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The Effect of Multimedia-Based Instruction on Students' Achievement and Attitude Towards Plane Geometry

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Abstract

The use of technology in the pedagogical process is growing at a phenomenal rate. It has been integrated in many areas of learning, particularly in math. However, there is still a dearth research on the effectiveness of multimedia-based instruction in teaching and learning Plane Geometry. Mainly, the paper will show the significant difference of students' achievement and attitude in the pretest and posttest scores. This study investigated the effect of multimedia-based instruction on students' achievement and attitude towards Plane Geometry using a quasi-experimental design. Seventy-eight students were divided into two groups (experimental group or the multimedia-based instruction-MBI and the control group or the non-multimedia-based instruction -NMBI). Students' pretest and posttest achievement and attitude scores were analyzed using independent T-test. Findings of this study revealed a low level of students' mean achievement score on distance formula, midpoint, slope, the equation of the line, and the equation of the circle during the pretest (mean score = 16.64 in NMBI and 14.23 in MBI). However, the students' achievement significantly increased in the MBI (posttest mean score = 26.03) compared with NMBI (24.36) group. The level of students' attitude towards Geometry was satisfactory for both groups with means of 2.83 and 3.14 for NMBI and MBI, respectively. Gender, on the other hand, had no significant influence on their achievement and attitude towards Geometry. Between the two teaching strategies, the multimedia-based instruction was found to significantly enhance students' achievement in Geometry. The result highlights the positive influence of MBI in learning Geometry concepts which can be utilized in teaching complex and higher mathematics subjects.

Keywords: *multimedia instruction, achievement, attitude, mathematics education, basic math teaching*

Although the use of technology in the academe is increasing rapidly, there is still limited research on the effectiveness of technology-based instruction in teaching and learning Plane Geometry to high school students. This study attempts to determine the effect of multimedia-based instruction on students' achievement and attitude towards Geometry. The use of multimedia-based instruction in high school Geometry class represents a change from the custom of mathematics teaching.

In many parts of the world, mathematics has been perceived and experienced by many as a difficult subject. This dilemma is a great challenge for mathematics teachers as the goal is to teach the fundamental concepts and applications of mathematics in a way students can fully comprehend particularly in Geometry. Latest researches done in multimedia based instruction in mathematics are by Overson, (2014), Benassi, Griswold, Overson, (2017), and Hadi Bhatti, Hazan, Gebre Yohhanes (2016) which all incorporated multimedia in Calculus, Science, Numerical Analysis.

Since Geometry deals on points, lines, curves, surfaces and the relative position of figures and properties of space (Genz, 2006) it must be taught in such a way that students will understand, enjoy and love it. Gorini (2000) stated that it is a great task of teachers to see to it that students grasp the integral concepts, skills, and values in every math subject.

University Research Office

The Effect of Multimedia-Based Instruction on Students' Achievement and Attitude Towards Plane Geometry

Stating from the early 1990's, there has been a rapid expansion of multimedia-based instruction, which makes teaching and learning more innovative and meaningful. With this technical development, many subject areas are now implementing multimedia as one of the instructional tools (Lever-Duffy, Mc Donald, & Mizel, 2003). In the Philippines K-12 curriculum, Geometry is incorporated in every grade level in the high school mathematics (Department of Education, 2012). With the advent of computer graphics, computational techniques, hypertext, hypermedia, and the explosive growth of the world wide web, teaching and learning geometry would be enhanced. Similarly, the influence of constructivism, cognitive and instructional systems design made multimedia a powerful instrument in teaching and learning (Barron, 2000).

Mathematics teaching and learning with the aid of multimedia technology have various advantages and produces higher learning opportunities for students (Feurzeig & Roberts, 2012). According to Berlin and White (2012), multimedia instruction increases student engagement and enhances learning. This technology brought important innovations in education. Integration of technology across the curriculum will provide numerous opportunities for students in utilizing existing and emerging tools for communication, productivity, management, research, problem-solving and decision making (Smith, 2001). Empirical research regarding the impact of multimedia on learning can be traced back to several decades before the large-scale invasion of multimedia learning resources (e.g., CD-ROM titles, educational programs and internet applications). The rapid progress of technology made it possible for more people to start creating and distributing multimedia materials with greater ease and at a lesser cost. This led to an extensive production of educational multimedia content and systems.

Methodology

Research Design

The design of this study is quasi-experimental that utilized the pretest-posttest equivalent-groups design. The experimental and the control groups were naturally assembled as intact classes. The third-year high school Geometry students of the Adventist University of the Philippines Academy were the participants of the study. Seventy-eight students were divided into two classes. The experimental group (Multimedia-based Instruction) and the control group (Non Multimedia-based Instruction) were composed of 39 students per group. The analyses looked into the level of achievement and attitude scores of students in the NMBI and MBI. This study utilized the purposive sampling technique. The population is composed of 40 (51%) females and 38 (49%) males. This study used two instruments: The Achievement test in Geometry and the Attitude towards Geometry scale.

Data Gathering Procedure

To determine whether the MBI has a significant effect on the students' achievement in Geometry, a validated test was utilized. Students' achievement in Geometry had six specific lessons, namely: the distance between two points, the midpoint of the line, slope of the line, the equation of the line, equation of the circle and applications. The test includes a table of specifications that covers questions from the comprehension and application level as defined in the Bloom's Taxonomy of Objectives. This was content validated by experts. The test was subjected to reliability based on High School Geometry standards and item analyzed to select the best items. The Kuder-Richardson reliability or coefficient alpha was utilized to measure of internal consistency reliability for measures. The reliability coefficient for this test was 0.6233. This test was administered as pretest and posttest at the beginning and at the end of the study, respectively.

Students in the NMBI and MBI groups received an instruction from the same teacher at the same pace of teaching for six weeks. Both classes were assigned the same practice exercises and were subjected to the same evaluations. The experimental group was supplemented with multimedia CD Math Advantage Geometry and GCE "A" Level Math, while, the control group received a regular class instruction without the multimedia.

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The modified Attitude Scale was administered at the beginning and end of the study (modified from Role, 1993). The instrument comprised of 18 statements; 10 were positive and eight were negative. The reliability coefficient for this test was 0.6701. The students had five responses to rate their feelings, scale ranging from *strongly agree* (SA) to *strongly disagree* (SD), in each statement.

Statistical Analysis

Statistical measures were used to analyze the data. To determine the profile of the students, frequency and percentages were used. Likewise, independent t-test was used to determine the difference in the pretest, posttest and gain scores of the NMBI and MBI groups. The t-test was also used to determine the difference of gender effect of students' achievement and attitude towards Geometry.

Results and Discussion

Level of Students' Achievement in Geometry

Student's achievement is one of the parameters used in education to determine the depth of understanding and learning of students on a particular subject. Table 1 shows the pretest and posttest mean scores and standard deviation of the student's achievement in the non-multimedia-based instruction. The pretest mean score for the comprehension level was 10.31 and standard deviation of 2.97, while the mean score for the application level was 6.33 and standard deviation of 2.20. The total mean was recorded at 16.64 out of 50 with a standard deviation of 4.26.

These results show that the students have a minimal understanding low achievement at the start of the study. This agrees with the study of Gorini (2000) which showed that majority of the students have *low* achievement scores in Mathematics.

Table 1.

	No. of Points		Mean	SD	Verbal Interpretation
Comprehension	25	Pre-test	10.31	2.97	Low Achievement
Comprehension	25	Post-test	13.85	3.89	Average Achievement
Application	25	Pre-test	6.33	2.20	Low Achievement
Application	23	Post-test	11.15	4.90	Average Achievement
Total	50	Pre-test	16.64	4.26	Low Achievement
Iotal	50	Post-test	24.36	8.21	Average Achievement

Students' Achievement in Non-Multimedia-based Instruction Group

The posttest mean score for the comprehension level is 13.85 with a standard deviation of 3.89. In the application level, posttest mean score of 10.51 was recorded with a standard deviation of 4.90. Moreover, the total posttest mean score was 24.36 out of 50 with standard deviation 8.21. These results show that the students mean scores improve from *low* achievement to *average* achievement after the experiment. This is in support of the study of (2003) stressing that assessing students' achievement of the subject areas must reflect what they have learned from the teacher.

Figure 1 shows the pretest and posttest scores in both groups. It is apparent that there was an increase in the students' level of achievement in both groups. The higher posttest scores of students in both comprehension and application achievement scores could be attributed to the integration of multimedia in teaching geometry.



Figure 1. Students' Achievement mean scores in the NMBI and MBI groups (Pretest vs. Posttest)

The computer-based multimedia learning environment consists of pictures such as animation and words narration that offers a potentially powerful venue for improving student's engagement and understanding. Teachers can integrate information from different modalities into one meaningful experience. They can also integrate learning from verbal and non-verbal information (Moreno & Mayer, 2007). Learning with multimedia can provide a concrete and meaningful context for developing higher–order thinking skills (HOTS), engaging students in the learning process, and inviting them to use technology as a cognitive tool (Lui, 2003). Learning is a process of creating personal meaning from new information and prior knowledge.

Table 2 shows the students' achievement scores in the multimedia-based instruction group. The pretest mean score for the comprehension was 8.31 with a standard deviation of 2.73 while the pretest mean score for application was 6.56 with the standard deviation of 2.80. Meanwhile, the total pretest mean score was 14.23 out of 50 with a standard deviation of 3.95. These results show that students had a low achievement score before the intervention. This is in consonance with the NAEP 2007 report which shows that students have a low achievement rate in mathematics subjects (Lee, Grigg, & Dion, 2007).

					*
	No. of Points		Mean	SD	Verbal Interpretation
Comprehension	25	Pre-test	8.31	2.73	Low Achievement
Comprehension	25	Post-test	13.85	3.45	Average Achievement
Amuliantian	25	Pre-test	6.56	2.80	Low Achievement
Application	23	Post-test	10.51	4.10	Average Achievement
T-+-1	50	Pre-test	16.64	3.95	Low Achievement
10tai	50	Post-test	24.36	5.86	Average Achievement

Students	'Achievement	in	Multimedia	-based	Instruction	Group
Sinachis	110mic v cmcmi	un.	munican	ouseu	monnenon	Group

Table 2.

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Level of Students' Attitude in Geometry

Table 3 shows the students' attitude towards Geometry in the non-multimedia-based instruction and multimedia-based instruction. The NMBI had a pretest mean of 2.83 (SD = 0.35) and a posttest mean of 3.39 (SD = 0.26), while the MBI had a pretest mean of 3.14 (SD = 0.40) and a posttest mean of 3.50 (SD = 0.22). Satisfactory attitude from the start and at the end is evident from the NMBI group. Moreover, there was an improvement of attitude from satisfactory to a very satisfactory in the MBI group.

Table 3.

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Students' Attitude Towards Geometry

		Mean	SD	Verbal Interpretation
Non Multimedia-based	Pre-test	2.83	0.35	Satisfactory
Instruction Group	Post-test	3.40	0.26	Satisfactory
Multimedia-based Instruction	Pre-test	3.14	0.40	Satisfactory
Group	Post-test	3.50	0.22	Very Satisfactory

However, figure 2 shows the pretest and posttest attitude mean scores of the students in the NMBI and MBI groups. The posttest scores of students were higher than the pretest scores in both the NMBI and MBI. However, relatively higher scores were recorded in the MBI. This indicates that posttest of both groups has maintained a positive attitude towards Geometry.



Figure 2.Pretest and Posttest attitude mean scores of the NMBI and MBI Groups.

Student attitude towards mathematics is a complex construct that had been measured in a variety of ways. Haladya et al. (1983) indicated that this construct is actually a complex interaction between various external and internal factors unique to each student. External factors such as gender, social background, and student aptitude are the common variables that affect students' attitude.

Likewise, internal factors are frequently the subject of experimental manipulation and have traditionally consisted of the affective constructs such as student's beliefs and feelings about mathematics.

Meanwhile, students were disagreeing on the following items: if they have a good feeling towards Geometry, if they enjoy the subject, and if they like and enjoy Geometry because it is interesting and it motivates them to think.

Multimedia-based instruction is currently applied to mathematics subjects. Studies of multimediabased instruction reported positive outcomes (Erhmann, 1995). It creates an active learning environment, improves students' performance and fosters positive attitudes toward learning complex concepts (Frey, 1994; Mayer, 1997). It also optimizes teaching and learning (Smith & Woody, 2000). Studies on the efficacy of multimedia in instructional laboratories indicated a positive result of multimedia in a large lecture classroom (Erwin & Rieppi, 1999).

The multimedia application can reinforce concepts and appeal to learning. When used tutorials, computer technology can help students learn relational and instrumental understanding. For example, graphical aspects can help students visualize and manipulate complex geometric figures and represent mathematical ideas such as the essence of arithmetic versus exponential growth. Likewise, teaching with computer technology can help students grasp complex concepts better by modifying them into easier and more comprehensive forms. Wiest (2001) noted that computer technology is beneficial to students' learning because testing their thinking and seeing the results can be an influential way to maintain and broaden mathematical ideas. Students can create instances from which they can try to simplify complex, mathematical problems; thus, illustrating computing potential for pursuing the abstract and the general (Wiest, 2001). However, teachers should also consider students who have too much confidence in the use of computers and move on too quickly without fully comprehending the subject (Cuoco & Goldenberg, 1995). Thus, it is very important for teachers to understand their roles as facilitators.

Summary, Conclusion and Recommendation

The level of the students' achievement in Geometry in the multimedia-based instruction and nonmultimedia-based instruction was categorized as low before the onset of the intervention. Similarly, the level of the of students' attitude towards Geometry in the Multimedia-based instruction and non-multimediabased instruction were satisfactory at the start and was maintained all throughout the study. Likewise, both types of instruction produced a significant difference in students' achievement as shown in their pretest and posttest scores. However, students in the MBI had significantly higher achievement compared with students in NMBI group. Moreover, there is a significant difference in the pretest and posttest attitudes of students toward Geometry from the non-multimedia-based instruction group and multimedia-based instruction group. A significant effect of multimedia-based instruction in students' achievement was noted, while, the attitude of the students towards Geometry was significantly enhanced in both MBI and NMBI. Remarkably, positive attitude of students towards Geometry was further enhanced during the posttest in the MBI group. On the other hand, gender has no significant effect on the achievement and attitude of students towards Geometry.

Results from this study revealed the positive effect of Multimedia-based Instruction in enhancing achievement and attitude of students towards Geometry, which can be utilized in teaching complex and higher mathematics subjects.

It is recommended that a nation-wide study on the effects of Multimedia-based instruction on the achievement and attitude of Filipino High School students in other areas of mathematics like Statistics, Trigonometry, and Non-Euclidean geometry must be done.

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Influence of Organizational Culture on Total Quality Management in Tertiary Institutions in Asia

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Abstract

Notal quality management (TQM) is a vision for continuous improvement, which tertiary institutions can easily achieve through school administrators' full commitment. However, there is a dearth of study about the influence of organizational culture on TQM among tertiary institutions, hence, this study determined the influence of organizational culture on TQM among school administrators in selected tertiary Seventh-day Adventist (SDA) institutions in Asia. The study aimed to determine the (a) level of organizational culture in terms of involvement, consistency, adaptability, and mission; (b) the extent of TQM practices in terms of customer-supplier focus, continuous improvement and self-evaluation, process-systems approach, and consistent quality leadership; and (c) organizational culture dimensions that significantly predict TQM. Descriptive-correlational design was utilized to describe the level of organizational culture and TQM. Further, it examined the relationship between them. An expert-validated self-constructed questionnaire was employed to survey 295 purposively sampled administrators in 12 higher educational institutions (HEIs) within selected SDA tertiary schools in Asia. Descriptive results revealed that organizational culture dimensions, i.e., involvement, consistency, adaptability and mission are highly evident among school administrators in SDA tertiary institutions in Asia. Based on the customersupplier focus, continuous improvement and self-evaluation, process-systems approach, and consistent quality leadership, TQM among SDA tertiary institutions is highly practiced. Moreover, the four organizational culture dimensions significantly predict customersupplier focus, process-systems approach, consistent quality leadership, and continuous improvement and self-evaluation. Recommendations were identified based on the findings.

Keywords: organizational culture, total quality management (TQM), continuous improvement involvement, consistency, adaptability, mission.

The dynamic international and comparative context of education challenges school administrators in highly competitive tertiary institutions to modify policies and programs to sustain quality education. Along with the modification, policies interlaced the need to address the prevailing issues on quality assurance and enhance programs to improve the standards of learning, teaching, and leadership. However, the inadequacy of skills and the lack of innovative ideas, including insufficiency in the methods of delivering services (Palmer, Dunford, & Buchanan, 2017) are among the challenges that must be addressed through total quality management (TQM).

Total Quality Management

TQM has been a major strand for research because of its implications for continuous improvement in educational institutions. There are critical issues in implementing TQM in higher education which include the lack of the capability to involve all members of the institution, high commitment to the right ideas and principles it wants to apply, and the lack of necessary authority to deploy values and goals through layers of higher education institutions departments and deep-rooted traditions dating back to centuries (Wani & Mehraj, 2014).

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Influence of Organizational Culture on Total Quality Management in Tertiary Institutions in Asia

TQM has a substantial impact on the values, culture, and mindsets within an organization by providing modifications and continuous improvements. This is an organizational culture developed by individuals belonging to the group, having teamwork and full commitment to fulfilling total quality requirements considering that other elements of culture are harder to observe since they symbolize the invisible assumptions, values, and core beliefs of a particular group (Boje & Winsor, 2005; Ehrhart, Scheinder, & Macey, 2014; Kaluarachchi, 2010; Prajogo & McDermot, 2005; Trivellas & Dargenidou, 2009).

Organizational Culture

Organizational culture is a "shared mental model or the social glue that binds every individual together in an organization which serves as the aggregate of values, beliefs, norms, attitudes, assumptions, and ways of doing things (Achua & Lussier, 2013). These values are shared and taught by old members of an institution to new members (Achua & Lussier, 2013; Schein, n.d.).

Organizational culture with competitive and positive values, beliefs, and assumptions remarkably influences decision-making processes at colleges and universities and will eventually shape individuals' organizational behaviors of trust, mutual respect, leading to continuous improvement, which is the main thrust of total quality management (Abdul-Razak, Wumbie, & Abdul-Razak, 2014; Beytekin et al., 2010). These challenges inclined school administrators to embrace TQM, with a focus on continuous improvement which has potent effects on the quality of education.

Denison (2000) presented organization culture dimensions into four different traits: (a) involvement (b) consistency (c) adaptability, and (d) mission.

Involvement. According to Farooq, Akhtar, Ziah Ulah, and Memon (2007), involvement of workers within the organization is geared toward empowerment, team orientation, and capability development. These are working personnel who are committed to the principles who can help facilitate success with TQM implementation mainly for participatory management among well-trained and educated workforce which is very crucial to the success of TQM in education.

Further, tertiary institutions organizational culture makes ground for quality management which is stimulated to create added value on TQM implementation. This needs employee support or workers' involvement, and in doing things right even for the first time. This organizational culture relationship is attainable by acting within a framework of their involvement for clear responsibility and controlled principles in allowing its operation for a process-system to be ethical, predictable, strategic and consistent with the long-term interests of the school organization's management and all internal and external stakeholders (Lapinja, Kairisa, & Aramina, 2015;Oliver, 2009).

Consistency. Denison (2000) introduced consistency trait as the second dimension with indices on the core values of agreement, coordination and integration for the basis of a healthy culture. In the same vein, Greenberg (2013) mentioned that consistency trait enhances worker's efficiency, effectiveness, clear communication integration, and coordination.

In addition, Coleman and Clover (2010) elaborated consistency as core values, coordination, and agreement which can be manifested in the standards of behavior and traits with the narrowest scope of short-term effect wherein its primary impact is on quality and employee satisfaction.

Adaptability. Denison (2000) added adaptability as the third dimension of organizational culture with indices on creating change, customer focus, and organizational learning. The adaptability trait refers to the organization's ability to translate the demands of the business environment into action.

In the same manner Greenberg (2013) contended that adaptability is customer-driven organizational processes which improve the organization's ability to cope with the volatility and competitiveness of the environment, in taking risks, and learning experiences to correct a mistake. Further, adaptability in workers allows them to continuously strive to enhance their systems, to provide value to their customers, to build innovations, market development to facilitate the conversion of customer expectations and to serves as the defensive capacity for unexpected threats for the good of the institution.

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Mission. Mission is the last dimension of organizational culture with indices on goals and objectives, strategic direction, intent, and a clear vision of goals and strategic objectives to lead and provide the workforce with a sense of focus, direction and a universal perspective of the future which makes an organization successful (Denison, 2000). It focuses on the contradiction of internal integration and external adaptation at the same moment of time, stresses stability and capability to give an organization its purpose, intent, and strategic direction (Greenberg, 2013; Schein, n.d.).

Customer-supplier focus. An educational institution, as emphasized by Bonstingl (1992) and Bonstingl (1996) must focus on its suppliers and customers. In a TQM institution, everyone is both a customer and a supplier and thus, it is essential to identify one's roles in the two capacities to better understand the systemic nature of work in which everybody must be involved. Further, it is often said that while the procedural notions of TQM are necessary, these are not sufficient to ensure customer loyalty, for the things that bring customers back and show their allegiance are most often centered on customer-focus, care, and personal service (Sallis, 2012).

Continuous improvement and self-evaluation. Deming popularized this intellection that there should be no human being ever to evaluate another human being thus; TQM emphasizes self-evaluation as a fundamental part of a continuous improvement process for every institution. In addition, this principle stimulates every individual's potentialities by dedication to the ongoing improvement of abilities and those of the people with whom the person works and also laminates to the focusing on learners' strengths, individual learning styles, and multiple intelligences (Beytekin et al., 2010).

A process-system approach. The third pillar is a process/ system approach. The TQM organization when viewed as a system, and the work people do within the system must be an ongoing process, (Bonstingl, 1992). All individuals in higher institutions perform processes on a day-to-day basis. It is an accepted fact that universities and colleges are highly valued social institutions primarily because they do not only influence the private lives and professional careers of students but also enhance peaceful, co-existence of people within the communities where they belong. Thus, an actual total quality process has three fundamental bases; these are student focus, continuous improvement and staff and employees involvement (Al-Hayani et al., 2010).

Consistent Quality Leadership. This is perhaps the most crucial to implement or adapt of the four pillars which is consistent quality leadership. The ultimate success of the ongoing quality transformation is the responsibility of top management and achievable over time through constant dedication to the principles and practice of TQM (Bonstingl, 1992). According to Wani and Mehraj (2014), the development of a long-range leadership, teamwork for a shared vision and institutional commitment are necessary factors for the successful implementation of TQM.

Despite many existing related literature and studies about organizational culture and TQM, a considerable gap between rhetoric and real understanding is still evident as a barrier to attaining continuous improvement in the implementation of TQM in tertiary education (Sallis, 2012). Regardless of the enormous growth in the implementation of TQM in higher education institutions worldwide, there is no universal model for adopting TQM within a tertiary education context (Aldaweesh, Al-Karaghouli, & Gallear, 2013) including Adventist universities and colleges. There appears to have a gap in the knowledge about the influence of organizational culture on TQM, hence, this study purposed to determine the influence of organizational culture on TQM, hence, this study purposed to determine the influence seventh-day Adventist (SDA) institutions in Asia.

Specifically, this study aimed to answer the following questions:

- What is the level of organizational culture as perceived by the respondents in terms of:
 - a. involvement
 - b. consistency
 - c. adaptability
 - d. mission

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2. What is the extent of TQM practices as perceived by the respondents in terms of:

- a. Customer-Supplier Focus
- b. Continuous Improvement and Self-Evaluation
- c. The Process-Systems Approach
- d. Consistent Quality Leadership
- 3. Which among the organizational culture dimensions significantly predict total quality management (TQM)?

