang, ako si blue, na experience ko na maging leader, naging leader na ako ng mga tao sa schools, sa work, then maroon talented, syempre talented ako, syempre talented ako, di niyo lang alam gusto niya mag magic ako?"(My personal experience is simple—I am the color blue. I've experienced being a leader; I've led people in school and at work. As for maroon—that represents talent, and of course, I consider myself talented. Of course I'm talented—you just don't know it yet. Want me to do magic?)

These stories demonstrate how Painting 2 inspired participants to reflect on honesty, imagination, relationships, and self-identity. By situating themselves within the artwork, participants used abstract art to explore their own lives, consistent with the principles of narrative inquiry (Clandinin & Connelly, 2000).

Discussion

This study explored how non-artists perceive abstract paintings, and three major themes emerged: constructing meaning beyond the canvas, telling stories through art, and forming personal echoes and emotional connections. These themes demonstrate that non-artists do not passively view abstract art but actively engage with it by attaching emotions, narratives, and personal experiences.

For Research Question 1, participants derived meanings grounded in emotion and social context. In Painting 1, red and black were interpreted as symbols of anger, conflict, and pressure, consistent with Leder et al.'s (2004) model of aesthetic experience, which highlights the role of emotional appraisal in art perception. Conversely, Painting 2 was viewed more positively, as a representation of happiness, order, and diversity, echoing Mikalonyte and Schnall's (2025) view that abstract art invites multiple, often optimistic, interpretations depending on context.

For Research Question 2, participants constructed narratives that turned abstract forms into characters, social commentaries, or psychological struggles. This reflects Pelowski et al. (2017), who emphasized that abstract art stimulates imagination and narrative building. The use of metaphor (e.g., comparing emotions to hurricanes, or colors to people in society) shows how viewers project lived realities onto visual cues, supporting Berger's (1972) claim that art perception is inseparable from personal and social frames of reference.

For Research Question 3, participants consistently connected their interpretations to personal experiences, such as leadership pressures, family struggles, and career challenges. These responses confirm International Educator (2023), which argued that memory and identity strongly shape how individuals engage with symbolic material. The contrast between Painting 1 and Painting 2 further highlighted how abstract art can elicit both difficult reflections and hopeful aspirations.

Overall, the findings reveal that non-artists approach abstract art narratively, emotionally, and symbolically. Their interpretations, while distinct from trained artists, demonstrate creativity and depth. This aligns with Freedberg and Gallese (2007), who argued that aesthetic experience involves empathy and embodied simulation, regardless of expertise.

This study suggests that abstract art can be a powerful tool for self-reflection and meaning making beyond professional art communities. By engaging with abstract art, non-artists create narratives that mirror their inner lives and social environments. This has implications for art education, community-based art programs, and therapeutic practices where art serves as a medium for personal expression.

Future studies could expand to larger and more diverse groups of non-artists, including participants from different cultural or socioeconomic contexts. Comparative studies between artists and non-artists may also deepen understanding of how artistic training influences perception. Additionally, exploring how abstract art impacts group dialogue or collective meaning-making could open new insights into art's social function.

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References

Anapur, E. (2016, December 6). How perception in art changes our views. *Widewalls*. https://www.widewalls.ch/magazine/perception-in-art

Batt, R., Palmiero, M., Nakatani, C., and Leeuwen, C. (2010, December). Style and spectral power: Processing of abstract ad representational art in artists and non-artists. *Research Gate*. https://www.researchgate.net/publication/50806828_Style_and_Spectral_Power_ Processing_of_Abstract_and_Representational_Art_in_Artists_and_Non-Artists

Berger, J. (1972). Ways of seeing. *Penguin Books.*

Butina, M. (2015). Focus: Conducting qualitative research a narrative approach to qualitative inquiry. *Clinical Laboratory Science*. University of Kentucky, College of Health Sciences, Lexington, KY. https://clsjournal.ascls.org/content/ascls/28/3/190.full.pdf

Cermanski, A. (2024, August 15). *What is Abstract Art?* [video]. Youtube. https://youtu.be/ob7pgOgqEgc?si=XcOQC_uriXmVA40Q

Chakhap, K. (2024, March 15). How to use narrative analysis in research. *Entropik*. https://www.entropik.io/blogs/how-to-use-narrative-analysis-in-research#Events

Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry: Experience and story in qualitative research.* Jossey-Bass.

Dovetail E.T. (2023, March 7). *Using narrative Analysis in Qualitative Research*. https://dovetail.com/research/narrativeanalysis/#:~:text=What%20is%20narrative%20analysis%3F,how%20the%20individuals%20experienced%20something.

Durkin, C., Hartnett, E., Shohamy, D., and Kandel, E.R. (2020, August 18). An objective evaluation of the beholder's response to abstract and figurative art based on construal level theory. *National Library of Medicine.* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7443895/

Ford, E., (2020). Tell Me Your Story: Narrative Inquiry in LIS Research. *College & Research Libraries*. https://crl.acrl.org/index.php/crl/article/view/24333/32164#:~:text=Narrative%20i nquiry%20is%20a%20type,other%20human%20experience%20narrative%20methods.