Methodology

This study used descriptive-correlational design to describe the level of organizational culture and to examine the relationship between variables. An expert-validated self-constructed questionnaire was utilized to survey 295 purposively sampled administrators in 12 higher educational institutions within selected Seventh-day Adventists tertiary schools in seven Asian countries namely: Indonesia, Thailand, Myanmar, Hong Kong, Korea, Pakistan, and the Philippines. Descriptive statistics including frequencies, percentage, means, and standard deviation was employed to analyze the data.

Results and Discussion

Tables 1 to 4 show the level of organizational culture as perceived by the respondents in terms of involvement, consistency, adaptability, and mission.

Table 1.

Level of Practice of the Respondents' Organizational Culture in terms of Involvement

Area	Mean	SD	Scaled Responses	Verbal Interpretation
As an Administrator, I				
1. Am actively involved in the work I perform.	3.74	0.47	Strongly Agree	Very High
2. Reflect God's character as my commitment to God's calling.	3.74	0.50	Strongly Agree	Very High
3. Count on teamwork.	3.69	0.51	Strongly Agree	Very High
4. Encourage working in teams.	3.68	0.59	Strongly Agree	Very High
5. Support each other to attain work goals.	3.68	0.52	Strongly Agree	Very High
6. Have a sense of responsibility to attain quality.	3.64	0.55	Strongly Agree	Very High
7. Empower Subordinates	3.59	0.55	Strongly Agree	Very High
8. Have the ability to manage my own work.	3.58	0.57	Strongly Agree	Very High
9. Invest in subordinate's skills development.	3.56	0.58	Strongly Agree	Very High
10. Empower others to take decisions.	3.52	0.58	Strongly Agree	Very High
 Have self-knowledge on the competence of my colleagues. 	3.56	0.58	Strongly Agree	High
12. Develop human skills at all organizational levels.	3.52	0.58	Strongly Agree	Very High
Overall Mean	3.59	0.38	Strongly Agree	Very High

Legend: 3.50-4.00 Strongly Agree (SA), 2.50-3.49 Agree (A), 1.50-2.49 Disagree (DA), 1.00 - 1.49 Strongly Disagree (SD)

Table 1 presents the respondents' level of practice of organizational culture in terms of involvement having an overall mean of 3.59 and a standard deviation of 0.38, and interpreted as *very high* and verbally

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interpreted as *significantly* practiced. Among the fifteen statements, eleven items were interpreted as *very high*. The lower mean scores are in the areas where *school administrators develop human skills at all organizational levels* with a mean of 3.49 and a standard deviation of 0.60, and *school administrators who take decisions in an informed framework* took the lowest mean of 3.45 and a of 0.65 which were both interpreted as *high*. This shows that the respondents' level of organizational culture in terms of involvement in SDA tertiary institutions in Asia is high. This result implies that school administrators have ascertained that they are actively involved in reflecting God's character in their commitment to answer God's call to serve in an Adventist institution.

Table 2.

Level of Practice of the Respondents' Organizational Culture in terms of Consistency

Area	Mean	SD	Scaled Responses	Verbal Interpretation
As an Administrator, I				
1. Have a clear set of values that support subordinates.	3.62	0.53	Strongly Agree	Very High
2. Make consistent decisions.	3.43	0.58	Agree	High
3. Discuss with subordinates openly to reach an agreement.	3.49	0.59	Agree	High
4. Am aware of the fact that my work impacts others.	3.64	0.55	Strongly Agree	Very High
5. Recognize the impact of others' work	3.70	0.50	Strongly Agree	Very High
6. Make sure that subordinate's work is aligned with the organizational goals	3.57	0.56	Strongly Agree	Very High
7. Coordinate goals that are coherent.	3.51	0.59	Strongly Agree	Very High
8. Show behavior which is based on a well-de- fined set of values.	3.52	0.61	Strongly Agree	Very High
9. Have the skills necessary to reach an agreement even when others have different views	3.40	0.57	Agree	High
10. Have a mind-set common to all members of the organization	3.34	0.69	Agree	High
11. Reconcile differences that occur	3.44	0.59	Agree	High
12. Respect widely shared beliefs	3.65	0.55	Strongly Agree	Very High
13. Help teachers to reach consensus	3.55	0.58	Strongly Agree	Very High
14. Have a nurturing attitude.	3.54	0.59	Strongly Agree	Very High
15. Like to be associated with my colleagues	3.53	0.38	Strongly Agree	Very High
Overall Mean	3.52	0.38	Strongly Agree	Very High

Legend: 3.50-4.00 Strongly Agree (SA), 2.50-3.49 Agree (A), 1.50-2.49 Disagree (DA), 1.00 - 1.49 Strongly Disagree (SD)

Table 2 presents the respondents' level of practice of organizational culture in terms of consistency having an overall mean of 3.52 and a standard deviation of 0.38, and interpreted as *very high* and verbally interpreted as *significantly* practiced. Among the fifteen items, *I recognize the impact of others' works (m* = 3.70; SD = .50); I respect widely shared beliefs (m = 3.65; SD = .55); and I am aware of the fact that my work impacts others (m = 3.64; SD = .55) are *very highly* practiced. Although *highly* practiced, having a mind-set common to all members of the organization got the lowest mean (m = 3.34; SD = .69). University Research Office Influence of Organizational Culture on Total Quality Management in Tertiary Institutions in Asia

These results imply that the school administrators of the 12 different SDA institutions in Asia handle their members well as the results show that they acknowledge the importance of their members' work, value their work to impact others and give importance on their shared beliefs. They have a clear set of values and have consistent decisions to support their subordinates.

Table 3.

Level of administrators' organizational culture in terms of Adaptability

Area	Mean	SD	Scaled Responses	Verbal Interpretation
As an Administrator, I				
1. have the appropriate ability to react to the competitive environment	3.40	0.58	Agree	High
2. restructure my behavior for subordinates to adapt	3.36	0.63	Agree	High
3. encourage new ideas.	3.64	0.59	Strongly Agree	Very High
4. adjust strategic objectives to a combine action from every department.	3.49	0.57	Agree	High
5. share different solutions for solving problems	3.57	0.55	Strongly Agree	Very High
6. encourage innovation.	3.61	0.56	Strongly Agree	Very High
7. seek new and better ways to meet stakehold- ers' expectations	3.48	0.56	Agree	High
8. work for God.	3.75	0.49	Strongly Agree	Very High
9. act with integrity.	3.75	0.49	Strongly Agree	Very High
10. uphold professionalism.	3.71	0.51	Strongly Agree	Very High
11. have the ability to create necessary change.	3.59	0.58	Strongly Agree	Very High
12. have the ability to meet requirements without supervision.	3.57	0.59	Strongly Agree	Very High
13. respond to subordinates' needs.	3.56	0.59	Strongly Agree	Very High
14. adhere to time management.	3.51	0.60	Strongly Agree	Very High
15. treat others with trust.	3.64	0.57	Strongly Agree	Very High
Overall Mean	3.57	0.38	Strongly Agree	Very High

Legend: 3.50-4.00 Strongly Agree (SA), 2.50-3.49 Agree (A), 1.50-2.49 Disagree (DA), 1.00 - 1.49 Strongly Disagree (SD)

Table 3 presents the respondents' level of practice of organizational culture in terms of adaptability with an overall mean of 3.57 and a standard deviation of 0.38 that is interpreted as *very high* and verbally interpreted as *significantly* practiced. Working for God and acting with integrity is the most *highly* practiced with a mean of 3.75 and a standard deviation of .49. These figures reveal that SDA school administrators offer their work to glorify God and not compromise their integrity. Although interpreted *high*, the least practiced items are restructuring behavior for the subordinates to adapt (m = 3.36; SD = .63); having the appropriate ability to react to the competitive environment (m = 3.40; SD = .58); seeking new and better ways to meet stakeholders' expectations (m = 3.48; SD = .56); and adjusting strategic objectives to a combined action from every department (m = 3.49; SD = .57).

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Table 4.

	Level of Administrators'	Organizational	Culture In	Terms o	f Mission
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Area	Mean	SD	Scaled Responses	Verbal Interpretation
As an Administrator, I				
1. show to others how to do their tasks	3.52	0.55	Strongly Agree	Very High
2. do my tasks faithfully.	3.49	0.61	Agree	High
3. create excitement to long-term vision.	3.46	0.63	Agree	High
4. develop a clear understanding of quality assur- ance procedures to achieve goals.	3.47	0.62	Agree	High
5. establish high priorities	3.46	0.58	Agree	High
6. define concrete direction for the school	3.46	0.62	Agree	High
7. set short term goals.	3.52	0.53	Strongly Agree	High
8. define specific goals.	3.57	0.57	Strongly Agree	Very High
9. set clear strategies to reach goals.	3.55	0.59	Strongly Agree	Very High
10. give realistic goals that are understood	3.48	0.58	Agree	High
11. help others to understand how their daily routines relate to the vision.	3.55	0.57	Strongly Agree	Very High
12. set goals that are measurable.	3.49	0.55	Agree	High
13. get things done with accuracy.	3.55	0.55	Strongly Agree	Very High
14. observe safety measures.	3.54	0.54	Strongly Agree	Very High
15. define strategic objectives.	3.58	0.65	Strongly Agree	Very High
Overall Mean	3.51	0.39	Strongly Agree	Very High

Legend: 3.50-4.00 Strongly Agree (SA), 2.50-3.49 Agree (A), 1.50-2.49 Disagree (DA), 1.00 - 1.49 Strongly Disagree (SD)

The data in Table 4 show that the respondents have a very high practice of organizational culture in terms of mission with an overall mean of 3.51 and a standard deviation of .39. Among the 15 items, defining strategic objectives is the most practiced (m = 3.58; SD = .65), followed by defining specific goals (m = 3.57; SD = .57). However, creating excitement to long-term vision, establishing high priorities, and defining concrete direction for the school were the least practiced; all with a mean of 3.46 and a standard deviation of .63, .58, and .62, respectively.

Tables 5-8 show the extent of TQM practices as perceived by the respondents in terms of customersupplies focus, continuous improvement and self-evaluation, the process-systems approach, and consistent quality leadership.

Table 5.

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Area	Mean	SD	Scaled Responses	Verbal Interpretation
As an Administrator, I				
 communicate quality assurance process marked by courtesy. 	4.11	0.86	Often	High
2. communicate a better understanding on processes.	4.12	0.75	Often	High
3. encourage unity for faculty to work with procedures.	4.30	0.75	Often	High
4. give more time for feedback, issue by issue.	4.17	0.75	Often	High
5. remove barriers to communication.	4.21	0.74	Often	High
6. communicate on the philosophy of continual improvement.	3.96	0.87	Often	High
7. teach how to assess assurance quality.	4.17	0.78	Often	High
8. communicate the work people do.	4.20	0.81	Often	High
9. focus, first and foremost, on teachers/ subordinates.	4.09	0.80	Often	High
10. make changes process by process.	4.12	0.78	Often	High
11. train colleagues to have participatory management.	4.14	0.82	Often	High
12. talk directly to faculty to remove barriers.	4.29	0.72	Often	High
13. state the goals to everyone.	4.36	0.74	Often	High
14. communicate to discuss ways to do work better.	4.23	0.74	Often	High
15. delegate decisions to appropriate level of responsibility.	4.18	0.57	Often	High
Overall Mean	4.17	0.57	Often	High

Extent of TQM Practices of School Administrators in Terms of: Customer-Supplier Focus

Legend: 4.50-5.00 Always (A), 3.50-4.49 Often (O), 2.50-3.49 Sometimes (S), 1.50 - 2.49 Rarely (R), 1.00 - 1.49 Never (N)

Table 5 shows that all fifteen items are *highly* practiced with an overall mean of 4.17 and a standard deviation of .57. The top three items that are often being practiced are: stating the goals to everyone (m = 4.36; SD = .74), encouraging unity for faculty to work with procedures (m = 4.30; SD = .75), and talking directly to faculty to remove barriers (m = 4.29; SD = .72). However, communicating on the philosophy of continual improvement, focusing on teachers/subordinates, and communicating quality assurance process marked by courtesy were the least practiced with means of 3.96, 4.09, and 4.11, respectively.

Table 6.

Extent o	f Administrators '	TQM Practice in	Terms of Continuous	Improvement and Se	lf-Evaluation
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Alea	wiean	50	Responses	Interpretation
As an Administrator, I				
1. create a continuous improvement culture.	4.21	0.82	Often	High
2. attend quality assurance training for self- evaluation.	3.75	0.99	Often	High
3. conduct regular evaluation.	3.91	0.84	Often	High
4. help school individuals to look for things to improve.	4.21	0.76	Often	High
5. emphasize self-evaluation as part of a continu- ous improvement process.	4.17	0.78	Often	High
6. instill to others that every problem is an opportunity to improve.	4.20	0.80	Often	High
7. mentor quality-positive attitudes.	4.24	0.75	Often	High
8. encourage everyone's potential to the continual improvement.	4.31	0.77	Often	High
9. won't modify existing processes.	3.33	1.16	Sometimes	Low
10. help maximize opportunities for growth.	4.13	0.80	Often	High
11. communicate to focus on long-term quality improvement.	4.21	0.74	Often	High
12. assess the quality of their work.	4.19	0.79	Often	High
13. ensure every opportunity to attain assurance quality.	4.18	0.75	Often	High
Overall Mean	4.08	0.58	Often	High

Legend: 4.50-5.00 Always (A), 3.50-4.49 Often (O), 2.50-3.49 Sometimes (S), 1.50 - 2.49 Rarely (R), 1.00 - 1.49 Never (N)

Table 6 reveals that continuous improvement and self-evaluation is *highly* practiced with an overall mean of 4.08 and a standard deviation of .58. SDA tertiary school administrators often practice encouraging everyone's potential to continual improvement (m = 4.31; SD = .77). The administrators mentor quality-positive attitudes (m = 4.24; SD = .75). They also help school individuals to look for things to improve (m = 4.21; SD = .76). On the other hand, conducting regular evaluation and attending quality assurance training for self-evaluation were the least practiced with means of 3.91 and 3.75, respectively.

Table 7.

Area	Mean	SD	Scaled Responses	Verbal Interpretation
As an Administrator, I				
1. focus on the processes that bring forth desired results.	4.14	0.73	Often	High
2. have full support of anyone in the chain of authority.	4.09	0.79	Often	High
3. share cooperative learning on TQM practices.	3.94	0.90	Often	High
4. develop processes that do not require much inspection.	3.81	0.85	Often	High
5. am responsive to solve problems through cooperation.	4.28	0.69	Often	High
6. remove barriers to productivity	4.18	0.75	Often	High
7. give extra help where needed.	4.41	0.68	Often	High
8. encourage teamwork.	4.48	0.69	Often	High
9. provide a non-stressful work environment.	4.14	0.75	Often	High
10. lead academic standards in the sense of spe- cific expectations.	4.07	0.77	Often	High
11. communicate quality educational standards.	4.17	0.75	Often	High
12. allow others to excel in their work.	4.35	0.75	Often	High
13. motivate skills in interpersonal communication	4.26	0.76	Often	High
14. maintain creative cooperation.	4.30	0.71	Often	High
15. create a direct impact on improvement.	4.23	0.77	Often	High
16. implement the organization's overall strategic orientations.	4.27	0.69	Often	High
17. allow participatory management.	4.26	0.79	Often	High
18. show patience to deliver quality	4.30	0.71	Often	High
Overall Mean A Process-Systems Approach	4.20	0.55	Often	High

Extent of Administrators' TQM Practice in Terms of a Process-Systems Approach

Legend: 4.50-5.00 Always (A), 3.50-4.49 Often (O), 2.50-3.49 Sometimes (S), 1.50 - 2.49 Rarely (R), 1.00 - 1.49 Never (N)

Table 7 shows that the administrators' TQM practice in terms of process-systems approach is *high*, with an overall mean of 4.20 and a standard deviation of .55. Encouraging teamwork (m = 4.48; SD = .69), Giving extra help where needed (m = 4.41; SD = .68), and allowing others to excel in their work (m = 4.35; SD = .75) were the most practiced while developing processes that do not require much inspection (m = 3.81; SD = .85), sharing cooperative learning on TQM practices (m = 3.94; SD = .90), and leading academic standards in the sense of specific expectations (m = 4.07; SD = .77) were the least practiced.

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Table 8.

	Extent o	of Administrators ' T	<i>QM Practice</i> i	n Terms c	f Consistent	Quality Leader,	ship
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Area	Mean	SD	Scaled Responses	Verbal Interpretation
As an Administrator, I				
1. have a passion for quality assurance in education.	4.45	0.68	Often	High
2. provide general operating principles to promote quality assurance.	4.20	0.73	Often	High
3. allow discussions for continuous improvement.	4.28	0.78	Often	High
4. provide training to make an impact for TQM transformation.	3.90	1.01	Often	High
5. provide a vision for a final plan.	4.15	0.80	Often	High
6. provide necessary tools for employees to succeed.	4.08	0.86	Often	High
7. maintain a positive academic environment.	4.32	0.72	Often	High
8. help to foster development in each employee.	4.26	0.79	Often	High
9. help in the learning process of stakeholders.	4.15	0.81	Often	High
10. won't initiate projects.	3.21	1.28	Sometimes	Low
11. develop constant dedication to quality assurance principles.	4.14	0.77	Often	High
12. allow others to produce timely output.	4.18	0.74	Often	High
13. am transparent to others the opportunity to fail	3.94	0.91	Often	High
14. treat colleagues as the most valuable human resources.	4.41	0.70	Often	High
15. encourage cooperation, not competition.	4.46	0.67	Often	High
16. instill that everyone in the university has a leadership role	4.37	0.71	Often	High
Overall Mean Consistent Quality Leadership	4.15	0.52	Often	High

Legend: 4.50-5.00 Always (A), 3.50-4.49 Often (O), 2.50-3.49 Sometimes (S), 1.50 - 2.49 Rarely (R), 1.00 - 1.49 Never (N)

Table 8 reveals that the administrators' practice of TQM in terms of consistent quality leadership is *high* with an overall mean of 4.15 and a standard deviation of .52. SDA tertiary school administrators *highly* practice encouraging cooperation, not competition (m = 4.15; SD = .52), treating colleagues as the most valuable human resources (m = 4.41; SD = .70), and having a passion for quality assurance in education (m = 4.46; SD = .68). However, the least practiced and are interpreted as *low* are being transparent to others (m = 3.94; SD = .91), providing training to make an impact for TQM transformation (m = 3.90; SD = 1.01), and not initiating projects (m = 3.21; SD = 1.28).

Table 9.

Results for Linear Regression with Involvement Fredicting IQM									
Variable	В	SE	95% CI	β	t	р	Sig.		
(Intercept)	-0.23	0.74	[-1.69, 1.23]	0.00	-0.31	.757	Significant		
Involve	0.56	0.20	[0.15, 0.96]	0.17	2.71	.007			

Rosults	for	Linear	Regression	with	Involvement	Prodicting	TOM
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Note. Results: F(1,260) = 7.37, p = .007, $R^2 = 0.03$

Unstandardized Regression Equation: tqm total quality management = -0.23 + 0.56 *involve

Regression is significant at the level of .01 (2-tailed)

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Regression is significant at the level of .05 (2-tailed)

The regression result in Table 9 illustrates that involvement is one of the predictors of total quality management among school administrators of tertiary institutions in seven selected countries in Asia.

Table 10.

Results for Linear Regression with Involvement Predicting TQM

Variable	В	SE	95% CI	β	t	р	Sig.
(Intercept)	-0.58	0.30	[-1.17, 0.01]	0.00	-1.94	.054	
"Involvement"	0.49	0.14	[0.22, 0.76]	0.27	3.58	<.001	Significant
"Mission"	0.49	0.12	[0.26, 0.72]	0.29	4.22	<.001	Significant
"Consistency"	0.36	0.14	[0.09, 0.62]	0.21	2.63	.009	Significant

Note. Results: *F* (3,258) = 86.63, p = .001, *R*² = 0.50

Unstandardized Regression Equation: tqm total quality management = -0.58 + 0.49 *involvement" + 0.49*"Mission" + 0.36*"Consistency" *Regression is significant at the level of* .01 (2-tailed)

Regression is significant at the level of .05 (2-tailed)

Results from Tables 10 reveal the following: The results were *significant*. F(3,258) = 86.63, p < .001, $R^2 = 0.50$ indicates that approximately 50% of the variance in Customer-Supplier Focus is explainable by the four organizational dimensions (Involvement, Consistency, Adaptability, and Mission. Involvement significantly predicted Customer-Supplier Focus, B = 0.49, t(258) = 3.58, p < .001. This indicates that on average, a one-unit increase of Involvement Supplier Focus, B = 0.49, t(258) = 3.49, t(258) = 4.22, p < .001. This indicates that on average, a one-unit increase of Mission will increase the value of Customer-Supplier Focus by 0.49 units. Mission significantly predicted Customer-Supplier Focus, B = 0.49, t(258) = 4.22, p < .001. This indicates that on average, a one-unit increase of Mission will increase the value of Customer-Supplier Focus by 0.49 units. Consistency significantly predicted Customer-Supplier Focus, B = 0.36, t(258) = 2.63, p = .009. This indicates that on average, a one-unit increase, a one-unit increase of Consistency will increase the value of Customer-Supplier Focus, B = 0.36, t(258) = 2.63, p = .009. This indicates that on average, a one-unit increase of Consistency will increase the value of Customer-Supplier Focus by 0.36 units.

Table 11.

Results for Linear Regression with Involvement, Consistency, Adaptability, and Mission Predicting Continuous Improvement

Variable	В	SE	95% CI	β	t	р	Sig.
(Intercept)	0.21	0.34	[-0.45, 0.87]	0.00	0.63	.528	
"Involvement"	0.22	0.17	[-0.11, 0.55]	0.12	1.31	.192	significant
"Consistency"	0.36	0.16	[0.05, 0.67]	0.22	2.28	.023	significant
"Adaptability"	-0.03	0.18	[-0.39, 0.33]	-0.02	-0.16	.870	Not significant
"Mission"	0.55	0.14	[0.27, 0.82]	0.33	3.90	< .001	significant

Note. Results: F(4,257) = 36.63, p = .001, $R^2 = 0.36$

Unstandardized Regression Equation: "Continuous Improvement" = 0.21 + 0.22*"Involvement" + 0.36*"Consistency" - 0.03*"Adaptability" + 0.55*"Mission" Regression is significant at the level of .01 (2-tailed)

Regression is significant at the level of .05 (2-tailed)

The results of the linear regression model in Table 11 were significant. F(4,257) = 36.63, p < .001, $R^2 = 0.36$ indicates that approximately 36% of the variance in Continuous Improvement is explainable by the four organizational culture dimensions. Involvement did not significantly predict Continuous Improvement, B = 0.22, t(257) = 1.31, p = .192. Based on this sample, a one-unit increase in Involvement does not have a significant effect on Continuous Improvement. Consistency significantly predicted Continuous Improvement, B = 0.36, t(257) = 2.28, p = .023. This indicates that on average, a one-unit increase of Consistency will increase the value of Continuous Improvement by 0.36 units. Adaptability did not significantly predict Continuous Improvement, B = -0.03, t(257) = -0.16, p = .870. Based on this sample, a one-unit increase in "Adaptability" does not have a significant effect on Continuous Improvement, B = 0.55, t(257) = 3.90, p < .001. This indicates that on average, a one-unit increase that on average, a one-unit increase the value of Mission significant effect on Continuous Improvement, B = 0.55, t(257) = 3.90, p < .001. This indicates that on average, a one-unit increase of Mission will increase the value of Continuous Improvement by 0.55 units.

Table 12.

Results for Linear Regression with Consistency, Mission, and Involvement Predicting Process-System Approach

Variable	В	SE	95% CI	β	t	р	Sig.
(Intercept)	0.05	0.29	[-0.52, 0.61]	0.00	0.16	.873	significant
"Consistency"	0.41	0.13	[0.15, 0.67]	0.26	3.10	.002	significant
"Mission"	0.36	0.11	[0.14, 0.58]	0.23	3.23	.001	significant
"Involvement"	0.40	0.13	[0.14, 0.66]	0.24	3.06	.002	significant

Note. Results: *F* (3,258) = 71.77, p = .001, *R*² = 0.45

Unstandardized Regression Equation: "Process-System Approach" = 0.05 + 0.41*"Consistency" + 0.36*"Mission" + 0.40*"Involvement" Regression is significant at the level of .01 (2-tailed)

Regression is significant at the level of .05 (2-tailed)

The results were *significant* in Table 12. F(3,258) = 71.77, p < .001, $R^2 = 0.45$ indicates that approximately 45% of the variance in Process-System Approach is explainable by Involvement, Consistency, Adaptability, and Mission. Consistency significantly predicted Process-System Approach, B = 0.41, t(258) = 3.10, p = .002. This indicates that on average, a one-unit increase of Consistency will increase the value of Process-System Approach by 0.41 units. Mission significantly predicted Process-System Approach, B = 0.36, t(258) = 3.23, p = .001. This indicates that on average, a one-unit increase of Mission will increase the value of Process-System Approach by 0.36 units. Involvement significantly predicted Process-System Approach, B = 0.40, t(258) = 3.06, p = .002. This indicates that on average, a one-unit increase of Mission will increase of Involvement will increase the value of Process-System Approach by 0.40 units.

Influence of Organizational Culture on Total Quality Management in Tertiary Institutions in Asia

Leavership										
Variable	В	SE	95% CI	β	t	р	Sig.			
(Intercept)	0.05	0.26	[-0.46, 0.57]	0.00	0.20	.838				
"Involvement"	0.53	0.12	[0.29, 0.76]	0.34	4.43	<.001	significant			
"Mission"	0.32	0.10	[0.12, 0.51]	0.22	3.12	.002	significant			
"Consistency"	0.31	0.12	[0.08, 0.54]	0.21	2.62	.009	significant			

Results for Linear Regression with Involvement, Mission, and Consistency Predicting Consistent Quality Leadership

Note. Results: *F* (3,258) = 84.89, p = .001, *R*² = 0.50

Table 13.

Unstandardized Regression Equation: "Consistent Quality Leadership" = 0.05 + 0.53*"Involvement" + 0.32*"Mission" + 0.31*"Consistency" Regression is significant at the level of .01 (2-tailed)

Regression is significant at the level of .05 (2-tailed)

The results in Table 13 were significant. F(3,258) = 84.49, p < .001, $R^2 = 0.50$ indicates that approximately 50% of the variance in Consistent Quality Leadership is explainable by Involvement, Consistency, Adaptability, and Mission. Involvement significantly predicted Consistent Quality Leadership, B = 0.53, t(258) = 4.43, p < .001. This indicates that on average, a one-unit increase of Involvement will increase the value of Consistent Quality Leadership by 0.53 units. Mission significantly predicted Consistent Quality Leadership, B = 0.32, t(258) = 3.12, p = .002. This indicates that on average, a one-unit increase of Mission will increase the value of Consistent Quality Leadership by 0.32 units. Consistency significantly predicted Consistent Quality Leadership, B = 0.31, t(258) = 2.62, p = .009. This indicates that on average, a one-unit increase of Consistent Quality Leadership, B = 0.31, t(258) = 2.62, p = .009. This indicates that on average, a one-unit increase of Consistent Quality Leadership, B = 0.31, t(258) = 2.62, p = .009. This indicates that on average, a one-unit increase of Consistency will increase the value of Consistent Quality Leadership by 0.31 units.

Conclusion

Organizational culture as evidenced through involvement, consistency, adaptability and mission is prevalent among school administrators in Seventh-day Adventist tertiary institutions in Asia. This indicates that the organizational culture elements are highly practiced and evident among the SDA tertiary organizational institutions. Based on the customer-supplier focus, continuous improvement and self-evaluation, process-systems approach, and consistent quality leadership, TQM among SDA tertiary institutions is often practiced as perceived by the respondents, thus interpreted as high. Therefore, total quality management in education is high as perceived by the respondents. The four organizational culture dimensions significantly predict customer-supplier focus, process-systems approach, consistent quality leadership, and continuous improvement and self-evaluation.

Recommendations

To enhance the organizational culture towards a successful TQM, especially on maintaining continuous development in tertiary institutions in Asia, the researcher recommends that:

- The school administrators look into the significance of having full commitment concerning TQM process and providing tertiary institutions with a range of TQM ideas from which to select those that best fit their situation;
- The school administrators motivate others to apply their collective wisdom on TQM within a positive organizational culture for quality tertiary education;
- The school principal provide a concrete tool, wherein teachers can draw the importance of their support and commitment for continuous improvement through effective TQM training programs;
- The school principal actively involve in teachers' research endeavors for continuous improvement;
- The teachers exercise continuous improvement and self-evaluation
- The teachers adapt positive organizational culture to strengthen involvement and consistency;

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- The researchers explore more diverse samples of TQM soft skills in education to test if findings replicate a wider variety of school affiliations; and
- Administer a related study to explore other possible strands influencing TQM in education.

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Motivational Resources Influencing Seventh-day Adventist Teachers in Public Schools to Implement Integration of Faith and Learning (IFL) in the Classroom

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Abstract

While it holds true for most Adventist Christian schools to implement instructional policies promoting utilization of IFL in all academic subjects, the challenge among SDA Christian teachers in public schools to use IFL continues to subsist. Given their school contexts, it becomes inevitable for them to forego commitment to IFL teaching even if this had been strongly ingrained during their pre-service trainings. Anchored from Ryan and Deci's Self Determination Theory, this collective case study was conceptualized to explore the IFL commitment of selected Adventist teachers in public schools in order to draw out a motivation model for IFL teaching. This provides an authentic complementary support to rekindle teachers' commitment to bring the gospel message in their classrooms. While the paper took cognizance of the situation of public school teachers, it likewise offered opportunities for other teachers who share the same vision and conviction. Results yielded provided substantial recommendations useful in teaching and learning processes, policy making, curricular development, future research, in-service training, and pre-service training.

Keywords: text mining, Ellen White, topical models, Conflict of the Ages

According to Rasi (1993), IFL is a "deliberate and systematic process of approaching the entire educational enterprise from a biblical perspective" (p. 10). In other words, IFL is a teaching methodology embedded in the entire curriculum of learners, which can generate learning competencies; such that, learning competencies performed mirror internalized biblical values and base knowledge of life, Christ-centered destiny, service, and eternal salvation.

While it holds true that IFL has been a well- known premise for most Christian educators, it remained conceptual to many, with only few who had seriously considered its practice during the teaching-learning process (Holmes, 1983; Walsh, & Middleton, 1987). Even if evidences had already confirmed its importance (Jang, 2011), it becomes alarming to note the presence of teachers who do not entirely use IFL in their teaching practice, particularly those who had undergone extensive pre-service teaching training for IFL in Adventist academic institutions (Korniejczuk & Kijai, 1994).

Statement of the Problem

As a significant contribution to the existing literature on IFL, this study intended to explore the various experiences of Seventh-day Adventist (SDA) teachers in public schools who consistently and actively utilized IFL teaching. Hoping that through this exploration, a motivation model could be derived to help entice other teachers to offer the same commitment to IFL teaching. This exploration had been properly addressed using the following guide questions:

- 1. How do the participants implement IFL teaching in the classroom?
- 2. Why do the participants consistently implement IFL teaching in the classroom?

Significance of the Study

The important contribution of this study includes the provision of a motivation model directed towards IFL teaching. As such, could provide a conceptual framework for developing pre-service training of teachers in public schools; conceptualizing academic policies; pursuit of curricular development; and preparation of in-service training of professional teachers.

Limitations

This was a local study done among SDA public school teachers of the junior high level. Given the specific criteria in the selection of participants and the scarcity of male gender in the said profession, only 1 male respondent was able to participate and the rest were female respondents. The interview process was done in the school; hence, challenge of noise among students was evident.

Review of Related Literature

Integration of Faith and Learning (IFL)

Faith-learning integration is described as a way of life and being. It is beyond the course content and affects the entire life of an individual because it is more than just familiarity with the subject as it brings Christ inside the classroom. Despite varied descriptions of the concept, one common picture of faithlearning integration points to its being "a scholarly project whose goal is to ascertain and to develop integral relationships which exist between the Christian faith and human knowledge, particularly expressed in the various academic disciplines (Morton, 2004, p. 64). Combining faith and understanding the connections to academics is the process of faith-learning integration. At a recent conference of Christian teacher-educators, participants had the opportunity to hear-in one double session-presentations of two dramatically different understandings of faith-learning integration (Cox & Sweezy, 2008; Matthias, & Wideman, 2008). The first pair of presenters described in detail, an approach by which teachers were to help K-12 students integrate faith with learning by having them search Scripture for all references that included a particular word, in this case, words related to juvenile delinquency (Cox & Sweezy, 2008). The second pair of presenters described correlations they found between the personal integrity of several professors at an evangelical college and the degree to which those same professors' students believed their professors demonstrated faith-learning integration in their teaching and scholarship (Matthias & Wideman, 2008). For decades, faith-learning integration language has served radically differing Christian understandings of education. Bearing the freight of these differing understandings, the phrase itself suffers from ambiguity because the three component words-faith, learning, and integration-all carry several potential meanings (Badley, 2009).

Christian educators have tried in various ways to implement or encourage faith-learning integration. In the sphere of campus life, many institutions require students to attend chapel or to participate in Christian service activities. Some colleges close the college library on Sundays. Many Christian schools and colleges require that their students sign lifestyle agreements regarding sexual activity, alcohol, and drug use. Some school days or classes begin with devotions, a prayer, or a religious song. Some classrooms are decorated with Bible verses or posters with Christian themes. Some mount a small cross over the door. Curriculum and courses offer another venue for expressions of Christian faith. Some individuals and institutions accept or reject textbooks based on their alignment with Christian principles. In some Christian schools and colleges, portions of library books are defaced or removed if some individual or committee deems them offensive to Christian standards. Professors may craft assignments in ways that they hope will allow matters of faith and spirituality to arise naturally, an approach that some Christian educators in public settings also take. Professors and teachers certainly will develop and assess assignments in view of the Christian institution's mission. Some may draw mathematics examples from Old Testament genealogies and the reported ages of various people when their son was born and when they died. The character and attitudes of teachers and professors offer another obvious venue for faith-learning integration. Some teachers or professors may

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pray for each of their students by name every day, while others believe that the greatest commandment, or the fruit of the Spirit, or the list of desirable qualities in Philippians 4:8–9 should guide all their actions throughout the day, especially their interactions with and speech about others, whether living or dead. Institutions may see their recruitment and dismissal policies, their staff/faculty development processes, and the approach they take to mission statement revision as sites where the light of faith shines on the details of education (Badley, 2009). This catalog of practices is obviously not exhaustive; neither is it limited to those using faith-learning integration languages. But such varied practice illustrates the range of work that Christian educators call on integration language to do. A small but growing number of scholars have recently voiced objections to this popular phraseology. Some object to faith-learning integration on theological and educational grounds (Glanzer, 2008). Others have raised complaints about the linguistic and semantic difficulties that seem to inhere in the language itself. Three authors of dissertations who set out to observe faith-learning integration in the field all had to work through the still-challenging task of definition before they could engage in observation (Matthias, 2007; Miller, 2006; Millis, 2004).

Many Christian educators have recognized the importance of the integration of faith and learning and considered biblical integration as the factor that makes a Christian school Christian. Most Christian schools portray a distinctive biblical philosophy of education which supports biblical worldview integration. Their mission statements reflect the efforts to integrate the biblical worldview in the academic areas (Jang, 2011). Haycock (2005) discussed the importance of "developing a Christian worldview through the careful and articulate integration of God's Word into the broader academic curriculum." (p. iii) Haycock (2005) quoted Smitherman, the president of the Association of Christian Schools International (ACSI) in addressing the impact of today's Christian schooling on countless number of students around the world by stating, "Christ-centered schools are effectively changing young lives for the cause of Christ. Regardless of the subject being taught, when permeated with scriptural principles, a worldview is being intricately etched in the students' hearts and minds, impacting their thinking and decision making for a lifetime" (para. 1).

Burton and Nwosu (2002) in their research on student perceptions of the integration of faith, learning, and practice asserted that the integration of faith and learning (IFL) is a critical issue on Christian campuses. However, when the topic is discussed, it is often in the context of philosophical terminology instead of classroom realities. The reality for K-12 and college teachers alike seems to be that everyone talks about the importance of IFL, but few people describe what it is or how to do it. Given this premise, it applies then on IFL as an embodiment of learning to teach from a biblical point of view, which serves as a cornerstone of what it means to teach in a Christian school. Teachers need to be prepared for spiritually qualified teachers evidently showed active faith reflected through their sound basic theology, verbalization of personal relationship with Jesus Christ, and various spiritual practices. It also appeared on the results that spiritually qualified teachers who were the ones with ample training, education, and experience in Christian education (Lewis, 2015).

Adventist Efforts towards IFL

For more than 150 years, the Adventist Church educational system has put efforts to achieve a systematic application of IFL in the formal curriculum. To name a few examples, Taylor (2012) presented some ideas that favored transformation of faith into action. Thomas (2012) developed a complete curriculum for a course on IFL for Adventist teachers to utilize the concept in actual classroom settings. Another notable effort was when the Southern Asia Pacific Division (SSD) initiated the creation of Bible laboratories and curriculum guides and resources for Adventist secondary school education in utilizing IFL in specific subjects such as Home Economics, Art, Bible, Science, Social Studies, Computer Studies, PE, Geography, History, English, Math, Music, Personal Development, Keyboarding, and Industrial Technology. However, despite these efforts, only around 40% of the educators agreed to have employed IFL in their practice and only 20% agreed that Adventist schools were putting this teaching philosophy into practice (Bradfield, St. Juste, & Thayer, 2007).

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Motivational Resources Influencing Seventh-Day Adventist Teachers in Public Schools to Implement Integration of Faith and Learning...

Motivation of Teachers

Teachers play a very important role in the learning process of students who idealize teachers and try to copy them. Thus, the motivation of teacher is very important as it directly affects the students. The importance of motivation in imparting education can be affected by many factors. Amongst these factors include personal; school environment; student's response; rewards/incentives; personality of teacher. (Alam, 2011) Other sources of motivation of teachers also include sense of safety in school, student achievement, levels of attraction to the teaching profession, levels of self-reliance, perception of their status in society, importance of positive inspection reports, sense of self-fulfillment, positive atmosphere in school, positive relationship among teachers, perception of competencies in the field, levels of self-respect, school's position in the league, appreciation of their values and achievements, effective administration and management, and sickness and arrangement for retirement. (Kocabas, 2009)

A study conducted among teachers as regards to the process they undergo in implementing a program in the classroom confirmed that those who strongly implement a classroom program are those with strong grasp of the key concepts of the program. In other words, they are those who had formed an elaborate schematic understanding of how to integrate the new program into their instruction and how to tie the program's goals to learning standards. More so, it was realized that those who have the inclination to implement are those who are willing to spend time in implementing the program. High implementer acknowledged that deeper and more intuitive understanding grew over time and emerged from experience, practice, and their willingness to endure a "trial and error" period of making mistakes and learning from them. High implementer is willing and able to experiment and learn from own mistakes and experiences. Through trial and error, the teacher refines understanding and becomes more familiar with the set expectations. (Cave & Mulloy, 2010)

Theoretical Framework

The intention to explore the experiences of Adventist teachers who consistently implement IFL teaching to extract a motivation model for IFL teaching is anchored on the premise suggested by Ryan and Deci's (2000) Self-Determination Theory. According to their postulations, every individual has innate psychological needs and proclivity for optimal functioning and well-being, which can directly dictate their motivation and personality integration. Innate psychological needs comprise need for competence, relatedness, and autonomy. This same theory likewise postulated that the social context and social environment could either build or hamper one's proclivity for growth and development, based upon the impression of satisfaction achieved for these psychological needs. Furthermore, the theory asserts that the individual's development and growth reciprocally affect the immediate environment. As such, denotes a mutually beneficial relationship between the individual and the social environment.

Methodology

Research Design

This study used a qualitative research design, specifically a collective case study design. According to Yin (2009), the use of case study as a methodology is initiated by three important considerations, namely: type of research question posed, extent of control, and degree of focus on contemporary events. Given the main questions posed by the study reflecting how and why questions, with no possibilities of control in the events, and high degree of focus to a contemporary event, this undertaking considered collective case study as a viable design to use.

Participants

Six SDA teachers participated in this study. Selective sampling technique had been utilized in the choice of participants (Draucker, Martsolf, Ross, & Rusk, 2007) considering these set criteria: (a) Teaching in a junior high public school for no less than 3 years; (b) Presently an active member of the Adventist Church, and verbally affirm commitment to their faith; (c) Graduated from an Adventist college or university; (d) Evidences of IFL teaching in classes; and (e) Signed the informed consent.

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Data Gathering Procedure

Initially, the researcher identified participants that may qualify to answer the questions prepared based on the criteria mentioned above. Upon determination of participants, the researcher sought the approval of the principals of the schools where the SDA participants teach. After confirming approval of request, the researcher conducted a one-on-one interview with the teachers during their vacant time. Ethical considerations were strictly observed during the interview process. While interviews were being conducted, responses were being compared and contrasted to ensure proper classifications of themes in the analysis of data. Data analysis took place during data collection. Once data were saturated, collection ended. An external reviewer helped during the coding process to validate the veracity of the codes.

Data Analysis

The researcher used the conventional approach in qualitative content analysis as described by Hsieh and Shannon (2005). Data analysis involved first the preparatory operations. At this step, the researcher listened and transcribed the participants' narratives of the experience. Once written transcripts were available, reading in repetitive manner was executed to grasp how the participant puts meaning and sense into the experience in its broadest context. Analyzing individual descriptions followed. At this stage, the researcher marked unstructured modifications in meaning in the texts and captured the key thoughts or concepts to understand what participants disclosed about the phenomenon under study. Afterwards, synthesis of the insights or key concepts was undertaken to arrive at a consistent theme, which expressed the most precise psychological structure of the experience (Patton, 2002).

Results and Discussion

Intrinsic Motivational Resources

Spiritual growth. All teacher participants conveyed concepts of spirituality as one major motivational resource. In a study conducted among students in a small Christian college, views of spirituality convey three important themes, namely, great interest and desire for spiritual growth, venture with God manifested by behavioral indicators, and power of other people as spiritual models and mentors (Birkholz, 1997). This same perspective is reflected during the interviews conducted among teachers. Accordingly, they pointed out their desire and interest to grow spiritually, to be closer to God manifested in their concern for others to know about God, and also the influence they can inject to their students in building values that can last for a lifetime, and to portray a life that concurs with the will of God; thus, offering their students not only skills and knowledge but something more, something practical they can use on a daily basis. One teacher said,

Yung magabayan ang mga studyante. Yun ang role mo kasi bilang guro. Bilang guro magsilbi kang gabay. Kasi ikaw naranasan mo ang pagiging malapit sa Diyos. Nagkakaroon ka ng direksiyon. Mas alam mo kung paano makakatulong ito kung paano makapagdesisyon ng tama. Lalot higit sa mga panahong ito napakaraming masasamang elemento tulad ng droga, maagang pagkamulat sa sekswulaidad. Nakakatulong mga bagay na prinsipyo sa biblia na bigyan nila ng pansin o lugar sa buhay nila. (To guide the students, that is your role as a teacher. As a teacher, you guide them based on your personal experience with God. You have direction in life. You become aware of the right decisions in life. Especially these times when there are so many bad influences like drug abuse, early exposure on sexual activities. Principles from the bible could really be helpful if given emphasis in their lives.)

Professional development. All teacher participants agreed to the idea of professional development as a motivational resource. At present, the Philippine educational system is focused on outcomes-based learning. All personnel in the educational sector, particularly those in the teaching practice, are assessed based upon the outcomes reflected among their students as the recipients of their services. According to University Research Office JEPH Vol. 2 Issue 1 July 2019

Spady (1994), Outcome-based education (OBE) purports focus and organization relative to educational system, which is essential for all students to be able to do successfully at the end of their learning experiences.

Given this perspective, teaching as a profession is harnessed when educational goals are met. Professional accomplishment is gained when learning which took place in the classroom are extended and practically reflected in life. This is affirmed by one interviewee saying,

Yung bahagi kasi ng layunin ng edukasyon ay maipataas ang antas ng kaisipan spiritual ng mga kabataan ngayon kasi iyon ang nawawala. Kahit ang mga magulang tuwing na mi meeting, iyon ay aking nabubuksan, aminado sila kaya nga bagaman alam nila isa akong Adventist na Kristiyano, eh wala silang tutol kapag naipapaalam ko na ito ang aming sinisikap maging kasanayan sa loob ng classroom. Pananalangin at sa panahon ng spiritual program at alam nilang ako naglelead sa mga hindi katoliko ay walang pagtutol mga magulang. Alam nila na dapat sumailalmim sa ganoong pagsasanay ang kanilang mga anak. Lalo na sa pananalangin at pagbigay ng panahon sa aral ng Diyos. (Part of the intention of education is to improve the level of spirituality among young people because it is diminishing these days. Even parents when we meet them, I open this idea and they agree with what I am sharing. So, even if they know that I am an SDA, they do not complain when I tell them about IFL in the classroom. Prayers and spiritual programs which I integrate, they do not complain. They know that their children need this kind of training. Especially, aspects of praying and giving time for the Lord.)

Professional development is gained through the use of IFL as a strategy. This is affirmed by one interviewee when she confided that she becomes more effective when using IFL. One teacher stated,

Yung life experience sa araw araw mong pamumuhay. Paano mo ito magamit at anong values sa yo. Very practical ang IFL kaya madali nilang maalala ang lesson. Mas madali nilang maunawaan. Hindi nila agad malimutang ang lesson dahil doon sa inintegrate mong values. Kahit hindi sila mag notes. Basta nakikinig lang sila alam na nila. Nakokonek na nila agad. Sa akin experience hindi ako ganoon ka effective na teacher kapag hindi ko magamit ang IFL. Nakita ko ang difference, Ma'am. Iba po ang teaching sa labas. Mas madali ko mairelate ang tinuturo ko sa mga students sa actual practice nila. (Your daily experience, how you use one's faith. IFL is very practical so it can be easily remembered and understood. They will not forget the lesson because values are integrated. Even without taking notes. They just have to listen and they can easily connect the lesson. Without IFL, I see myself as ineffective in teaching. I can easily relate the lessons in their actual life experiences.)

One way to develop professionally through IFL covers its impact towards the teacher's competency to deliver the methods. As the teachers had confirmed, the use of IFL in the classroom requires quality preparation because integrating concepts of faith and Bible truths in various learning contents require ability to connect ideas and conceive valuation for each lesson.

Halimbawa yung lesson is about addition in Math. Hanap ka ng pinakamalapit na Bible verse or Bible story na puwede mo ikonek doon sa concept ng addition. Sa Values na subject madali lang siguro pero sa ibang subjects, kelangan isipin maigi at aralan maigi kung tama yung koneksiyon na gagawin para ma-achieve yung goal ng lesson mo. (For example, the lesson is about addition in Math. You need to find a Bible text that you can use to connect with the concepts of addition. In Values subject, it is easier to do IFL. But with other subjects, you need to think well and study well if your connection would achieve your goal to convey the lesson.)