Freedberg, D., & Gallese, V. (2007). Motion, emotion and empathy in esthetic experience. *Trends in Cognitive Sciences, 11*(5), 197–203. https://doi.org/10.1016/j.tics.2007.02.003

Gridley, M. C. (2013, December). Preference for abstract art according to thinking styles & personality. Research Gate. https://www.researchgate.net/publication/286049841_Preference_for_abstract_art_according_to_thinking_styles_personality

International Educator. (2023). The role of memory in identity and education. *The International Educator.* https://www.tieonline.com/article/3848/the-role-of-memory-in-identity-and-education

Kennel, P., Comboy, F., and Puech, W. (2017, October). Visual saliency for the visualization of the digital paintings. *Visual Content Indexing and Retrieval with Psycho-Visual Models*. Springer. https://doi.org/10.1007/978-3-319-57687-9_9

Leder, H., Belke, B., Oeberst, A., & Augustin, D. (2004). A model of aesthetic appreciation and aesthetic judgments. *British Journal of Psychology, 95*(4), 489–508. https://doi.org/10.1348/0007126042369811

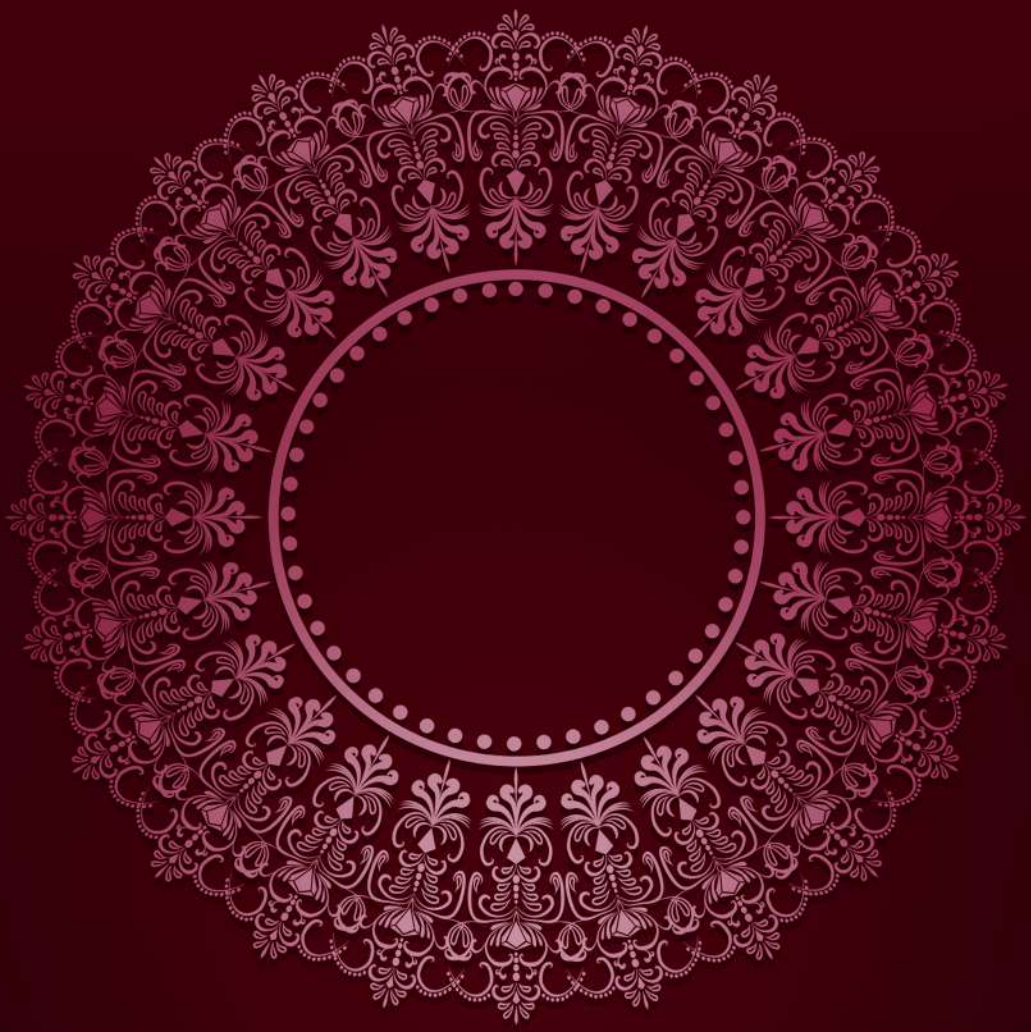
Lukin,V., Bataeva, E., and Abramov, S. (2023, March). Saliency map in image visual quality assessment and proccessing. *Research Gate*. https://www.researchgate.net/publication/369783722_Saliency_map_in_image_visual_quality_assessment_and_processing

Pelowski, M., Markey, P. S., Lauring, J. O., & Leder, H. (2017). Visualizing the impact of art: An update and comparison of current psychological models of art experience. *Frontiers in Human Neuroscience, 11*, 160. https://doi.org/10.3389/fnhum.2017.00160

Tatler, B. W., Wade, N. J., Kwan, H., Findlay, J. M., & Velichkovsky, B. M. (2010, July 12). Yarbus, eye movements, and vision. *National Library of Medicine*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3563050/

The Museum of Modern Art. (2020). Steve Martin on how to look at abstract art | MoMA BBC | THE WAY I SEE IT. [Video]. Youtube. https://www.youtube.com/watch?v=ovyEMlNZlTE

Uusitalo, L., Simola, J., & Kuisama, J. (2009, January). Perception of abstract and representative visual art. *Research Gate*. https://www.researchgate.net/publication/267560722_Perception_of_abstract_and_representative_visual_art



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