Extrinsic Motivational Resources

Students' positive response. One notable theme which has risen out from the interviews regarding motivational resource pertained to students' response. The teacher participants concurred that strong University Research Office JEPH Vol. 2 Issue 1 | July 2019

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motivational resource comes from the positive reactions students express towards IFL strategies in the classroom. For them, these expressions from their students create a sense of fulfillment and a positive reward for their efforts to implement IFL in their classrooms. One teacher said,

It's a rewarding experience din kasi nga mkapagbahagi ka. Lalot higit kung makikita mong may mga studyanteng nagbibigay o nagiging seryoso at nagpahalaga sa mga bagay na spiritual at princisipyo tungkol sa Diyos na ibinabahgi mo. Isang halmbawa diyan na nakakapanba ng puso at nagbibigay ng motivation ay yun na appreciate. Minsan naiexpress nila sa pagbibigay ng cards during teachers day. Sabi nila, isang bahagi doon ay yung naapreciate nila hindi lamang yung masayang paraan at buhay na paraan ng pagtuturo kundi yung naibabahagi kong mga bagay spiritual kung anong nararapat sa buhay ng isang kristiano. Na kahit nasa kabataan pa sila maari silang magkaroon ng tamang prinsipyo sa buhay. *(It's a rewarding experience to share what you know. Especially if you can see interest among your students, especially on spiritual matters. One example is when they openly appreciate your efforts through cards given during teachers' day. When they say that it's not only the manner of teaching that they appreciate, but the spiritual lessons shared in the class and how these become useful in their lives. At their young age, they can pursue right principles in life.)*

School climate. Another theme which has risen out from the interviews regarding motivational resource considers school climate. It has been noted by majority of the teachers that school policies and resources on IFL can actually influence their active implementation of the strategy. Almost all attested that it has remained a challenge for them to continue utilizing IFL in their methodology because the school does not provide resources and professional training for this kind of teaching methodology. While it may hold true for Adventist schools to possess quality resources and facilities, even policies for IFL implementation (dela Torre, 2003), reality among public institutions shows lack of resources, facilities, and training. Thus, challenge the Adventist church members serving outside the denominational realm.

Minsan nakakalimutan gumamit ng IFL sa pagtuturo kasi walang policy. Di nareremind. Noong nagtuturo ako sa Adventist school sa probinsiya namin, kasama siya palagi. Lagi kaming pinapaalala na gamitin. Kasama pati sa pagtsek ng lesson plan kung me IFL kami. Tapos, yung principal tinuturuan pa kami paano gamitin sa klase namin. Nandoon yung suporta ng training, pati materials, atsaka me kasama pang incentive kapag gagamitin ng teacher. (Sometimes, we forget to use IFL because there is no policy. When I was teaching in an SDA school in the province, IFL is always implemented. It is even included in lesson planning. Our Principal even teaches us how to use it in class. There is always the support through training, materials, and incentives.)

Proposed Motivation Model for IFL Teaching

From these results, a two-factor motivation model for IFL teaching, which includes intrinsic motivational resources and extrinsic motivational resources, was offered. Spiritual growth and professional development point to the intrinsic resources; while students' positive response, school climate, and time point to the extrinsic resources.

Conclusion and Recommendations

Given the results reflected in the study, it is recommended for Adventist universities and colleges to include in all curricular programs an elective subject, which covers the instruction of the principles and methods of IFL teaching. It can be titled "Principles and Methods of IFL Teaching". There is a possibility for graduates of other disciplines to teach in public schools, especially now that Senior High School had been fully implemented. Preparing all graduates from various disciplines on IFL teaching can be considered as a sensible progress in the curricular offerings of the institution. It may also be suggestive to extend IFL

teaching trainings in the INSET seminars of public school teachers. College of education deans in the Adventist schools may offer their services for this training in the division offices of the Department of Education. This is a potential way to network and create linkages with other entities.

Given the value of IFL teaching in creating a positive learning environment to the students, it would also be wise to devise assessment tools for IFL teaching so that students' reactions and feedback could be generated; as such, will improve delivery in the curriculum. Since this motivation model is conceptual, it is suggested that future researches pursue its validation using appropriate quantitative methods.

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Motivational Resources Influencing Seventh-Day Adventist Teachers in Public Schools to Implement Integration of Faith and Learning...

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Readiness of Faith-Based Community towards Adopting Special Education Program

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Abstract

n thethe increasing number of students with special needs, it was reported that less than three percent of Adventist schools have direct provision of special services and only six percent of Adventist schools reported access to Adventist Special Education Services in the United States. Thus, in the Philippines, there is no concrete special education program in all Adventist schools. This study focused on the exploration of the readiness towards adopting special education program that dug into the subject of administration, facilities, teaching, funding, the challenges and solutions that might be faced in Faith-Based Community (FBC). The researchers employed multi-method using both quantitative and qualitative to answer the questionnaire and purposively sampled a total of 96 respondents. The respondents were the administrators, teachers, and finance personnel of FBC and the participants were chosen based on the criteria set by the researchers. For the quantitative part, the data were gathered through survey questionnaires and checklist which revealed that FBC is not ready in terms of facilities and personnel who are equipped in handling the program. Thematic analysis approached was utilized in collecting qualitative data through in-depth interview. It was revealed that the challenges towards adopting special education program are: lack of qualified teachers, community awareness, scarcity of training, classroom management, administrative support, lack of facilities and curriculum. While, the solutions that popped out to address these challenges are Individualized Education Program, comprehensive seminars or trainings, provision of facilities, fund allocation, supportive administrators and spiritfilled personnel. Based on the findings, the community is ready to adopt the program but the knowledge about the program is limited. Moreover, the researchers recommend that the community needs more involvement in seminars and trainings related to special education.

Keywords: special education, curriculum development, supervision and school management

The population of students with special needs is now increasing. These students need more attention in order for them to feel the belongingness in the community and have equal rights to enjoy as normal people do. Now inclusion has been introduced in different schools throughout the world. Meaning, regardless of differences and whatever their abilities are, all students are educated together. No more discriminations because of paradigm shift that education is for all. However, applying inclusive education is not that easy. Many schools are struggling due to lack of preparations and unclear understanding about students with special needs. Thus, these students do not have the opportunity to learn because their needs are not met in the classroom.

Teachers are responsible for the needs of the special education. In Jordan (Al-Natour, Amr, Al-Zboon, & Alkhamra, 2015), it was found out that the schools were practicing inclusive education yet the teachers and the programs are not updated. There were no collaborations between general and special teachers and lack of support from the administration. It was also revealed on their study that the teachers do not know what their real responsibilities are. Teachers should know what they are supposed to do in dealing with students with special needs.

Readiness of Faith-Based Community towards Adopting Special Education Program

Collaboration between special education and generalist teachers is one of the factors why inclusive education program succeeds. It was supported by Yeung as cited in Al-Natour et al. (2015) that promoting collaboration can lead to success of inclusion. In Kenya, Gathumbi et al. (2015) found out that collaboration of the teachers needs to improve to meet the needs of the students with special needs.

The study of Sargeant and Berkner (2015) of the Southern Adventist University focused on the perceptions and challenges of Seventh-day Adventist teachers towards inclusion in the United States. They found out that this program should be supported and teachers must have trainings to meet all the needs of these students. According to this study the school should prepare so that these students will not be ignored due to lack of facilities and resources.

Congruently, Adventist Special Needs Ministries (2016) facilitates acceptance, support, and inclusion for people with special needs. It was created by the General Conference and their mission focused around the concept of "all are gifted, needed and treasured." They believed that ministry is not just for the normal people but also for the people with special needs. Seventh-day Adventist Education described the word education as the harmonious development of the physical, mental, social and spiritual aspects. However, there are only few of the Adventist schools in the world that provide special education services.

Receiving quality education is the biggest achievement of every person. Stankovska, Angelkoska, and Grncaroska (2015) indicated that "attending school is part of becoming a complete person" (p. 307). Students with disability should also receive an equal education as the regular students have. These students can improve their social behaviors if they were given a chance to mingle with regular students.

There were many schools today embracing inclusive education and special education program from different countries around the world. A study that was conducted by Buenaventura, Ebid, Manongol, and Rodelas (2016) about school practices in managing students with special needs found out that schools particularly pay attention to their management when it comes to students with special needs. However, none of the Seventh-day Adventist schools in the Philippines has a concrete program to meet the needs of the students with special needs. These students enrolled in the Seventh-day Adventist schools have limited access for learning because there is no program and services to support them. There is no study conducted in Adventist schools in the Philippines yet about adopting special education program. Therefore, this study aimed to know the readiness of Faith-Based Community towards adopting special education program.

Methodology

Research Design

This study utilized multi-method containing both qualitative and quantitative data collection that helped the researchers to have a wider view with the help of triangulation of the readiness of the faith-based educational community towards adopting Special Education program.

Population and Sampling Technique

The target population of this study was the members of FBC categorized to three groups – administrators, teachers, and finance personnel. The researchers targeted the entire population of the full-time teachers of the FBC in order to gather the best possible quality of the data. However, the entire community was busy for the accreditation during data gathering and some of them cannot accommodate the researchers. Thus, the researchers gathered only 83 respondents for teachers, 11 for the administrators and 2 for the finance personnel with a total of 96 respondents.

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Table 1.

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Distribution of the Survey Questionnaires to the Administrators and Finance Personnel

Category	Retrieved Instrument (%)
Administrators	73.33 %
Finance	100 %
Total	76.47 %

Table 2.

Distribution of the Survey Questionnaires to the Teachers According to Their Levels

Level	Retrieved Instrument (%)
Elementary	82%
Junior High	95%
Senior High	86.67%
College	82.22%
Total	85.57 %

Purposive sampling technique was employed upon gathering the data. Specifically, total population sampling was utilized to classify the teachers according to their level: Elementary, Junior High School, Senior High School, and College level.

The following criteria were used upon selecting the sample for quantitative:

Teachers. The respondents must be full-time teachers of the FBC.

Administrators. The respondents must be the University President, Vice President of Student Services, Vice President of Finance, Vice President of Academics and Human Resources, deans of the colleges and principals in elementary and secondary level.

Finance personnel. The respondents who control the use of funds in the University.

For the qualitative part of the study, the researchers selected the participants from the respondents of the survey questionnaires through purposive sampling with the basis of the following:

Teachers. Teachers who have handled students with special needs for at least 3 consecutive years; with at least 5 years teaching experience; have attended seminars or have self-directed learning regarding special education.

Administrators. They were administrators who have attended seminars regarding special education; and have background about students with special needs.

Finance personnel. The respondents were those under the Finance personnel category.

Most of the respondents were qualified to participate in the qualitative but only eight participated and were interviewed by the researchers.

Instrumentation

For the quantitative part of the study, three checklists were used in order to determine the level of readiness of the FBC towards adopting special education. The first checklist was utilized by the researchers to evaluate the readiness of the facilities of the community while the other two were used for funding and administration which had been answered by the finance personnel and administrators. The second and third checklists consisted of two parts. Firstly, the demographic profile of the respondents; including the name (optional), gender, community group and educational background. Secondly, there are questions related to the level of readiness of a faith-based educational community towards adopting special education program in terms of administration and funding. The respondents are instructed to tick their yes or No answer.

A 4-point Likert scale was determined the level of readiness of the teachers on adopting special education program.

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Readiness of Faith-Based Community towards Adopting Special Education Program

Response Scale	Level of Agreement	VI	Interval Scale
1	SD	Not	1-1 74
		Ready	1 1.7 1
2	D	Almost	1 75_2 49
		Ready	1.75-2.47
3	А	Ready	2.50-3.24
4	SA	Fully	2 25 4 00
		Ready	5.25-4.00

Legend:

Table 3.

 $SD{=}Strongly \ Disagree \ D{=}Disagree \ A = Agree \ SA{=} \ Strongly \ Agree$

The participants filled out the demographic profile provided by the researchers before the interview to further help in the interpretation of the data for the qualitative part of the study.

Pilot Testing

Researchers made sure that the instruments were pilot tested to determine the deficiencies in the research instruments and procedure before data gathering. It helped the researchers familiarize the procedures and the protocol upon conducting it. North Faith-Based College (NFBC) was chosen for pilot testing because it is the nearest faith-based school that fits the set criteria to the targeted actual location for gathering data. The researchers asked permission from the gatekeeper of NFBC through sending letter that was approved and authenticated by experts. After that, the researchers distributed the questionnaires and have them retrieved after a month. Upon retrieval, the papers for the teachers were immediately brought to the statistician that resulted to .673 Cronbach Alpha after revision from 20 items to 17.

Table 4. Pilot Test Result

	Ν	%
Cases Valid	17	100.0
Excluded	0	0
Total	17	100.0

Table 5. Reliability Result of Pilot Test **Cronbach's Alpha** N of Items 17 .673

Data Analysis Model

Researchers used Noticing, Collecting, and Thinking Model by Seidel (1998) for data analysis. Since examining data is not that easy, this tool served as guide by the researchers in order to find meaningful information. Then it was collected based on similar information that came out, intensively examined, interpreted and drew conclusions from those discoveries with the basis of thematic approach.



Figure 1. Noticing. Collecting and Thinking Model

Results and Discussion

Special Education Program focuses on the needs of students with special needs (Stankovska et al., 2015). The first research question, "What is the level of readiness of a faith-based educational community towards adopting special education program in terms of administration, facilities, teaching and cost or funding?", was answered through survey questionnaires.

Table 6.

Level of Readiness in Terms of Administration

	%
Ready to Adopt special Education Teachers	73
The school participates in seminar related to special Education.	82
The school conducts seminar related to special Education	64
The school is ready to organize seminars related to special needs.	82
The administrators create special programs for students with special needs.	27
The school has awareness program of not labeling student with special needs.	55
The school has evaluations program related to special education.	18
The school has evaluations for program related to special education.	45
The school is ready to provide Minimal testing for learners with cognitive special needs.	36
The school is ready to provide learning materials for students with special needs.	64

Legend: Y=Yes N=NoVerbal Interpretation, N=11

Table 6 shows that 73% of the respondents agreed that the school is ready to add SPED teachers. According to Holmberg and Jeyaprathyaban (2016), it is important for students with special needs to have support from special education teachers. Their role is very essential for these students to assist and help them to adapt in the different activities of the regular classroom. Based on the result, 82% said that the school participates seminars related to special education. 64% of the respondents stated that the school conducts seminars related to special education. 82% of the population agreed that the school is ready to organize seminars related to special needs. However, 64% of the respondents disagreed that the administrators create special education programs for students with special needs. In terms of awareness program of not labeling students with special needs, only 55% agreed on it. Similarly, 82% disagreed that the school has evaluations for program related to special education and 55% said that the school can provide evaluations for program related to it. Moreover, only 36% agreed that the school is ready to provide Minimal Competency Testing for learners with cognitive special needs. On the last statement, majority of the respondents (64%) agreed that the school is ready to provide learning materials for students with special needs.

Readiness of Faith-Based Community towards Adopting Special Education Program

Attending seminar has a big impact especially for the regular teachers and administrators in order for them to have a better understanding to the students with special needs. It can also provide an idea on how to handle this kind of students. In fact, it was mentioned in the study of Gathumbi et al. (2015) that Ministry of Education is providing seminars not only for the teachers but also for the administrators for them to become effective in handling students with special needs. It was also stated in this study that administrators are responsible for providing materials of the teachers and other resources that would help to improve the learning of all students. Administrators have a big role in supporting inclusive education. They serve as the foundation of the program to maintain the success of inclusive education. According to Sargeant and Berkner (2015), "Leaders need to analyze successful inclusion programs and develop comprehensive plans that include a timeline for implementation and methods for evaluation" (p. 2).

Table 7.

D 1			10		G 1	
Researchers	' Facility Evaluat	tion in Faith-Rasi	ed ('ommunity	Elementary	Secondary and	College Facilities
neseur eners	1 activy Drainai	non in 1 ann Das	ea community	Liemeniary,	secondary, and	conege i actitics

	%
Toilets	No
Ramps	No
Leveled doorsteps	No
Wide doorways	Yes
Waiting areas	Yes
Resource room	No
SPED office	No
Therapy room	No
SPED laboratory	No

Table 7 shows that the readiness of the different facilities in classrooms. In the National Council on Disability Affairs (2012), wherein guidelines were written for SPED, it was mentioned that toilets or washroom needed to have accessible turning spaces in consideration for physically disabled and wheelchair users however almost all comfort rooms in the Elementary, Secondary and the Collegiate Level do not have adequate spaces. Handrails are also needed for comfort rooms near the door, toilet and sink but in all the comfort rooms there have no handrails.

Ramps must have a width of 36 inches minimum with level landings on top and bottom of each run and with handrails on each side (United States Access Board, n.d.) and in the case of the Elementary and Secondary there are no ramps. In the Elementary, however, there are pathways that can be used by students on wheelchair but still needs some reconstruction for there are no leveled landings on top and bottom. A pathway that looks like a ramp near the staircases are also provided not for wheelchairs but for bags with wheels. In the collegiate level, only 2 buildings were observed to have ramps that would qualify for wheelchair users and were really intended for them.

For students with physical disabilities especially for wheelchair users, it is needed for the doors to have leveled doorsteps (Scope, 2018) but in the case of the buildings in the elementary, secondary and college level the most doorsteps are not leveled.

The width of wheelchairs are commonly .60 meter to .75 meter which when converted to inches would result to 23.622-29.5276 inches (National Councils on Disability Affairs, 2012) and the researchers actually had a chance to measure manually the width of a regular wheelchair which is 27 inches in the Philippines. Karman Health Care (2017) reported that in order to meet the ADA standard, doors should have minimum width of 32 inches for wheelchairs to comfortably pass. Only two classroom doors in the

elementary did not pass the criteria. Among the 34 classroom doors in the secondary, only five did not pass. In the college level, 29 among 162 classroom doors did not qualify.

The researchers also considered the waiting areas in FBC ready for they are wide enough and has leveled pathways (National Council in Disability Affairs, 2012) in the setting of Elementary and Secondary and College Level.

To accommodate Special Education students, schools need facilities such as the resource room, SPED Office, SPED Laboratory, and therapy room. Resource room provides room for differentiated instructions for Students with Learning Disability (Hoover & Patton, 2004). SPED Office is located near the resource room in which it has receiving are for visitors. Therapy room which is also accessible in a way that it should be individualized, assessment-based is another facet to be considered (Vargas, 2013) and a SPED laboratory with an ambiance that feels like home is another thing. Now, in the Elementary, Secondary and College level, the aforementioned facility was not observed due to the claim that the facilities were really intended for regular students.

Table 8.

Researchers' Evaluation in terms of Teaching in Faith-Based Community Elementary

	Moon	SD	VI
	wiean	50	V I
<u>Classroom Instruction</u>			
I find it difficult to modify instructional strategies for SSN.	2.57	.938	R
I feel comfortable in teaching student with special needs	2.36	.745	AR
I have difficulty in modifying teaching-learning methods for SSN.	2.57	.938	R
I accept the responsibility teaching SSN without heavy burden.	2.29	.825	AR
I can change the pace of my instruction based on individual needs.	3.29	.469	FR
Overall Classroom Instruction	2.59	.534	R
<u>Classroom Materials</u>			
It is hard for me to use variety of materials in teaching.	3.00	.784	R
I have textbook in class that are suitable to the level of SSN.	2.00	.784	AR
I consider student's capacities in preparing my teaching materials.	3.36	.497	FR
I am not sure about the effectiveness of my teaching materials for SSN	2.71	.611	R
I find it difficult to adapt materials for meeting the needs of SSN.	2.50	.845	R
Overall Classroom Material	2.71	.308	R
Teacher's Training			
My educ. Background prepared me to effectively teach SSN.	2.14	.864	AR
I received training for co-teaching strategies.	2.36	.633	AR
I can teach SSN.	2.50	.760	AR
I have been trained to meet the needs of SSN.	1.79	.802	AR
In-service training in teaching SSN should be required for teachers.	3.57	.756	FR
I need more training in teaching SSN.	3.50	.854	FR
I do not have idea to handle SSN.	2.71	.611	R
Overall Teacher's Training	2.65	.433	R
Legend: NR=Not Ready AR = Almost Ready R = Ready FR = Fully Ready			

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Table 8 contained the level of readiness of FBC Elementary teachers in terms of teaching students with special needs. Classroom instruction is a complex activity that requires the professors to combine different strategies to relay the information to the students (Carnegie Mellon University, 2016) and results show that in terms of teaching instruction FBC is ready with the total mean of 2.59. Teaching materials is reported to be a generic term that pertains to the tools or resources used by teachers to aid them in teaching instruction that supports student learning (Ministry of Education, 2017) and the results showed that the community is ready (2.71). Skills through professional development is an important element in student's success for well-qualified and high-quality teachers play a major role in closing the gap needed to gain in teaching and learning (The National Academies Press, 2018) and FBC showed that it is ready in terms of Teacher's training with an overall mean of 2.36. Moreover, most teachers are almost but not ready yet (2.29) for accepting the responsibility of teaching students with special needs with the mean of 2.36. Moreover, most teachers are almost but not ready yet (2.29) for accepting the responsibility of teaching students with special needs with the mean of 2.0. Besides, their educational background did not really prepare them and they do not have enough trainings to enable them teach students with special needs.

Table 9.

Researchers' Evaluation in terms of Teaching in Faith-Based Community Junior High School

	Mean	SD	VI
Classroom Instruction			
I find it difficult to modify instructional strategies for SSN.	2.79	.787	R
I feel comfortable in teaching student with special needs	2.74	.827	R
I have difficulty in modifying teaching-learning methods for SSN.	2.63	.624	R
I accept the responsibility teaching SSN without heavy burden.	2.95	.848	R
I can change the pace of my instruction based on individual needs.	3.05	.524	R
Overall Classroom Instruction	2.83	.534	R
Classroom Materials			
It is hard for me to use variety of materials in teaching.	3.05	.705	R
I have textbook in class that are suitable to the level of SSN.	1.95	.705	AR
I consider student's capacities in preparing my teaching materials.	3.26	.562	FR
I am not sure about the effectiveness of my teaching materials for SSN	2.47	.513	AR
I find it difficult to adapt materials for meeting the needs of SSN.	2.63	.761	R
Overall Classroom Material	2.67	.378	R
Teacher's Training			
My educ. Background prepared me to effectively teach SSN.	R	.761	AR
I received training for co-teaching strategies.	AR	.692	R
I can teach SSN.	FR	.567	R
I have been trained to meet the needs of SSN.	AR	.535	AR
In-service training in teaching SSN should be required for teachers.	R	.671	FR
I need more training in teaching SSN.	R	.496	FR
I do not have idea to handle SSN.	2.71	.787	R
Overall Teacher's Training	2.65	.280	R

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Legend: NR=Not Ready AR= Almost Ready R= Ready SSN=Students with Special Needs; VI=Verbal Interpretation N=19 FR= Fully Ready

Table 11 shows the level of readiness of Junior High School Teachers in adopting special education program. Overall mean assessment for classroom instruction (2.83), classroom materials (2.67), teachers training (2.83) indicate that (2.83) they are ready. But their textbooks are not suited to all learners including students with special needs (1.95). Their educational background is also low with the mean of 2.37 as well as their trainings for them to become equipped to teach these students (2.21).

Table 10.

Researchers' Evaluation in terms of Teaching in Faith-Based Community Senior High School

	Mean	SD	VI
Classroom Instruction			
I find it difficult to modify instructional strategies for SSN.	2.69	.751	R
I feel comfortable in teaching student with special needs	2.31	.480	AR
I have difficulty in modifying teaching-learning methods for SSN.	2.69	.480	R
I accept the responsibility teaching SSN without heavy burden.	2.62	.768	R
I can change the pace of my instruction based on individual needs.	2.92	.494	R
Overall Classroom Instruction	2.65	.463	R
<u>Classroom Materials</u>			
It is hard for me to use variety of materials in teaching.	3.00	.707	R
I have textbook in class that are suitable to the level of SSN.	2.54	.776	R
I consider student's capacities in preparing my teaching materials.	3.00	.707	R
I am not sure about the effectiveness of my teaching materials for SSN	2.77	.599	R
I find it difficult to adapt materials for meeting the needs of SSN.	2.62	.506	R
Overall Classroom Material	2.79	.451	R
Teacher's Training			
My educ. Background prepared me to effectively teach SSN.	2.31	.630	AR
I received training for co-teaching strategies.	2.38	.650	AR
I can teach SSN.	2.46	.519	AR
I have been trained to meet the needs of SSN.	1.85	.555	AR
In-service training in teaching SSN should be required for teachers.	3.31	.630	FR
I need more training in teaching SSN.	3.38	.506	FR
I do not have idea to handle SSN.	2.46	.660	AR
Overall Teacher's Training	2.59	.297	R

Legend: NR=Not Ready AR= Almost Ready R= Ready FR= Fully Ready SSN=Students with Special Needs; VI=Verbal Interpretation N=13

Table 12 shows that teachers are ready when it comes to overall results of classroom instruction (2.65), classroom materials (2. 79) and teacher's training (2.59). However, these teachers are not really comfortable teaching students with special needs with the mean of 2.31. They also admitted that their

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educational background is not really aligned to teach students with special needs (2.31). The trainings of the teachers are not enough with the means of (2.31, 2.38, 1.85). Most of them disagreed that they can teach students with special needs (2.46) and their idea on how to handle students with special needs is very low with the mean of 2.46.

Table 11.

Researchers' Evaluation in terms of Teaching in Faith-Based Community College

	Mean	SD	VI
Classroom Instruction			
I find it difficult to modify instructional strategies for SSN.	2.73	1.017	R
I feel comfortable in teaching student with special needs	2.78	.672	R
I have difficulty in modifying teaching-learning methods for SSN.	2.59	.864	R
I accept the responsibility teaching SSN without heavy burden.	2.84	.800	R
I can change the pace of my instruction based on individual needs.	3.03	.645	R
Overall Classroom Instruction	2.65	.463	R
<u>Classroom Materials</u>			
It is hard for me to use variety of materials in teaching.	3.00	.754	R
I have textbook in class that are suitable to the level of SSN.	2.49	.932	AR
I consider student's capacities in preparing my teaching materials.	3.41	.551	FR
I am not sure about the effectiveness of my teaching materials for SSN	2.49	.731	AR
I find it difficult to adapt materials for meeting the needs of SSN.	2.78	.787	R
Overall Classroom Material	2.83	.496	R
Teacher's Training			
My educ. Background prepared me to effectively teach SSN.	2.43	.959	AR
I received training for co-teaching strategies.	2.43	.835	AR
I can teach SSN.	2.73	.769	R
I have been trained to meet the needs of SSN.	1.86	.751	AR
In-service training in teaching SSN should be required for teachers.	3.35	.676	FR
I need more training in teaching SSN.	3.49	.607	FR
I do not have idea to handle SSN.	2.49	.961	AR
Overall Teacher's Training	2.68	.488	R

Legend: NR=Not Ready AR= Almost Ready R= Ready FR= Fully Ready SSN=Students with Special Needs; VI=Verbal Interpretation N=37

Table 13, presents the readiness of FBC in adopting Special Education program in terms of Teaching in College Level. Based on the table above, it shows that in terms of the overall classroom instruction (2.65), classroom materials (2.83) and teacher's training (2.68) the community is ready. However, in the findings, in terms of textbooks related to SPED (2.49), teaching materials used by the teachers (2.49), educational background (2.43), trainings for co-teaching (2.43), trainings for teaching Special Education students (1.86), and ideas about handling students with Special needs (2.49) the community needs room for improvement for it is almost ready.

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Table 11.

Researchers 'Evaluation in terms of Cost o	or Funding in H	Faith-Based Community	y
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	Funding	%
1	Special Education teachers.	50
2	Ramps and railings	100
3	Awareness trainings to promote positive attitudes for SSN.	50
4	Provide teachers training with methodology and techniques for teaching SSN.	100
5	Budget allocation for programs related to Special Education.	50
6	Budget for separate rooms for people with cognitive special needs.	50
7	Budget for building for people with special needs.	50
8	Funds for Individualized Education Program for SSN.	50

SSN= Students with Special Needs.

N =2

Table 14 shows the readiness of FBC in terms of funding. According to the result, they both agree that in terms of allocation of budget for ramps and railings and for the provision of training for teachers, the community is ready to provide (both 100%) the budget. Contrasting ideas occur, however, in terms of budget for new special education teachers, training for community awareness, program related to special education, new rooms, buildings, and individualized educational program for students with special needs (all 50%).

Challenges that might be faced on Adopting Special Education Program

Various themes emerged during the qualitative data analysis. Thus, the researchers decided to merge the themes based on the research questions. The information from the participants was thoroughly analyzed in order to answer the second research question; "What are the challenges that might be faced by the following on adopting special education program:

- A. Administrators
- B. Teachers
- C. Finance personnel

One of the major challenges that the school is facing today is implementing an effective special education program (Shani & Hebel, 2016). The following challenges that appears from the answer of the participants are: lack of qualified teachers, community awareness, scarcity of training, classroom management, administrative support, lack of facilities and lack of curriculum.

Lack of qualified teachers. According to Holmberg and Jeyaprathaban (2016) "Students with special needs require additional support from general teachers than other students to attain mastery in learning. However, general teachers alone are not enough to meet the goal of this program." Administrator Innovative claimed that *"I've been here for 3 years that's the concern of teachers complaining everywhere and there, the complains are left and right of the teachers... they have difficulty handling the SPED (student with special needs) ..."*. Teacher Enthusiastic affirmed that statement by saying, *"most of our teachers here are elementary...and...elementary specialist, and early childhood specialist, but none among us...is a special education major"*.

Community awareness. The Universal Declaration of Human Rights (UDHR) Article 2, declares that," Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, color, sex, language, religion, political or other opinion, national or social origin, property, birth or other status", including students with special needs. However, in the study of Sharma (2015), she found out that many people with disability are being destitute, disregarded, and discriminated to

participate in any activity of the community where they belong, because of lack of knowledge of the society especially the parents (UNICEF, 2013). Admin Proactive said that: They are not aware that hmmm... there is that... the DepEd, the government is now promoting inclusion in the classroom.

The lack of community awareness is also felt by the teachers. In fact, Teacher Enthusiastic said, "awareness and the education of the community which our school is lacking now...community awareness, this what we don't have." Teacher Creative also added, "Because, we are expected to work hand-in-hand, when he goes out, the guard should know how to handle this kind of pupil, not only the teacher, when the child goes out, even the canteen manager must know how to handle...."

Scarcity of training. Researches revealed that many teachers have negative attitudes towards students with special needs due to scarcity of training learning (De Simone, Maldonado, & Rodriguez, 2013). Teacher Enthusiastic commented that teachers in FBC are very effective but they cry for training when it comes to handling students with special needs. Maiwa and Ngeno (2017) found out that teachers in general are not capable to teach students with special needs because they do not have certain trainings on handling these students. Teacher Energetic admitted that when she said "we were not trained for that specific kind of service".

Classroom management. Polirstok (2015) emphasized that "The common denominator that is most closely linked with the effective teaching beyond academic content preparation is strong classroom management" (p. 927). Teacher supportive mentioned that she is having a hard time with classroom management when she focuses on students with special needs to the expense of neglect for other students, and Teacher Creative added that: "Actually, where the child is seated...what kind of environment...that's a need....because mostly in special case... the SPED those students...they want uhmm plain only because the arrangement of the classroom affects the development of uhmmm... or (the) as total being".

Administrative support. Without the assistance from administrators, success of the program for special education can hardly achieve. Holmberg and Jeyaprathaban (2016) argued that lack of administrative support is one of the biggest barriers in promoting inclusive education.

Administrator Optimistic stressed that without support from administrators, there is a tendency that they will not conduct trainings or seminars for upgrading teachers. Administrators will also not prioritize hiring special education teachers. Teacher Creative also said that "we need support from the administrators" and Teacher Energetic uttered, "We join but it's not that regularly done. It's seldom and it depends upon the approval of the administration, if we will join the seminar or not".

Lack of facilities. Udoba (2014) stated on his study that good facilities help the students with special needs improve their learning academically and can focus to finish the tasks that were given to them. Majority of the participants mentioned this as one of the challenges and said that this should be prioritized upon implementing special education program. Administrator Optimistic said that facility-wise, FBC is not yet ready and Teacher Creative pointed out the importance of having classrooms that are conducive for learning especially for children with special needs.

Lack of curriculum. Curriculum is the guide for any formal education (Namita & Perumalil, 2018) but Admin Innovative pointed the challenge when it comes to it. She questioned "the curriculum how will be integrated, how to do it?" and Teacher Enthusiastic admittedly said "Number one challenge that we have is the lack of curriculum or curriculum program fitted for the needs that we have here in the elementary".

Addressing the Challenges on Adopting Special Education Program

In the third research question, "How will these challenges be addressed?", the following themes that came out from the study are: Additional seminar or training, Individualized Education Program (IEP), provide facility, supportive administrators, spirit-filled personnel and allocate fund.

Additional seminars and trainings. In a research done by Hartley (2010), it was mentioned that there is a need for all teachers, not just Special Education Teachers, to have a "basic knowledge and understanding of SEN (Special Education needs)" to help them deal with Special Education students. In

fact, one of the most important and obligatory working conditions in a community with Special Education Program is having trainings for teachers to be much more equipped in the working environment (Kirillova & Faizrakhmanovaa, 2016).

It is noteworthy that the researchers found out almost all of the participants mentioned seminars or trainings as a solution to address the possible problems in adopting special education program. For example, teacher Enthusiastic said, *"Train your teachers..."* while Teacher Creative uttered, *"There is a need to level-up, to equip herself how she will handle this kind of students.."*, and all administrators interviewed agreed coincidentally that provisions of training and seminars will solve the problem.

IEP. An IEP or Individualized Educational Plan is a program developed for students identified with disabilities to receive modified instructions and services that they need (University of Washington, 2017). And in relation to IEP Administrator Innovative also suggested that "So we really need to produce a good program..... It should be behavior modification, curriculum modification for them... Ahhhh. And the approach to them is one on one...".

Provide Facility. Fareo and Ojo (2013) mentioned that facilities have great influence on students' academic achievement and poor facilities tend to result in poor academic outcome and Admin Innovative mentioned that "Number one is facility....", Administrator Optimistic also added, "make our own facilities, make our university a place where they can be welcomed and where they can also be part of us we should have the facility to be able to help them be trained to live on their own in a certain level. So hopefully we also have facility for them".

Supportive administrators. Students with special needs receive a better service in an inclusive setting if the school is supported by administrators (De Simone et al., 2013). Administrator Optimistic admitted that administrators are the decision makers. Teacher Energetic affirms that statement by saying, *"Administrators support is very important because they are really the one who approve and disapprove"*.

Administrator Innovative suggested that it easier to implement special education program if there will be a person in charge who can run the program. She explains, "If there are facility, there is a curriculum, the teachers that would be trained, maybe we'll be ready for that...but basically if there a person who is in charge to run the SPED program, then that would be easier".

Spirit-filled personnel. Ancient writer named Paul commandeth in the Holy Scripture for people to be filled with the Spirit (Ephesians 5:18) and John Piper (1981) said that for him being filled with the Spirit means "having great joy in life". Administrator Optimistic mentioned that the most important solution that she could think of was having spirit-filled personnel for she said:

"So the teacher should be spiritually fulfilled. That's just it. Right? Because whatever you do, even when you have the techniques, the facilities, you have everything, but if you do not have the love of God because love is the basis of all education." and coincidently, Teacher Creative mentioned a similar thing by stating that "Philosophy wise, the what the Lord wants right?... What did He say?... Invite even the poorest, the... invite everyone to come in..."

Allocate fund. Inclusive Education in Action (n.d) found out that financing is very important in applying special education program. It was clearly specified that budget is one of the major concerns in implementing special education program. Finance Personnel Trustworthy mentioned that, "I can see that the school can provide such needs financially. They will provide budget for that so that the program will turn into a reality." Teacher Enthusiastic added, "the school can provide budget for that" and Administrator Proactive suggested "Budget. That is very important, of course. That is needed in facilities and hiring also."

Summary

This study aimed to determine the level of readiness of Faith-Based Community on adopting special education program in terms of administration, facilities, teaching and cost or funding and to discover challenges that might be faced by the FBC administrators, teachers and finance personnel on adopting this program and the possible solutions to these challenges that came out from the study.

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In terms of Administration there is a high level of frequency who agreed that the school is ready to adopt special education teachers, participate in seminars related to SPED, and organize seminars to SPED (ranging from 70-85%). Low level of frequency (ranging from 15-40%) in creating special education programs, evaluations for SPED programs, and in providing minimal competency testing. When it comes to facilities, FBC is not ready to adopt Special Education program for out of 9 statements in the checklist, only 2 indicators are ready which are: the doorways and most waiting areas are accessible for people with disabilities. In terms of teaching – classroom instruction, classroom materials and teacher's training FBC is ready. In cost or funding, both agreed that FBC is ready in providing budget for ramps with railings and teachers training in handling students with special needs. Almost all participants agreed that the challenges that might be faced by the community towards adopting special education program would be the lack of qualified teachers and the lack of community awareness on dealing with sped. The rest of the challenges were scarcity of training, classroom management, administrative support, lack of facilities, and lack of curriculum. The solutions that they proposed to respond to the challenges from the greatest number of answers from the participants to the least were more seminar or training, Individualized Education Program (IEP), provide facility, supportive administrators, spirit-filled personnel and allocate fund.

Conclusion

This study focused on finding out the readiness of FBC in Adopting Special Education program. Due to the growing number of children with special needs, laws were mandated for schools to have special education programs. In the Philippines, there are no special education programs yet in Adventist schools. For that reason, it is a need to find out if FBC is ready to adopt the program. The study dealt with four categories; administration, facilities, teaching, and cost or funding – if none among the four is ready it will be considered not ready; if at least one is ready then it is almost ready; if 2 categories are ready then it is ready; and if there are 3 or 4 categories that are ready then it is fully ready. Furthermore, in the findings of the study, FBC is ready to adopt the program but there are mentioned challenges and proposed solutions to address those challenges such as more improvement in the facilities, enhancement of training for teachers, allocation of funds for hiring special education teachers and more community awareness about the importance of special education program.

Recommendations

Seminars and trainings are recommended for more awareness regarding the importance of special education programs and to come up with appropriate assessment tools to all students. Teachers may participate more in seminars and trainings with regards on handling students with special needs. Moreover, the institution may also allocate more funds in providing specialized facilities, budget for SPED awareness trainings and hiring special education teachers. The researchers suggest to use this study as a platform for more researches either in Faith-Based Community or in other places with wider scope and higher number of respondents and participants or a comparative study in best practices in special education program. In addition, include the parents in the respondents and participants since they play a big role in decision making.

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Performance and Level of Happiness of Teachers in Elementary

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Abstract

This study determined the level of happiness and teaching performance of mono-grade and multi-grade teachers. Furthermore, the researchers explored the relationship between happiness and performance among teachers. The subjects of the study consisted of 171 teachers across 8 towns in the province of Antique, Philippines and were selected using the multistage random sampling. The instrument used in data collection was the personal profiles of the teachers, the Happiness Index questionnaire, and the Performance Appraisal Standard for Teachers (PAST). Results showed that in the level of happiness, teachers teaching in mono-grade had higher happiness level than multi-grade teachers. While mono-grade teachers had higher teaching performance than multi-grade teachers but when categorized by age, older teachers in multi-grade had a higher teaching performance. Further result of the study showed that performance was not significantly correlated with happiness (rho = .029, p =.704). In the sources of happiness only family (rho = .158, p = .040) and friends (rho = .166, p = .030) were found to have significant correlation. There is a significant difference in the teaching performances of teachers teaching when classified by type of classes (U = 994.000, p = .038) using Mann-Whitney U test.

Keywords: teachers' happiness, mono-grade, multi-grade, performance

Well-known reviews of the literatures several years past, seemed to establish firmly that worker happiness did not necessarily lead to productivity (e.g., Brayfield & Crockett, 1955; Vroom, 1964). On the other hand studies on, affective events theory (Weis & Cropanzano, 1996) or the affect infusion model (Forgas, 1995) has predicted and shown that people's affective states can directly impact their attitudes and behaviors, including performance. Further, according to the broaden-and-build theory, positive affect broadens people's thoughts and actions (Fredrickson, 1998, 2001), whereas negative affect narrows people's thoughts and actions. Positive affect signals safety and allows exploration (Fiedler, 1988). Research has indeed shown that individuals' experience of

positive affect is associated with more creativity (e.g., Amabile, Barsade, Mueller, & Staw, 2005; Ashby, Isen, & Turken, 1999; Isen, 2004; for meta-analyses see Baas, De Dreu, & Nijstad, 2008; Davis, 2009), primarily positive affect associated with a high activation level (De Dreu et al., 2008). George and Brief (1996) used long-established models of motivation to hypothesize how positive affect could facilitate employee achievement or performance. Using expectancy theory (e.g., Vroom, 1964), researchers argue that positive affect might enhance both the expectancy that one's effort leads to performance and the belief that performance leads to positive outcomes. The basis of these predictions comes from research showing that positive affect can lead to greater self- efficacy (Bower & Moylan, 1990) and optimistic biases in the estimation of future events (Seligman, 1991; Wright & Bower, 1992).

Multi-grade schools, according to Mulryan-Kyne (2007) and Juvane (2005), comprise more than one grade in one classroom where there is one teacher who is responsible for teaching learners who are in different grades. Little (2001) states that in all countries, multi-grade teaching is found mainly in rural areas and arises largely through necessity. The children, teachers, parents, and schools in communities where

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multi-grade teaching is found are more disadvantaged socially, economically, and educationally on average that in communities in urban areas. Although researchers on multi-grade teaching are unanimous on at least one point, for children to learn effectively in a multi-grade classroom, the teacher should have a positive attitude (Little, 1995).

The objective of this study was to determine the level of happiness and performance of elementary teachers and further analyze it into two groups: mono and multi grade teacher.

Methodology

The population of this descriptive survey research was all elementary mono-grade and multigrade teachers across 8 towns in the province of Antique, Philippines. The multistage random sampling method was used and to determine the sampling size (171). The data was collected using the Philippine Happiness Index Questionnaire (Virola et al., 2013) with 17 items, and each item represents a source or domain of happiness. Each item contains 3 columns. The first column determined the source of happiness. The second column weighed the importance of happiness from 1 which is least important to 10 for most important. The third column contained five options, constructed to reflect incremental steps defined as: *very unhappy, unhappy, neutral, happy, very happy.* The data regarding their performance was taken from their Performance Appraisal System for Teachers (PAST), a form from the Education Department of the Philippines used by the public schools in assessing the performance of the teachers. The PAST is divided into three areas: Instructional Competence (70%), Professional and Personal Characteristics (20%) and Punctuality and Attendance (10%) in which the head of the school is the one who rate the teachers.

Results and Discussion

The result of the study showed that when grouped by gender, female has a higher performance compared to male as shown on Table 1 but they have the same level of happiness. It is interesting to note in the result, that happiness decreases as the age increases, on the other hand, performance increases with a small decrease in the advanced age. When grouped by civil status, married teachers (m = 83.85, SD = 8.53) has the lowest performance compared to single (m = 85.54, SD = 6.51) and other status (m = 85.78, SD = 3.90), while on the level of happiness, other status has the lowest. The findings suggest that when group by civil status, single teachers are both happier and performing well compared to married teachers.

Table 1.

	Perfor	mance		Happines		
Category	п	т	SD	n	т	SD
Gender						
Male	12	84.10	6.26	12	63.38	7.11
Female	158	85.43	8.22	158	63.9	7.27
Age						
20-25 yrs	54	83.88	6.20	54	65.68	7.79
36-50 yrs	90	84.43	9.36	90	63.36	6.42
51+ yrs	26	84.02	6.99	26	62.37	8.22
Civil Status						
Single	29	85.54	6.51	29	66.10	6.77
Married	135	83.85	8.53	135	63.87	7.02
Others	5	85.78	3.90	5	53.80	8.84

Happiness Level in Terms of Gender, Age, and Civil Status

erformance and Level of Happiness of Teachers in Elementary	
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When grouped by the number of learners, teachers of the big class (students 41 and above) has the highest performance but sad to note that they are the most unhappy among the groups (m = 63.13, SD = (6.20), while the small class is the happiest in the group (m = 64.38, SD = 63.13). Further, when grouped by educational attainment, the higher the attainment in education, the lower the performance. Based on Table 2, there is a constant decline from bachelors (m = 84.30, SD = 10.65) to Masters (m = 82.95, SD = 4.11) except for a lone doctorate holder. The teachers who perform best when grouped by length in service are those who stayed the longest (31 years and beyond) while the happiest in the same category are the new teachers.

Catagory	Perfo	Performance		Happines		
Category	n	т	SD	п	m	SD
No. of Learners						
20 and <	21	84.98	4.90	21	64.38	7.32
21 - 40	112	83.55	8.67	112	64.13	7.58
41+	37	85.76	7.63	37	63.13	6.20
Education						
Bachelor's	60	84.30	10.65	660	63.91	8.14
MA units	105	84.08	6.37	105	63.95	6.90
Master's	4	82.95	4.11	4	63.50	1.00
hD	1	94.80		1	66.00	
Service Length						
10 yrs & <	79	84.66	9.59	79	65.43	6.95
1 - 20 yrs	54	83.42	6.54	54	62.63	7.90
1 – 30 yrs	31	83.72	6.88	31	62.22	6.41
1 yrs &+	6	87.53	4.01	6	65.16	5.81

Table 2.

of Service

Mono-grade and Multi-grade

The results of the study showed that when broken down into two distinct categories (mono and multi), mono-grade teachers had higher teaching performance (m = 84.68, SD = 8.27) than multi-grade teachers (m = 80.61, SD = 5.53) as shown in Tables 3 and 4. When grouped by gender, either male or female mono-grade teachers have a higher teaching performance compared to multi-grade teachers. Further, regardless of the class size, teachers teaching in mono-grade classes had higher teaching performance than those teaching in multi-grade classes. The biggest difference was exhibited by mono-grade teachers with 21-40 students (m = 84.01, SD = 8.87) against those teaching multi-grade classes with 21-40 learners (m = 79.03, SD = 5.74).

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Table 3.	
Teaching Performance	in Mono-Grade

Cotogowy	Mono-grade			
Category	n	т	SD	
Whole	148	84.68	8.27	
Gender				
Male	11	85.43	6.57	
Female	137	84.62	8.40	
Education				
Bachelor's	60	84.30	10.65	
MA units	105	84.08	6.37	
Master's	4	82.95	4.11	
Service Length				
10 yrs or <	65	85.66	9.96	
11-20 yrs	51	83.78	6.53	
21 – 30 yrs	26	83.34	7.17	
31 yrs & +	6	87.75	4.02	

Table 4.

Teaching Performance in Multi-Grade

Catagowy	Multi-Grade			
category n		т	SD	
Whole	20	80.61	5.53	
Gender				
Male	1	85.50	0.00	
Female	18	80.34	5.56	
No. of Learners				
20 or <	4	82.98	5.19	
21 - 40	12	79.03	5.74	
41 or >	3	83.77	3.55	
Length of Service				
10 yrs or <	13	79.82	6.22	
11 – 20 yrs	2	79.50	0.14	
21 – 30 yrs	4	83.75	3.48	
31 yrs & +	0	-	-	

Further results of the study showed that mono-grade teachers had higher happiness level (m = 3.77, SD = 0.70) than multi-grade teachers (m = 3.50, SD = 0.51) as shown in Tables 5 and 6. Further, regardless of the class size or gender, teachers teaching in mono-grade classes had higher happiness levels than those teaching in multi-grade classes.

Catagory	Μ	Mono-Grade			
Category	n	т	SD		
Whole	148	3.77	0.70		
Gender					
Male	11	3.91	0.54		
Female	137	3.76	0.71		
No. of Learners					
20 or <	17	4.0	0.35		
21 - 40	98	3.71	0.72		
41 or >	33	3.82	0.77		
Length of Service					
10 yrs or <	65	3.75	0.75		
11 – 20 yrs	51	3.84	0.61		
21 – 30 yrs	26	3.77	0.59		
31 yrs & +	6	3.33	1.21		

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Table 6.

Table 5.

Level of Happiness of Multi-Grade Teachers

Catagory	Multi-Grade			
Category	n	т	SD	
Whole	20	3.50	0.51	
Gender				
Male	2	3.50	0.71	
Female	18	3.50	0.51	
No. of Learners				
20 or <	4	3.75	0.50	
21 - 40	12	3.33	0.49	
41 or >	3	83.77	3.55	
Length of Service				
10 yrs or <	13	79.82	6.22	
11 – 20 yrs	2	79.50	0.14	
21 – 30 yrs	4	83.75	3.48	
31 yrs & +	0	-	-	

Using Mann-Whitney U test, it was found that there was a significant difference in the teaching performances of teachers teaching when classified by type of classes (U = 994.000, p = .038) as shown in Table 7. Teachers teaching in mono-grade classes had significantly better teaching performance than those teaching in multi-grade classes.

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Table 7.	a to Togohing I	Doutouru au oo			
Variable	<u>n</u>	Mean Rank	U	p-value	Significance
Type of Class					
Mono-grade	148	86.78			
Multi-grade	19	62.32	994.000	.038	Significant

Using Mann-Whitney U test, it was found that there was significant difference in the happiness level of teachers teaching when classified by type of classes (U = 1080.000, p = .020) as shown in Table 8. Teachers teaching in mono-grade classes had significantly higher happiness level than those teaching in multi-grade classes.

Table 8.

Significance of Type of Class to the Level of Happiness

Variable	n	Mean Rank	U	p-value	Significance
Type of Class					
Mono-grade	148	86720			
Multi-grade	20	65.40	1010.000	.020	Significant

Spearman's rho was used to test the significance of correlation of performance with index of happiness. Results showed that performance is not significantly correlated with happiness (rho = .029, p = .704). However, when different sources of happiness were tested for correlation with performance, only family (rho = .158, p = .040) and friends (rho = .166, p = .030) were found to have significant correlation. When the scores of the source for happiness were weighted or multiplied by the importance the respondents attached to those sources, only the work was found to be correlated with performance (rho = .170, p = .026).

Table 9.

Correlation of Performance with Index of Happiness

Variables	Spearman's Rho	<i>p</i> -value	Correlation
Happiness	0.029	.704	Not Significant
Source of Happiness			
Family (not weighted with level of importance)	0.158	0.040	Significant, very weak, positive
Friends (not weighted with level of importance	0.166	0.030	Significant, very weak, positive
Work (weighted with level of importance	0.170	0.026	Significant, very weak, positive

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Performance and Level of Happiness of Teachers in Elementary

Conclusions and Recommendations

The study aimed to determine the level of happiness and teaching performance in the mono and multi grade schools of the public elementary school teachers. The study suggests that single teachers are the most happy and are performing well in the group, while teachers are becoming unhappy as they grow older. Interesting in the study is that teachers of a big class number have the best performance but the most unhappy in the group. Further results showed that acquiring much education does not equate to good performance.

Further study is needed to investigate whether the same result can be obtained if private schools are included. Another possible research area is the determination for the high school and the elementary or the performance and level of happiness between rural and urban teachers.

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Social Support, School Related Behaviors, and Mathematics Academic Performance of STEM Students

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Abstract

n the present education system, social support and school related behaviors are given less attention as contributing factors to students' performance in mathematics. The study aimed to determine the extent/level of students' mathematics academic performance, social support from family, teachers, and friends/peers, and school related behaviors in terms of mathematics attitude and absenteeism; interlinking relationships; and the significant predictors of mathematics academic performance. Two surveys were administered to a group of 74 STEM students enrolled at Far Eastern College Silang, Inc. in S.Y. 2016 -2017. Through descriptive correlational method, the study revealed that the respondents have very satisfactory mathematics academic performance; have high levels of social support and favorable attitude towards mathematics; and have 0 to 2 absences per semester. Social support does not affect the respondents' school related behaviors and mathematics academic performance. However, school related behaviors affect mathematics academic performance since higher positive mathematics attitude means higher mathematics performance while higher absenteeism indicates lower mathematics performance. The model predicting mathematics academic performance based on absenteeism is derived. Since the study was focused on STEM, the same research can be conducted to Accountancy and Business Management, and Humanities and Social Sciences to compare the results among the three strands.

Keywords: social support, Mathematics academic performance, Mathematics Attitude, Absenteeism, School Related Behaviors

Under the new Philippine education system known as the K-12, the Science, Technology, Engineering and Mathematics (STEM) strand has basic calculus during the second semester of the eleventh grade. The subject is comprised of differential and integral calculus. At the end of the semester, each student will be given a final grade which is the academic performance in the subject.

For educators, academic performance in mathematics does not merely indicate a student's level of mathematics learning and intelligence. The social support from teacher, parents, and peers could play an important role on how a student could academically perform in school.

Weibell (2011) cited that according to Thorndike, learning is the formation of connection of an act with a situation and a resultant pleasure. Thorndike's Connectionism: Law of Readiness, Exercise, and Effect explains that when the response is satisfactory, the strength of the connection increases, and if the response is followed by an annoying reaction from others, the strength of the connection weakens. This means that one factor that affects the learners' mathematics academic performance is the reaction and support they get from both the teacher and parents.

According to Nevid (2015), Pavlov's classical conditioning's stimulus generalization explains why a man's conditioned fear or phobia is experienced towards related stimuli. In school, a learner who comes to class for the first time and terrified with the teacher might transfer the fear to other teachers, both present and future ones. According to one of the features of this theory, the extinction, learners may develop fear of

taking a test if they had the experience of being scolded by the teacher or parent for getting a failing mark. Such fear is a learned behavior and can be gradually extinguished and eventually removed if the learners get passing mark and are praised by others.

Farrell (2014) cited that Bandura's Observable Learning and Modeling Theory describes modeling as learning through observing and imaginative experiencing based on what others feel or do. It stresses that the aggressive and passive behaviors of the student could be learned from adults. A student could have passive behaviors if the teacher is not confident in delivering the lesson to class, and likewise, if a parent demonstrates a negative attitude towards the subject.

Based on the study of de la Iglesia, Stover and Fernández Liporace (2014), females with better academic achievement have higher perception of social support. Hopson, Schiller, and Lawson (2014) revealed that students get better grades and behave better when there are more supportive relationships and social standards that promote safe and prosocial behavior.

The study of McInerney, Dowson, and Yeung (2012) revealed that the positive self-expectancy and support from teachers have negative effects on students' absence. Among self-expectancy, parent, teacher and peer supports, it was concluded that teacher support mostly influences the learner's self-esteem, interest, and academic performance. Based on the study of Gonida and Cortina (2014), among the different types of homework parental involvement, parental autonomy support greatly affects a child's academic achievement.

Belbase (2013) confirmed that the studies of Ma and Kishor (1997) and Lakoff and Nunez (2000) showed a negative relationship between student's achievement and the factors such as mathematics anxieties, attitudes, and images. On the other hand, these factors had a positive relationship among one another.

According to Mata, Monteiro, and Peixoto (2012), achievement is related to self-belief in competence which is related to attitudes towards mathematics. The more students succeed in a math task, the more self-competence they have which promotes a more positive attitude.

Based on the study conducted by Asante (2012), the learning environment, teachers' beliefs, attitudes, and teaching styles, and parents' attitudes affect students' attitudes towards mathematics. In addition to teachers' math attitude, Marchis (2011) mentioned that the amount of teachers' confidence and support to students and students' idea of the uses of mathematics in real life influence the learners' math attitude. Yasar (2016) identified teacher's gender, mother's profession and father's educational level account for student's mathematics attitude.

According to Ifamuyiwa and Akinsola (2008), mathematics teachers should let the students practice self and cooperative learning in classes to improve students' attitude towards mathematics. Jennison and Beswick (2010) stated that hands-on activities and group work will improve students' understanding and will enable them to develop positive attitudes to learning mathematics.

Although absenteeism has been a problem among high school students, the independent studies of Folds and Tanner (2014) and Parke and Kanyongo (2012) revealed that student absenteeism and mathematics achievement has a negative relationship. Johnke (2013) stated that there was a significant but moderate correlation between student attendance and achievement in mathematics, and no difference in the relationship between student attendance and the criterion variable between females and males. In the study conducted by Meulenbroek and van den Bogaard (2013), the students who attended more than 75% of classes had higher passing rates than those who attended fewer classes.

Since the researcher would like to know if social support is related to school related behaviors and if each of the said variables affect the academic performance in mathematics of Grade 11 STEM students at FEU Cavite, the researcher would like to present a clear relationship among the variables to show if there are existing mathematics problems among students in which educators are unaware of.

Objectives of the Study

Specifically, the study aimed to determine the extent/level of students' (a) mathematics academic performance, (b) social support from family, teachers and friends/peers, and (c) school related behaviors

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such as mathematics attitude and absenteeism; to determine the relationship between (a) social support and school related behaviors, (b) school related behaviors and mathematics academic performance, and (c) social support and mathematics academic performance; and lastly, to determine the significant predictors of mathematics academic performance.

Methodology

Research Design

The descriptive correlational method was used in the study. The information was gathered through surveys without making any changes through controlling or manipulating the variables of the study. The levels of the variates and criterion; and the corresponding relationship among one another were described to get a picture of the association of social support, students' behaviors such as mathematics attitude and absenteeism, and mathematics academic performance.

Respondents of the Study

The respondents of the study were composed of students from two sections (STEM 1 and STEM 2) at Far Eastern College – Silang, Inc. (FEU Cavite) during the second semester S.Y. 2016 – 2017. Since everyone was considered as a respondent, then sampling didn't take place. There were 35 STEM 1 and 39 STEM 2 students.

Data Gathering Instruments

The Social Support Questionnaire developed by Mr. Even D. Villar of Adventist University of the Philippines, Mathematics Attitude Rating Scale by the Mathematics and Statistics Department of De La Salle University – Dasmariñas, and students' attendance and academic records in basic calculus during the second semester S.Y. 2016 – 2017 were used in the study.

Data Gathering Procedure

The researcher wrote letters of request addressed to the Director of FEU Cavite Basic Education Department to seek consent on conducting the social support and mathematics attitude surveys among the STEM students, and to use the basic calculus attendance records and final grades of the respondents.

Since the researcher was the one who handled the STEM students in basic calculus, their respective adviser was asked to administer the surveys. Before the start of the survey, the adviser gave the directions and explained everything so that it would be clear to the respondents. The respondents were given 20 - 30 minutes to answer both surveys. The data were tabulated afterwards.

Results and Discussion

Level of Mathematics Academic Performance

The results showed that 27 of the 74 students or 36.49% have very satisfactory performance while 20 or 27.03% have satisfactory performance. In addition, 15 or 20.27%, 11 or 14.86%, and 1 or 1.35% of the students have fairly satisfactory, outstanding, and did not meet the expectations mathematics academic performance, respectively.

It was revealed that majority of the eleventh grade STEM students have very satisfactory mathematics academic performance. This affirmed the study of Adjabui, Churcher, and Asieda-Owuba (2015) that senior high school students do well in mathematics.

Level of Family Support

It was indicated in the results that parents always pray for the students as shown by the mean of 4.76 and always believe in them (4.58). Meanwhile, the parents or guardians of the students often provide a place for study at home (4.41), appreciate what the students do in school (4.09), give reminders to study at home (4.08) and give encouragement when low grades were obtained by the students (3.88).

The overall average of 4.14 revealed a high level of family support to the Grade 11 STEM students. This affirmed the study of Bashir and Bashir (2016) that family support and encouragement have impact on the educational attainment and success of the students.

Level of Teacher Support

It was found that the teachers often care about how the students do in school (4.30), believe in them (4.29), are patient in dealing with the students (4.26), and give reminders to do homework and review for an upcoming quiz (4.21).

The overall average of 4.22 indicated a high level of teacher support to the Grade 11 STEM students. This affirmed the study of Kipkemboi and Korir (2014) that students have high level of teacher support at school.

Level of Friend/Peer Support

It was discovered that friends and peers of the students often make plans in doing a project (4.25), help each other in learning (4.24), help each other when needed (4.24), cooperate in making group assignments (4.23), and often learn with them (4.23).

The overall average of 4.23 indicated a high level of friend/peer support to the Grade 11 STEM students. This result agreed with the study of Kipkemboi and Korir (2014) that students have high level of peer support at school.

Level of Mathematics Attitude

The result revealed that the Grade 11 students highly agreed that mathematics is challenging (4.51). Also, the students agreed that mathematics develops one's understanding and logical thinking (4.30), people who do well in mathematics are not weird (4.18), a good mathematics training is a big advantage in entering any line of work (4.05), life cannot go on without mathematics (4.05), and students need to seek help whenever there are difficulties in mathematics subject (4.01). The students also agreed that mathematics is not irrelevant (4.00), not boring and dull (4.00), mathematics should not be deleted from the course curriculum (3.99), mathematics makes one logical (3.89) and systematic (3.84). More so, the students neither agreed nor disagreed of becoming patient and persevering in mathematics courses (3.45), to have the willingness to share insights in mathematics problem (3.45), of not being afraid to take a mathematics course (3.42), to not hesitate to enroll in a course with many mathematics requirements (3.32), and not helpless whenever mathematics problem is solved (3.31). However, the students disagreed with not needing help from classmates for solutions in mathematics subject (2.12), and mathematics is just like playing a game (2.27). The overall average of 3.50 indicated that the eleventh grade STEM students have high level of favorable mathematics attitude. This result contradicted the study of Yang (2013) that senior high school students do not have very positive attitude towards mathematics.

Level of Absenteeism

It was discovered that 59 of the 74 students or 79.73% have 0 to 2 absences while 11 or 14.86% have 3 to 5 absences. In addition, 3 or 4.05% and 1 or 1.35% of the students have 6 to 9 and 10 to 13 absences, respectively. More so, no student has more than 13 absences. The results revealed that majority of the eleventh grade STEM students have 0 to 2 absences.

Relationship Between Social Support and School Related Behaviors

There are no significant relationships between social support from family, teachers and friends/ peers, and school related behavior in terms of mathematics attitude since the Pearson's correlation coefficients of -0.015, 0.099 and -0.041 with the coefficients of determination of 0.000, 0.010, and 0.002, respectively, have p-values greater than 0.05. It was also indicated that there are no significant relationships between social support from family, teachers and friends/peers, and school related behavior in terms of University Research Office

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absenteeism since the Pearson's correlation coefficients of -0.147, -0.144 and -0.148 with the coefficients of determination of 0.022, 0.021 and 0.022, respectively, have p-values greater than 0.05. The null hypothesis of no significant relationship is accepted.

Furthermore, these results revealed that family's, teacher's and friends/peer's support do not affect the school related behaviors of the eleventh grade STEM students. These results contradict the studies of Barth, Guadagno, McCallum, Rice, and Smith (2013) that greater social support from parents, teachers, and peers indicates more positive attitudes towards mathematics and Gupta and Lata (2014) that the lack of social support causes student absenteeism.

Relationship of School Related Behaviors with Mathematics Academic Performance

It was shown that there are significant relationships between school-related behaviors in terms of mathematics attitude and absenteeism with the mathematics academic performance of the students, since the Pearson's correlation coefficient of 0.417 and -0.590 with the coefficients of determination of 0.174 and 0.348, respectively, have p-values less than 0.05. The null hypothesis of no significant relationship is rejected.

Thus, higher positive mathematics attitude would mean higher mathematics academic performance while higher absenteeism indicates lower mathematics performance of the eleventh grade STEM students. This affirms the study of Li (2012) that attitude is moderately and positively associated with academic performance.

Relationship Between Social Support and Mathematics Academic Performance

There are no significant relationships between mathematics academic performance and the family, teacher and peer supports, since the Pearson's correlation coefficients of -0.001, 0.096 and -0.015 with the coefficients of determination of 0.000, 0.009 and 0.000, respectively, have p-values greater than 0.05. The null hypothesis of no significant relationship is accepted.

Furthermore, these results revealed that family, teacher, and friend supports do not influence the mathematics academic performance of the eleventh grade STEM students. This affirmed the study of Mackinnon (2011) that social support does not have an impact on students' academic performance. On the other hand, this contradicted the studies of Chowa, Masa and Tucker (2013) and Necsoi and Porumbu (2013) concluding that parental support is positively associated with academic performance; Comfort and Veronica (2016) and Leka (2015) stating that peer support has a significant relationship with academic performance.

Model Predicting Mathematics Attitude Based on Family Support

The ANOVA indicated that the equation model showing family support predicting mathematics attitude is not significant, since the F-value of 0.016 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: family support (-0.005) is not a significant predictor of mathematics attitude since the p-value for the mentioned variable is greater than 0.05. Furthermore, the model predicting the mathematics attitude based on family support cannot be derived. This contradicts the study of Ayub, Din, and Tarmizi (2016) that parent involvement predicts student engagement in mathematics class.

Model Predicting Mathematics Attitude Based on Teacher Support

The ANOVA indicated that the equation model showing teachers support predicting the mathematics attitude is not significant, since the F-value of 0.709 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: teacher support (0.029) is not a significant predictor of the mathematics attitude since the p-value for the mentioned variable is greater than 0.05. Moreover, the model predicting the mathematics attitude based on teacher support cannot be derived. This contradicted the study of Ogunkola and Wilkinson (2014) that support from teachers is a reason for student to show positive attitude towards mathematics.

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Model Predicting Mathematics Attitude Based on Friend/Peer Support

The ANOVA indicated that the equation model showing friend/peer support predicting the mathematics attitude is not significant, since the F-value of 0.122 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: friend/peer support (-0.014) is not a significant predictor of the mathematics attitude since the p-value for the mentioned variable is greater than 0.05. In addition, the model predicting the mathematics attitude based on friend/ peer support cannot be derived. This contradicted the study of Ayub et al. (2016) that peer support predicts student behavioral engagement in the classroom.

Model Predicting Absenteeism Based on Family Support

The ANOVA indicated that the equation model showing family support predicting absenteeism is not significant, since the F-value of 1.583 has a p-value greater than 0.05. The results also indicated that the coefficient (slope) of the independent variable: family support (-0.523) is not a significant predictor of absenteeism since the p-value for the mentioned variable is greater than 0.05. Also, the model predicting absenteeism based on family support cannot be derived. This contradicts the study of Ghazvini and Khajehpour (2011) that the researches indicating that parental involvement improves student's daily attendance.

Model Predicting Absenteeism Based on Teacher Support

The ANOVA indicated that the equation model showing teacher support predicting absenteeism is not significant, since the F-value of 1.520 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: teacher support (-0.439) is not a significant predictor of the absenteeism since the p-value for the mentioned variable is greater than 0.05. Furthermore, the model predicting absenteeism based on teacher support cannot be derived which contradicts the study of Gershenson (2016) stating that teachers have a permanent component on student's absence.

Model Predicting Absenteeism Based on Friend/Peer Support

The ANOVA indicated that the equation model showing friend/peer support predicting absenteeism is not significant, since the F-value of 1.617 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: friend/peer support (-0.533) is not a significant predictor of absenteeism since the p-value for the mentioned variable is greater than 0.05. Additionally, the model predicting absenteeism based on friend/peer support cannot be derived. This contradicts the study of Hartnett (2007) that peers increase student's school attendance.

Model Predicting Mathematics Academic Performance Based on Family Support

The ANOVA indicated that the equation model showing family support predicting the mathematics academic performance is not significant, since the F-value of 0.000 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: family support (-0.010) is not a significant predictor of the mathematics academic performance since the p-value for the mentioned variable is greater than 0.05.

Furthermore, the model predicting the mathematics academic performance based on family support cannot be derived. This contradicts the study of Ngirande and Mutodi (2014) that family background and support is a predictor of academic performance in mathematics.

Model Predicting Mathematics Academic Performance Based on Teacher Support

The ANOVA indicated that the equation model showing teacher support predicting the mathematics academic performance is not significant, since the F-value of 0.674 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: teacher support

(0.697) is not a significant predictor of the mathematics academic performance since the p-value for the mentioned variable is greater than 0.05.

Moreover, the model predicting the mathematics academic performance based on teacher support cannot be derived. However, this contradicts the studies of Kipkemboi and Korir (2014) that support from teachers has a positive effect on students' academic performance, and Ogunkola and Wilkinson (2014) that teacher support is the best predictor of mathematics academic achievement.

Model Predicting Mathematics Academic Performance Based on Friend/Peer Support

The ANOVA indicated that the equation model showing friend/peer support predicting the mathematics academic performance is not significant, since the F-value of 0.017 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: friend/ peer support (-0.132) is not a significant predictor of the mathematics academic performance since the p-value for the mentioned variable is greater than 0.05.

In addition, the model predicting the mathematics academic performance based on friend/peer support cannot be derived. However, this contradicts the study of Kipkemboi and Korir (2014) that support from friends/peers has a positive effect on students' academic performance.

Model Predicting Mathematics Academic Performance Based on Mathematics Attitude

The ANOVA indicated that the equation model showing mathematics attitude predicting the mathematics academic performance is not significant, since the F-value of 2.457 has a p-value greater than 0.05. In addition to this, the results indicated that the coefficient (slope) of the independent variable: attitude (-4.542) is not a significant predictor of the mathematics academic performance since the p-value for the mentioned variable is greater than 0.05.

Also, the model predicting the mathematics academic performance based on mathematics attitude cannot be derived. This contradicts the study of Ngirande and Mutodi (2014) that attitudes such as strengths and weaknesses, interest, myths, and beliefs in mathematics are predictors of academic performance in mathematics.

Model Predicting Mathematics Academic Performance Based on Absenteeism

The ANOVA indicated that the equation model showing absence predicting the mathematics academic performance is significant, since the F-value of 38.418 has a p-value less than 0.05. The results indicated that the coefficient (slope) of the independent variable: absences (-1.399) is a significant predictor of the mathematics academic performance since the p-value for the mentioned variable is less than 0.05. The equation model derived with R2 = 0.348 is:

Math performance = 85.86-1.40*absence

The model indicated that for each unit increase in the number of absence, the mathematics academic performance will decrease in the average by 1.40. Likewise, 34.80% of the variability in mathematics academic performance is accounted for by the number of absences of the student. This affirms the study Aden, Dahir and Yahye (2014) that attendance to class and academic performance have strong positive relationship.

Conclusions and Recommendations

The study revealed that majority of the eleventh grade STEM students at FEU Cavite have very satisfactory mathematics academic performance; have high levels of social supports from family, teachers, and friends/peers; have high level of favorable attitude towards Mathematics; and have 0 to 2 absences the entire semester.

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The social support from family, teachers, and friends/peers does not affect the school related behaviors and the mathematics academic performance of the eleventh grade STEM students. On the other hand, school related behaviors affect the mathematics academic performance of the students.

The models predicting the mathematics attitude, absenteeism, and mathematics academic performance based on supports from the family, teachers, and friends/peers; and mathematics academic performance based on mathematics attitude were not derived. On the other hand, since the model predicting the mathematics academic performance based on absenteeism was derived, it indicated that for each unit increase in the number of absence, the mathematics performance will decrease in the average by 1.40, and it means that 34.80% of the variability in mathematics performance is accounted for by the number of absences of the student.

Since social support from family, teachers and friends/peers do not affect academic performance in mathematics, STEM students must not take for granted their attendance in class to timely comply with course requirements and to be updated of mathematics classroom topics.

Teachers and school administrators must think of routines and school activities in order for students to constantly have positive attitude towards mathematics and to continually improve their learning experiences and academic performance.

Since the study was focused on Science, Technology, Engineering and Mathematics (STEM) students, the same research can be conducted to Accountancy and Business Management (ABM), and Humanities and Social Sciences (HUMMS) students to compare results among the three strands, and to determine the relationship of social support, school related behaviors and mathematics academic performance.

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Student Response to Use of Reading Assistant Software for English Language Learners in Thailand

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Abstract

The purpose of this research was to examine student's response to the use of Computer Aided Language Learning (CALL) system, Reading Assistant (RA). RA is a computerbased reading program with voice recognition, offering learners a placement test, and then providing access to a library of over 300 level appropriate book titles. Students first listen to the book being read, answer prompts and quiz questions, and then record their voice as they read the book aloud, before taking a quiz. In a "yes or no" survey, over 95% of participants (n = 205) stated that the use of RA improved their English proficiency in the skills of reading, listening, and speaking. Independent t-tests also demonstrated a significant difference in speaking proficiency among students who used Reading Assistant for a minimum of 90 minutes per week (n = 15) and those who read paper books using traditional classroom reading methods (n = 19). Two student focus groups (n = 8 and n = 9) concluded that students believe the use of RA improved English language proficiency more quickly than traditional classroom methods. In conclusion, training with Reading Assistant has shown to be an effective method to increase ESL students' English language proficiency, as well as a positive student experience.

Keywords: ESL, English language, reading, speaking, Computer-Aided Language Learning

Internationalization equals "Englishization" (Karakas, 2014). Countries in Southeast Asia such as Thailand have identified the importance of the English language. In fact, the Thai government has identified that learning English is a critical step to creating a successful society with workers that benefit their own nation and the world (Ourairat, 2011). Because of this desire to stay globally competitive, Thai schools now offer English language courses, and many new international schools, which typically teach in the English medium, have been established. Native English speakers from North America, Great Britain, and Australia are highly sought after to teach in both public and private schools. The lack of English proficiency has been identified as a problem in Thailand with citizens who cannot speak English well, along with "underqualified or inexperienced" teachers who are hesitant to model spoken English (Takahashi, 2012a).

Nowadays, the English language is often the business language of choice, and it is also widely used as such amongst those who have no common native language. Mark Warschauer, professor of education and informatics at the University of California, Irvine, told the New York Times that "English has become the second language of everyone" (Mydans, 2007). This is similar to the situation elsewhere. As an example, Turkish university students regard the use of English as the primary language in higher education as the sole means to internationalization (Karakas, 2014). Not surprisingly, there have been many English as Second Language (ELS) schools and international universities developed in Thailand in the last decade to foster the demand for learning English. The demand is high even among students themselves. At Asia-Pacific International University (AIU), ESL students are grouped into Levels 1, 2, 3, 4, and 5, levels equivalent to the Common European Framework of References for Languages (CEFR) levels pre-A1 to B2 (Council of Europe, 2018). A recent study on ESL motivation concluded that Thai students at AIU want to learn English for the

purposes of international travel, international employment, and future success (Kitjaroonchai, 2012). Comments that were made during the study included "I need to improve in the area of speaking" and "I can't respond to my teacher when she asks questions" (Kitjaroonchai & Kitjaroonchai, 2012). This shows that some students feel a personal need to improve their ESL speaking skills.

Normally, ESL areas of study are divided up into the following five skills: reading, writing, grammar, listening, and speaking. Textbooks from two major ESL publishers, Oxford University Press and Cambridge University Press, typically combine two skills into one course such as reading and writing, and listening and speaking (Richards, 2013; Sherman, 2011). In the past, extensive research has been done in the area of ESL reading. Agbatogun (2012), in a study on student response system technology in the classroom, stated that "the more children use a language in oral communication, the more confident they are to use the language" for communication with others. Additionally, self-correction and peer-correction encourages continued language use. Furthermore, Ann Hilferty explains her thoughts on the connection between reading and oral proficiency as a continuing spiral – as one increases, so does the other (Garner, 2000). She states (see below) that as people develop stronger reading skills, this further enables their development of more sophisticated speaking skills.

Phonemic awareness - noticing the individual sounds in words - seems to help with comprehension of the spoken language. Knowledge of spelling patterns seems to help improve pronunciation and listening. Print experience is related to knowledge of grammar and print experience also seems to help learners acquire spoken language forms, for example, function words, such as conjunctions, prepositions and articles, and derivational word endings, which are endings that form new words... research has shown that we don't speak the way we thought we did. Our model of speech mimicked our model of reading(17).

Studies showed that the printed language used in reading can help students create a visual-spatial model for speech and that the alphabetic symbols of words are captured in the memory (Olsen, Torrance, & Hildyard, 1985). In addition, print may help in the pronunciation of words that have ambiguous, nonstandard, not obvious, and/or overlapping spelling or sounds. If pronunciations are non-standard and if spelling helps to standardize pronunciations, print may provide help in saying these words (Olsen et al., 1985). Likewise, Powers (2010) also confirmed that English skills, including reading and speaking, are "complimentarily related".

While teaching methodology is very important to assist the students to develop these skills, teaching pedagogy is also an equally important style to guide the teaching method. Though it seems that the gradual shift from the model of traditional education to more of an experiential educational experience is upon us, teachers frequently continue to use a teacher-centered pedagogy. Language teachers often use "contact" assignments, where students are required to spend time with proficient speakers of the target language in order to gain exposure and achieve a task (Springer & Collins, 2008). However, the style of teaching is shifting gradually. The Thai Ministry of Education has recently promoted the idea of student-centered pedagogy, which also applies to the ESL classroom. Because students are often bombarded by their native language outside of the classroom, it is a challenge for ESL students to have the ability to apply what they have learned. Teachers must find a way to give students a student-centered ESL experience both inside (discrete language focus) and outside of the classroom—real world experience. Springer and Collins (2008) also pointed out that there is a need to give students more exposure to spoken English in order to develop oral proficiency. Both in class and out of class experiences are crucial to ESL success. These learning experiences will support the ESL student in language development focusing on students as the center of learning.

In 2017, there were more than 2 billion internet users in Asia. Specifically in Thailand, there are 33.4 million Internet users and 55.6 million mobile phone users (Internet World Stats, 2018). With the popularity of technology on the rise, it is not surprising that technology is used in the ESL classroom as well. Studies show that Computer Assisted Language Learning (CALL) is effective in providing interactive

learning, increasing student engagement, and making improvements in cognitive abilities of students (Al-Awidi, 2012). In fact, Wang (2005) stated that these learning environments are superior to all other learning environments. While many types of CALL systems exist, Reading Assistant (RA) is specifically designed to provide individualized education. RA "is the only reading program that listens to students as they read out loud, intervenes when students falter and automatically scores students' oral reading. No other program or e-book provides comparable real-time guidance and feedback" (Scientific Learning, 2018). Furthermore, RA fluently models the correct pronunciation, inflection, and prosody of the text. Students are provided with immediate comparisons of their own pronunciation and that of RA. By providing interactive, technology powered reading instruction, including speaking practice, students will be engaged, resulting in an increase in reading and other ESL skills.

Even though there is a great need for Thai students to develop English skills and there are many adequate Computer Assisted Language Learning programs available, students in ESL primary, secondary, and tertiary educational programs are often tested for English proficiency in the areas of reading, writing, grammar and listening. The lack of testing and proficiency in spoken English is a well-known phenomenon in Thailand (Chureson, 2014; Takahashi, 2012b). Takahashi (2012b) calls for more research to be done on the area of English instruction, including collaborations between national and international researchers in relevant fields in order to provide a sustainable English educational program. One study states that English language teachers must rethink their teaching style, specifically advancing to technological methods of ESL instruction (Agbatongun, 2012). Most importantly, there do not appear to be studies in Asia relating to reading and speaking English skills using CALL programs.

The preliminary study reported here links the concepts of ESL reading and speaking proficiency, education, and modern technology together searching for answers on how ESL teachers and students can use technology, specifically Reading Assistant, to increase ESL proficiency in the area of reading and speaking in this part of the world. This study also aims to discover students' thoughts toward using Reading Assistant.

Methodology

The study applied three methods to determine student response to using RA: quasi-experimental research design in qualitative approach in which students were rated for English speaking proficiency at the beginning and at the end of the study (pre-test and post-test), students completed a RA Student Survey using a 5-point likert scale, and student focus groups were held to gain an understanding of student attitudes toward RA.

Population and sample of the study

AIU's students involved in the study were mostly between the ages of 18 and 24 years old, enrolled in the Thai and International courses. Students are in AIU ESL levels 1 - 5, equivalent to CEFR levels pre-A1 to B1.

For this study, students were divided into two groups of approximate equal size. Students enrolled in ESL Reading courses and all students in GENL1108 for Semester 1 2015/2016 were randomly selected for the use of the RA software as part of their course requirements. Students in each group (those who used RA for a minimum of two class periods, 90 minutes per week and those who did not use RA) were chosen at random for the experimental portion of this study. All ESL students were invited to participate in focus groups, and students who volunteered were accepted. All students who used RA completed the RA Student Survey either in English or in Thai.

Data collection and procedures

To test for speaking proficiency, the intervention group was used to collect data from RA for one class period per week as well as outside of class time for a total goal of three hours weekly. The control group was to participate in traditional reading aloud activities, as well as reading aloud for approximately two

hours outside of class time, for a total goal of three hours weekly. The length of the study was approximately 13 weeks during semester.

Both groups were evaluated for speaking proficiency at the beginning and end of the study. Students were interviewed and their oral responses were recorded. These recordings were evaluated per the ESL Speaking Proficiency Rubric (ESPR) instrument.

For the student survey and focus groups, students completed an 8-question survey on a 5-point Likert scale. In the focus groups, informal discussions and student responses were recorded. Two focus groups were conducted.

Data Analysis

Using the ESL Speaking Proficiency Rubric instrument, a team of five native English speakers scored students' recordings for their oral response on recorded interviews. The results of these scores were produced based on ESL Speaking Proficiency Score (ESPS) for each student. ESL Speaking Proficiency was evaluated in pre-test and post-tests. Data were analyzed to identify the change in ESL speaking proficiency of students in the control and focus groups.



Figure 1. Methodology and Research Design

An independent t-test was applied to test for differences between the means of the control group scores and focus group scores both pre-test and post-test. Paired (dependent) t-tests were performed on the pre-test and post-test scores within each group for both the intervention and the control groups (Figure 1).

Student survey results were calculated and results are presented in both percentage and chart form. Focus group results are recorded in the findings below.

Results and Discussion

Tests revealed a statistical difference between the pre-test and post-test scores in ESL Speaking Proficiency for the intervention group (p = .033), and no statistical significance in the control group. See Table 1 and Table 2.

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Paired	Paired Samples Test – Control Group											
	Paired Differences							df	Sig.			
		Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference							
					Lower	Upper						
Pair 1	PreTestC/ PostTestC	53333	2.36046	.55637	-1.70716	.64050	959	17	.351			

Table 1

Table 2.

Paired Samples Test – Intervention Group

		t	df	Sig.					
		Mean	SD	Std. Error Mean	95% Confidence Interval of the Dif- ference				
					Lower	Upper			
Pair 1	PreTestC/ PostTestC	-1.58667	2.60271	.67202	-3.02800	14533	-2.361	14	.033

Table 1 and Table 2 indicate that students in the intervention group who used RA for at least 90 minutes per week for one semester significantly improved their speaking proficiency, and those in the control group did not significantly improve.





This implies that if ESL students used Reading Assistant as part of their learning experience, they will have a higher level of spoken English proficiency than students who do not use Reading Assistant.

Student Response to Use of Reading Assistant Software for English Language Learners in Thailand

Student Survey Results

The results of the student surveys were as follows (Table 3).

Table 3.

Student Responses (n = 115) to Questions Relating to Perceptions about Reading Assistant

	Questions	Affirmative Reply	Negative Reply
1.	Does RA improve your listening skills?	113	2
2.	Does RA improve your speaking skills?	109	6
3.	Does RA improve your reading skills?	110	5
4.	Have others commented on your improved speaking skills?	82	33
5.	Is RA easy to use on your own?	110	4
6.	Would you like to continue using RA?	103	12

Focus Groups

Focus Group I: 8 students in AIU ESL levels 2, 3, 4, and 5, approximate CEFR levels A1-B1. Students represented the countries of Thailand, Cambodia, Myanmar, India, and China made the following comments.

- 1. Students agreed that using Reading Assistant improved their speaking more than traditional methods (8 out of 8)
- 2. Students agreed that using Reading Assistant improved their listening in real world situations, even international faculty with strong foreign accents, including AIU professors from Central and South America (8 out of 8)
- 3. Students wanted to continue using Reading Assistant after the current semester (8 out of 8)
- 4. Students wished to use Reading Assistant on their personal computers (8 out of 8)
- 5. Students preferred using Reading Assistant to traditional classroom learning (8 out of 8)

Focus Group II: 9 students in AIU ESL levels 1, 3, 4, and 5, approximate equivalent to CEFR

pre-A1, and A2-B1. Students represented the countries of Thailand, Korea, and Myanmar. Comments in Focus Group I were echoed in Focus Group II. New information recorded is as follows.

- 1. The two most important English skills are Listening and Speaking (8 out of 9).
- 2. The classes that helped most to learn English were Speaking, Reading, and Listening (7 out of 9).
- 3. Reading Assistant improved all of the skills at once, instead of learning them separately (7 out of 9).
- 4. Reading Assistant improved English faster than traditional teaching methods (9 out of 9).
- 5. Reading Assistant was more interesting than reading traditional books because it kept students on task and the feeling of boredom or sleepiness did not interfere with learning.
- 6. Textbooks only give information. Reading Assistant contributed to improving English skills.
- 7. Reading Assistant was efficient because participants did have to stop reading to look up unfamiliar vocabulary; the definition was a mouse click away.
- 8. Reading Assistant was fun (9 out of 9).
- 9. Students wanted to continue using Reading Assistant to learn English (9 out of 9).

Limitations

A common limitation when performing research in speaking proficiency is the subjective nature of the rating process. By using highly trained raters or a computerized system, the subjective aspect of results in speaking proficiency would be reduced or eliminated. This study included participants from a Thai university, and different results may be seen from students whose native language is different than those

in this region. The sample size was relatively small, and further study conducted in a larger setting may increase knowledge in this area.

Conclusions and Recommendations

Students who used Reading Assistant increased significantly in their proficiency of spoken English. In the focus groups and student survey, students agree that it was the preferred method of learning English as it improved English skills more quickly than traditional methods. Further, students wanted to continue using Reading Assistant. Participants revealed that Reading Assistant allowed them to continue studying, in comparison to the traditional method where they get bored and stop reading and speaking in or outside of class. Students in focus groups revealed that the Reading Assistant material helped them to write in their respective class, rather than copying and pasting paragraphs from internet or books. It is recommended that ESL programs, including those in a higher education setting, combine traditional learning methods with CALL methods of ESL instruction.

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Performances of Student- Applicants from Selected Feeder Schools in College Entrance Test For Three Consecutive School Years (2012-2013, 2013-2014, 2014-2015)

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Abstract

The research was carried out to determine the performances of 579 student- applicants from selected feeder high schools in the De La Salle University – Dasmariñas (DLSU-D) College Entrance Test for three consecutive school years (2012-2013, 201-2014, 2014-2015). This study also determined the significant difference in the results of College Entrance Test (CET) based on type of school (public and private). The result of the study showed that no significant difference was found in the performance of students from public and private schools particularly in mathematics, science and Inductive Reasoning (IR) during SY 2012-2013, and SY 2013-2014. However, during SY 2014-2015, students from private feeder schools have higher performance in all areas considered in the examination than students from public schools. Moreover, result indicated that students from private schools have better performance in Mathematics during SY 2014-2015. In terms of geographic location, the result indicated that students from Bacoor schools have the same performance in English, mathematics, science, IR and General Scholastic Aptitude (GSA) for the SY 2014-2015. In addition, there is a significant difference in the students' CET performance in English for the three consecutive school years in terms of type of college, while no significant difference exists in the other subjects.

Keywords: College Entrance Test, DLSU-Dasmariñas, Feeder High School

The entrance tests provide colleges with a standardized method to compare students who intend to continue their studies at specific schools, or even in specific fields. This is the reason why many colleges in the Philippines either public or private conduct entrance examinations to incoming freshmen to determine whether these students qualify for a particular program or course. These tests are just one of many factors considered in the college admissions process to be able to determine the skills of student – applicants.

Every country has rules and traditions about College Entrance Tests (CET). In the US and its territories, American College Test (ACT) results are required as a basis for admissions in colleges. The primary goal of CET includes measuring progress in student learning and ensuring student readiness of what particular course they wanted to take (Hoover, 2002). In the Philippines, it is required for senior high school student to take the entrance examination before enrolling in a university or college. Results of these entrance examinations reveal that Filipino students have been found to be very poor in science and mathematics. In a recent survey of mathematics proficiency of students from 25 Asian countries, the Philippines ranked 23rd as being the most proficient.

According to Ting (2001), the CET is just one of the ways to determine the potential of the students for college work. The test results were used for academic as well as curriculum review. Zwick (2005) found out that many scores in CET math and science categories indicate that students are unprepared for college level work. Such study was confirmed by Reyento (2000) who commented that the Philippines has remained an on-looker in this fast-paced science and mathematics scene.

Presently there has been no study conducted on the analysis of the performances of the studentapplicants in Cavite except Mercado's study for SY 2004-2005 to 2006-2007. The present study aimed to generate reliable results on the performances of the student-applicants coming from the different areas in Cavite. Moreover, this study serves a way to predict the ability of the students to perform in college-level classes, for further develop, and improve the curriculum and instructions in the secondary level of education in preparation for the tertiary level education. Hence, this study aims to determine the performances of the different feeder schools in the present DLSU-D College Entrance Test. Performances were be measured in terms of scores in the college entrance test, the sub scores in English, mathematics, and science. Areas of strengths and weaknesses in each feeder schools were identified. The performances of student-applicants in the College Entrance Test from the different areas and feeder schools in three consecutive school years were compared in this study.

This study will serve as basis for feedbacks to the feeder schools. The information from these feeder schools will then serve as basis for curriculum and instruction review so students are better prepared and equipped to take the DLSU- D College Entrance Test.

This study was limited to the performances of student-applicants from feeder schools in the De La Salle University College Entrance Test for three consecutive school years. The performances are the scores in the College Entrance Test in English, Mathematics and Science. The selected feeder schools from different areas in Cavite were clustered according to type of school and geographic location.

Objectives of the study

This study was a comparative analysis of the performance of Cavite feeder schools in the De La Salle University College Entrance Test for three consecutive school years (2012-2013, 2013-2014, 2014-2015). Specifically, the study aimed to:

- 1. Determine the significant difference on the performances of student- applicants between graduates of public schools and private schools in the College Entrance Test of the Feeder High Schools:
 - a. for SY 2012-2013
 - b. for SY 2013-2014
 - c. for SY 2014-2015
- 2. Determine the significant difference in the mean scores of student –applicants for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas.
- 3. Determine the significant difference in the performances of the applicants in the College Entrance Test in SY 2012-2013, SY 2013-2014, SY 2014-2015 when clustered by:
 - a. type of school
 - b. geographical Location
 - c. college enrolled in

Methodology

Research Design

The study used descriptive research, specifically, documentary analysis which aimed to analyze the result of the College Entrance Test (CET) of DLSU-D feeder high school students in Cavite.

Respondents of the study

The research was conducted to analyze the scores of student-applicants who took the CET from DLSU-Dasmariñas. Hence, the respondents of the study included all the examinees in the selected Feeder Schools College Entrance Examination of De La Salle University-Dasmariñas for three consecutive school years (2012-2013, 2013- 2014, 2014-2015).

College Entrance Test Analysis

The analysis of the CET focuses on the scores of the student-applicants from the selected feeder schools, in English, mathematics and science for three-consecutive years. De La Salle University-Dasmariñas used the Admission Test for Colleges and Universities (ATCU), developed by the Center for Educational

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Measurement (CEM). This instrument helps the school to determine the potential of the students for college work. The subject proficiency tests are English, mathematics and science.

The standard scores test yielded for Mathematics (SSMAT), English (SSENG), Science (SSSCI) are interpreted using the Quality Index (QI).

The following is the score range with its Quality Index interpretation.

Score Range	Quality Index (QI)
670-800 (9)	Excellent (E)
621-669 (8)	Superior (S)
573-620(7)	Above Average (AA)
525-572 (6)	High Average (HA)
474-524 (5)	Average (A)
425-473 (4)	Low Average (LA)
375-424 (3)	Below Average (BA)
319-374 (2)	Inferior (I)
200-318 (1)	Very Poor (VP)

The checking and scoring of the CET were done by the Center for Educational Measurement (CEM) in Manila. The results were sent back to the faculty services office authorized by DLSU-D to release the CET results to the student-applicants.

Statistical Analysis

The scores of the student-applicants were grouped according to school year and type of school. Scores in the CET of the feeder high schools from each school year were compared using t-test and Analysis of variance (ANOVA).

Results and Discussions

The study compared the performance of Cavite feeder schools in the De La Salle University College Entrance Test for three consecutive school years (2012-2013, 2013-2014, and 2014-2015). The results and discussions are as follows:

Table 1.

S	School Year	Type of School	Mean	Verbal Interpretation	<i>t</i> -value	<i>p</i> -value
2012	ENGLISH	Public	4.18	Low Average	-2.998	.003
		Private	5.20	Average		
	MATH	Public	3.95	Low Average	1.902	.059
		Private	4.56	Average		
	SCIENCE	Public	4.76	Average	041	.967
		Private	4.77	Average		
	IR	Public	5.43	Average	-1.950	.053
		Private	6.23	High Average		
	GSA	Public	4.59	Average	-2.041	.043
		Private	5.12	Average		

Comparison of the performances of student- applicants between graduates of public schools and private schools in the College Entrance Test of the Feeder High Schools for the SY 2012-2013.

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Table 1 shows the comparison of the performances of student- applicants between graduates of public and private schools in the College Entrance Test of the Feeder High Schools for the SY 2012-2013. In the five areas considered, the result reveals that there is a significant difference in the performance in English and GSA of the students from public and private feeder schools (t = 2.998 & 2.04; p< .05). This implies that students from private feeder schools have higher performance in English and GSA than those from public schools. However, no significance difference was found in the performance of public and private school students in mathematics, science and IR. This affirms the study of Cavalcanti, Guimaraes and Sampaio (2010) where novel data set quantified the difference in the performance of public and private school students during the entrance test exam of a major public university in Brazilian Northeast (Universidade Federal de Pernambuco – UFPE). The results of the study shows that the test scores of public school students are on average about 4.2–17% lower than those taken by private school students, depending on the set of controls. It was also revealed that students from public schools perform as well as those from private schools once they get into the university.

Table 2.

Sc	chool Year	Type of School	Mean	Verbal Interpretation	<i>t</i> -value	<i>p</i> -value
2012	ENGLISH	Public	4.69	Average	-2.073	.039
		Private	5.23	Average		
	MATH	Public	4.43	Low Average	-1.303	.194
		Private	4.82	Average		
	SCIENCE	Public	4.52	Average	-0.20	.984
		Private	4.52	Average		
	IR	Public	5.51	High Average	-1.504	.134
		Private	5.96	High Average		
	GSA	Public	4.87	Average	-1.465	.145
		Private	5.23	Average		

Comparison of the performances of student- applicants between graduates of public schools and private schools in the College Entrance Test of the Feeder High Schools for the SY 2013-2014.

Table 2 shows the comparison of the performances of student- applicants between graduates of public schools and private schools in the College Entrance Test of the Feeder High Schools for the SY 2013-2014. The table shows that there is a significant difference in the performance in English of the students from public and private feeder schools (t = 2.073, p < 0.05). This indicated that students from private feeder schools have higher performance in English than students from public schools. However, no significance difference was found in the performance of the public and private school students in mathematics, science, IR and GSA. This contradicts the study of Theule Lubienski et al. (2005) that examines the academic performance of public and private school students in the U.S. Critique which claims that students at private schools perform better in mathematics that students in public schools.

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Table 3.

Comparison	of the p	erformance.	s of stu	dent- d	applicants	between	graduates	of	public	schools	and	private
schools in th	e Colleg	ge Entrance	Test of t	the Fee	eder High	Schools f	for the SY 2	201	4-2015	5		

Scl	hool Year	Type of School	Mean	Verbal Interpretation	<i>t</i> -value	<i>p</i> -value
2012	ENGLISH	Public	4.71	Average	-3.442	.001
		Private	5.72	High Average		
	MATH	Public	4.05	Low Average	-4.125	.000
		Private	5.23	Average		
	SCIENCE	Public	4.37	Low Average	-2.437	.016
		Private	4.96	Average		
	IR	Public	4.95	Average	-4.705	.000
		Private	6.31	High Average		
	GSA	Public	4.49	Low Average	-4.353	.000
		Private	5.58	High Average		

Table 3 reveals that there is a significant difference in the performance in English, Mathematics, Science, IR and GSA of the students from public and private feeder schools (all p values > 0.05). This indicated that students from private feeder schools have higher performance in all areas considered in the exam than students from public schools.

The study conducted by Preradovic and Kosic-Jeremic (2015) analyzed the attendance in the preparation courses and academic achievement in secondary school. Based on the result, the quality of secondary education must be improved especially the teaching of mathematics through syllabus modification.

Table 4.

		Mean	Verbal Interpretation	F-value	<i>p</i> -value
ENGLISH	2012	4.77	Average	4.015	.019
	2013	5.03	Average		
	2014	5.37	Average		
MATH	2012	4.30	Low Average	3.138	.044
	2013	4.67	Average		
	2014	4.83	Average		
SCIENCE	2012	4.77	Average	1.328	.266
	2013	4.52	Average		
	2014	4.76	Average		
IR	2012	5.89	High Average	.104	.901
	2013	5.79	High Average		
	2014	5.84	High Average		
GSA	2012	4.90	Average	1.534	.216
	2013	5.09	Average		
	2014	5.21	Average		

Comparison of the performances of student- applicants for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas.

Table 4 reveals that there is a significant difference in the performance of the students in English and mathematics for the SY 2012-2015 (F = 4.015 & 3.138, p < 0.05). The result indicated that students who took the entrance exam for the SY 2014-2015 have higher performance in both English and mathematics than the students who took the exam for the SY 2012-2013 and 2013-2014. However, no significant difference exists for the performance of the students for the three school years in science, IR and GSA.

Table 5.

Comparison of the performances of student- applicants from Public Schools for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas.

Type of Schoo	1		Mean	Verbal Interpretation	F-value	<i>p</i> -value
PUBLIC	ENGLISH	2012	4.18	Low Average	1.544	.216
		2013	4.69	Average		
		2014	4.71	Average		
	MATH	2012	3.95	Low Average	1.158	.316
		2013	4.43	Low Average		
		2014	4.05	Low Average		
	SCIENCE	2012	4.76	Average	.947	.390
		2013	4.52	Average		
		2014	4.37	Low Average		
	IR	2012	5.43	Average	1.123	.327
		2013	5.51	High Average		
		2014	4.95	Average		
	GSA	2012	4.59	Average	.861	.424
		2013	4.87	Average		
		2014	4.49	Low Average		

Table 5 shows the comparison of the performances of student- applicants from public school for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas. The table showed that there is no significant difference in the performance of the students in English, Mathematics, Science, IR and GSA for the SY 2012-2015 (all p values > 0.05). The result indicated that students from public schools have the same performance in all subjects' areas for the SY 2012-2013, SY 2013-2014, and SY 2014-2015.

Table 6.

Comparison of the performances of student- applicants from Private Schools for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas

Type of School			Mean	Verbal Interpretation	F-value	<i>p</i> -value
PRIVATE	ENGLISH	2012	5.20	Average	2.616	.075
		2013	5.23	Average		
		2014	5.72	High Average		
	MATH	2012	4.56	Average	3.253	.040
		2013	4.82	Average		
		2014	5.23	Average		

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	SCIENCE	2012	4.77	Average	2.090	.125
		2013	4.52	Average		
		2014	4.96	Average		
	IR	2012	6.23	High Average	.826	.439
		2013	5.96	High Average		
		2014	6.31	High Average		
	GSA	2012	5.12	Average	2.587	.077
		2013	5.23	Average		
		2014	5.58	High Average		

Table 6 shows the comparison of the performances of student- applicants from private schools for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas. The table reveals that there is a significant difference in the performance of the students in mathematics for the SY 2012-2015 (F = 3.25, p = 0.05), while no significant difference was obtained in the performance of the students in English, Science, IR and GSA (p-values > 0.05). The result indicated that students from private schools have better performance in mathematics for SY 2014-2015.

Table 7.

Comparison of the performances of student- applicants from Bacoor Schools for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas

LOCATION			Mean	Verbal Interpretation	F-value	<i>p</i> -value
BACOOR	ENGLISH	2012	5.60	High Average	.978	.325
		2013	5.23	Average		
	MATH	2012	4.93	Average	.022	.883
		2013	4.88	Average		
	SCIENCE	2012	5.09	Average	3.029	.085
		2013	4.50	Average		
	IR	2012	6.91	Above Average	3.184	.077
		2013	6.12	High Average		
	GSA	2012	5.47	Average	.310	.579
		2013	5.30	Average		

Table 7 shows the comparison of the performances of student- applicants from Bacoor for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas. The table reveals that no significant difference exists in the performance of the students in all subject areas for the SYs 2012-2015 (all p-values > 0.05). The result indicates that students from Bacoor schools have the same performance in English, mathematics, science, IR and GSA for the SY 2014-2015.

LOCATIO	ON		Mean	Verbal Interpretation	F-value	<i>p</i> -value
IMUS	ENGLISH	2012	4.95	Average	1.297	.276
		2013	5.25	Average		
		2014	5.57	High Average		
	MATH	2012	4.37	Low Average	.808	.447
		2013	4.75	Average		
		2014	4.82	Average		
	SCIENCE	2012	4.62	Average	.033	.968
		2013	4.54	Average		
		2014	4.60	Average		
	IR	2012	5.80	High Average	.057	.945
		2013	5.79	High Average		
		2014	5.92	High Average		
	GSA	2012	4.92	Average	.548	.579
		2013	5.16	Average		
		2014	5.23	Average		

Comparison of the performances of student- applicants from Imus Schools for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas

Table 8 shows the comparison of the performances of student- applicants from Imus for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas. The table reveals that no significant difference exists in the performance of the students in all subject areas for the SY 2012-2015 (p-values > 0.05). The result indicates that students from Imus schools have the same performance in English, Mathematics, Science, IR and GSA for the SY 2014-2015.

Table 9.

Comparison of the performances of student- applicants from Dasmariñas Schools for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas

LOCATION			Mean	Verbal Interpretation	F-value	<i>p</i> -value
DASMARI-	ENGLISH	2012	4.14	Low Average	1.759	.175
NAS		2013	4.69	Average		
		2014	4.71	Average		
	MATH	2012	3.88	Low Average	1.445	.238
		2013	4.43	Low Average		
		2014	4.05	Low Average		
	SCIENCE	2012	4.71	Average	.698	.499
		2013	4.52	Average		
		2014	4.37	Low Average		
	IR	2012	5.38	Average	1.063	.347
		2013	5.51	High Average		
		2014	4.95	Average		
	GSA	2012	4.55	Average	.957	.386
		2013	4.87	Average		
		2014	4.49	Average		

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Table 9 shows the comparison of the performances of student- applicants from Dasmariñas City for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different subject areas. Results revealed no significant difference exists in the performance of the students in all subject areas for the SY 2012-2015 (p-values > 0.05). The result indicates that students from Dasmariñas City schools have the same performance in English, Mathematics, Science, IR and GSA for the SY 2014-2015.

Table 10.

Comparison of the performances of student- applicants for the SY 2012-2013, SY 2013-2014, SY 2014-2015 in the different colleges of DLSU-D

College			Mean	Verbal Interpretation	F-value	<i>p</i> -value
CSCS	ENGLISH	2012	5.41	Average	.732	.486
		2013	5.05	Average		
		2014	5.91	High Average		
	MATH	2012	4.89	Average	.682	.510
		2013	4.50	Average		
		2014	5.45	High Average		
	SCIENCE	2012	5.48	Average	2.330	.107
		2013	4.40	Average		
		2014	4.73	High Average		
	IR	2012	7.19	Average	2.003	.145
		2013	5.95	Average		
		2014	6.73	High Average		
	GSA	2012	5.74	Average	.967	.387
		2013	5.10	Average		
		2014	5.73	High Average		
Collogo			Moon	Verbal	F voluo	n voluo
Conege			wiean	Interpretation	r-value	<i>p</i> -value
CLAC	ENGLISH	2012	5.07	Average	4.211	.018
		2013	4.93	Average		
		2014	6.30	High Average		
	MATH	2012	3.62	Low Average	2.665	.075
		2013	3.48	Below Average		
		2014	4.40	Low Average		
	SCIENCE	2012	4.31	Low Average	4.402	.015
		2013	3.86	Low Average		
		2014	5.10	Average		
	IR	2012	4.62	Average	3.751	.027
		2013	4.45	Low Average		
		2014	6.00	High Average		
	GSA	2012	4.34	Low Average	7.277	.001
		2013	4.17	Low Average		
		2014	5.53	High Average		

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College			Mean	Verbal	F-value	<i>p</i> -value
				Interpretation		1
CTHM	ENGLISH	2012	3.71	Low Average	1.207	.305
		2013	4.00	Low Average		
		2014	4.46	High Average		
	MATH	2012	3.19	Below Average	1.397	.254
		2013	3.58	Low Average		
		2014	3.96	Low Average		
	SCIENCE	2012	3.55	Low Average	.363	.697
		2013	3.53	Low Average		
		2014	3.85	Low Average		
	IR	2012	5.26	Average	.170	.844
		2013	5.00	Average		
		2014	4.92	High Average		
	GSA	2012	4.03	Low Average	.179	.837
		2013	4.00	Low Average		
		2014	4.23	Low Average		
Callaga			Maan	Verbal	Englise	
College			Mean	Verbal Interpretation	F-value	<i>p</i> -value
College CEAT	ENGLISH	2012	Mean 5.17	Verbal Interpretation Average	F-value 1.685	<i>p</i> -value .190
College CEAT	ENGLISH	2012 2013	Mean 5.17 5.28	Verbal Interpretation Average Average	F-value 1.685	<i>p</i> -value
College CEAT	ENGLISH	2012 2013 2014	Mean 5.17 5.28 5.95	Verbal Interpretation Average Average High Average	F-value 1.685	<i>p</i> -value .190
College CEAT	ENGLISH MATH	2012 2013 2014 2012	Mean 5.17 5.28 5.95 4.87	Verbal Interpretation Average Average High Average Average	F-value 1.685 1.907	<i>p</i> -value .190 .154
College CEAT	ENGLISH MATH	2012 2013 2014 2012 2013	Mean 5.17 5.28 5.95 4.87 5.36	Verbal Interpretation Average Average High Average Average Average	F-value 1.685 1.907	<i>p</i> -value .190 .154
College CEAT	ENGLISH MATH	2012 2013 2014 2012 2013 2014	Mean 5.17 5.28 5.95 4.87 5.36 5.82	Verbal Interpretation Average Average High Average Average High Average	F-value 1.685 1.907	<i>p</i> -value .190 .154
College CEAT	ENGLISH MATH SCIENCE	2012 2013 2014 2012 2013 2014 2012	Mean 5.17 5.28 5.95 4.87 5.36 5.82 5.43	Verbal Interpretation Average Average High Average Average High Average Average	F-value 1.685 1.907 2.741	<i>p</i> -value .190 .154 .069
College CEAT	ENGLISH MATH SCIENCE	2012 2013 2014 2012 2013 2014 2012 2012 2013	Mean 5.17 5.28 5.95 4.87 5.36 5.82 5.43 4.69	Verbal Interpretation Average Average High Average Average High Average Average Average Average	F-value 1.685 1.907 2.741	<i>p</i> -value .190 .154 .069
College CEAT	ENGLISH MATH SCIENCE	2012 2013 2014 2012 2013 2014 2012 2013 2014	Mean 5.17 5.28 5.95 4.87 5.36 5.82 5.43 4.69 5.41	Verbal Interpretation Average Average High Average Average High Average Average Average Average Average	F-value 1.685 1.907 2.741	<i>p</i> -value .190 .154 .069
College CEAT	ENGLISH MATH SCIENCE IR	2012 2013 2014 2012 2013 2014 2012 2013 2014 2012	Mean 5.17 5.28 5.95 4.87 5.36 5.82 5.43 4.69 5.41 7.07	Verbal Interpretation Average Average High Average Average High Average Average Average Average Average Average	F-value 1.685 1.907 2.741 1.508	<i>p</i> -value .190 .154 .069 .226
College CEAT	ENGLISH MATH SCIENCE IR	2012 2013 2014 2012 2013 2014 2012 2013 2014 2012 2013	Mean 5.17 5.28 5.95 4.87 5.36 5.82 5.43 4.69 5.41 7.07 6.26	Verbal Interpretation Average Average High Average Average High Average Average Average Average Average Average High Average High Average	F-value 1.685 1.907 2.741 1.508	<i>p</i> -value .190 .154 .069 .226
College CEAT	ENGLISH MATH SCIENCE IR	2012 2013 2014 2012 2013 2014 2012 2013 2014 2012 2013 2014	Mean 5.17 5.28 5.95 4.87 5.36 5.82 5.43 4.69 5.41 7.07 6.26 6.85	Verbal Interpretation Average Average High Average Average High Average Average Average Average Average Average High Average High Average	F-value 1.685 1.907 2.741 1.508	<i>p</i> -value .190 .154 .069 .226
College CEAT	ENGLISH MATH SCIENCE IR GSA	2012 2013 2014 2012 2013 2014 2012 2013 2014 2012 2013 2014 2012	Mean 5.17 5.28 5.95 4.87 5.36 5.82 5.43 4.69 5.41 7.07 6.26 6.85 5.60	Verbal Interpretation Average Average High Average Average High Average Average Average Average Average Average High Average High Average High Average	F-value 1.685 1.907 2.741 1.508 1.344	<i>p</i> -value .190 .154 .069 .226 .265
College CEAT	ENGLISH MATH SCIENCE IR GSA	2012 2013 2014 2012 2013 2014 2012 2013 2014 2012 2013 2014 2012 2013	Mean 5.17 5.28 5.95 4.87 5.36 5.82 5.43 4.69 5.41 7.07 6.26 6.85 5.60 5.46	Verbal Interpretation Average Average High Average Average High Average Average Average Average Average Average High Average High Average High Average High Average	F-value 1.685 1.907 2.741 1.508 1.344	<i>p</i> -value .190 .154 .069 .226 .265

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College			Mean	Verbal Interpretation	F-value	<i>p</i> -value
COED	ENGLISH	2012	3.15	Below Average	5.104	.009
		2013	4.89	Average		
		2014	4.67	Average		
	MATH	2012	3.35	Below Average	1.564	.217
		2013	4.18	Low Average		
		2014	3.88	Low Average		
	SCIENCE	2012	4.10	Low Average	.582	.562
		2013	4.54	Average		
		2014	4.54	Average		
	IR	2012	4.95	Average	.285	.753
		2013	5.39	Average		
		2014	5.38	Average		
	GSA	2012	3.80	Low Average	2.656	.077
		2013	4.86	Average		
		2014	4.54	Average		
College			Mean	Verbal Interpretation	F-value	<i>p</i> -value
CCJE	ENGLISH	2012	5.00	Average	.631	.445
		2013	3.62	Low Average		
		2014	4.08	Low Average		
	MATH	2012	5.00	Average	.266	.618
		2013	4.12	Low Average		
		2014	4.42	Low Average		
	SCIENCE	2012	5.00	Average	.554	.474
		2013	3.88	Low Average		
		2014	4.25	Average		
	IR	2012	5.75	High Average	.244	.632
		2013	4.88	Average		
		2014	5.17	Average		
	GSA	2012	5.50	High Average	.701	.422
		2013	4.12	Low Average		
		2014	4.58	Average		

College			Mean	Verbal Interpretation	F-value	<i>p</i> -value	
CBAA	ENGLISH	2012	5.31	Average	.008	.992	
		2013	5.29	Average			
		2014	5.33	Average			
	MATH	2012	5.10	Average	.234	.792	
		2013	5.37	Average			
		2014	5.18	Average			
	SCIENCE	2012	5.25	Average	1.144	.321	
		2013	5.02	Average			
		2014	4.76	Average			
	IR	2012	6.00	High Average	2.212	.113	
		2013	6.48	High Average			
		2014	5.63	High Average			
	GSA	2012	5.31	Average	1.202	.303	
		2013	5.70	High Average			
		2014	5.25	Average			

Table 10 reveals that no significant difference exists in the performance of the students in all subject areas for the SY 2012-2015 of CSCS, CTHM, CEAT, CCJE AND CBAA (all p-values > 0.05). The result indicates that students from the these colleges have the same performance in English, mathematics, science, IR and GSA for the SY 2012-2015. However, for the CLAC, significant differences exists in the performance of their students in English, science, IR and GSA while no significant difference in the score in mathematics for the SY 2012-2013, SY 2013-2014, SY 2014-2015. This shows that there is a significant improvement in the entrance score of the CLAC students in English, Science, IR and GSA while the same performance in mathematics for the three school years. In addition, for the COED, there is a significant difference in the performance in English for the three school years while no significant difference exists in the other subjects.

Recommendations

The following are the recommendation based on the result of the study:

- 1. The results of this study be disseminated to the feeder high schools as basis for curriculum enhancement and effective implementation. Actions be taken in order to ensure that the students will be better prepared for the college work.
- 2. DLSU-D, being the Center of Excellence for Teacher Education, may initiate offering training services and other intervention programs for the high school teachers in CALABARZON to better equip them in mentoring their students, in preparation for their college entrance test.
- 3. Conduct similar study to determine the impact of K to 12 curriculum on the College Entrance Test performance of students' applicants to the De La Salle University Dasmariñas.
- 4. A study should be conducted to determine the factors that may affect students' performance in the College Entrance Test in DLSU-D. The result of the study will be a basis for policy review for the DSLSU-D

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Misaligned: Out-of-field Teachers' Misery and Milestones

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Abstract

Reaching is a complex job. Not only should teachers be adept in handling challenging students but they should also be skilled in adapting to the ever-changing curriculum in their field of specialization. In a country where ESL learning is prevalent, it is important to know the reason constituting this phenomenon on Out-of-Field Teaching. This phenomenological study explored the reasons why English Education Graduates (EEGs) teach outside their field of specialization and the challenges they encountered in teaching other fields. Six English Education graduates with at least three years experiences in teaching another subject in either a private or public school were selected through purposivesampling technique. Data were gathered using a semi-structured interview guide and were analyzed using Gestalt-Phenomenological perspective. The interview results revealed that the reasons identified by EEGs teaching outside their field of specialization are: responding to a need in a particular school, EEGs willingness to teach subjects aside from English and other personal reasons such as urgent hiring and being skillful in the assigned subject area. The challenges encountered by EEGs teaching other fields pertain to the content and pedagogy of teaching the assigned out-of-field subject. In order to address these challenges, EEGs ought to stick to their major only. On the other hand, administrators should be objective in assigning teaching loads to teachers based on their teaching qualifications. Further study may be conducted on the effectiveness of Out-of-Field Teachers. Moreover, another study using mixed method may be done involving a bigger number of participants. **Keywords:** English Education Graduates, English as a Second Language, Out-of-Field teaching, non-practicing

Teachers are significant resources in education and teaching is a complex job. Teachers' experience is found to be a strong predictor of student academic gain (Master, Loeb, Whitney, & Wyckoff, 2016). The numerous responsibilities of teachers such as choosing appropriate learning activities, providing helpful explanations, throwing productive questions, and evaluating students' learning, all depend on the teacher's understanding of what it is that students are to learn; since teachers' thorough understanding of the subjects they teach is a key attribute of highly effective teachers (Weldon, 2016). Aforementioned sets of literature claim that teachers' lack of competence and knowledge on what they teach may be detrimental to the student's learning outcomes.

According to the report of the Philippines' Professional Regulation Commission (PRC, 2016), in the country, the education program produces one of the top numbers of graduates every year. Out of the Bachelor of Secondary Education Licensure Examination for Teachers (LET) examinees, English major examinees have the most number of takers. Out of these passers, the probability that they (teachers) will be placed in a teaching position in-line with their subject of specialization is not known. And when a teacher teaches a subject outside his/her field of specialization, out-of-field teaching phenomenon occurred, a taboo practice that many chose to mum about due to its ubiquity.

This problem of teachers teaching a subject area different from their undergraduate preparation seems to be a prevalent global issue existing for years that is still left unaddressed until now (Zhou, 2012). Kenny and Hobbs (2015) reported that, "the causes of the phenomenon seem to be linked to systemic teach-

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er supply questions and shortages of appropriately qualified teachers within certain subject specializations which generate organizational and staffing issues in schools"(p.2). This problem also exists even in a firstworld country like Australia. Weldon (2016), upon studying teacher workforce in Australia, declared that a high number of teachers there teach subjects they are not qualified to teach.

In the Philippine context where the supply of English teachers is not of shortage, the phenomenon of non-practicing English teacher is left under-researched. In a country where English as a Secondary Language (ESL) learning is prevalent, it is important to know the reason constituting this phenomenon.

Objectives of the Study

Ideally, teachers should teach subjects in lined with the area of specialization they mastered in their undergraduate preparation. However, it is observed that in the Philippine educational system, there are teachers, specifically *Bachelor in Secondary Education-English* graduates, who teach outside their field of specialization. Since this phenomenon has an impact to the learning experience of the students, the researchers desired to unearth reasons behind this phenomenon. This qualitative research aimed to provide an in-depth understanding of the experiences of *English Education Graduates* (EEGs) who teach outside their field of specialization. Also discussed are the reasons why EEGs teach outside their field of specialization, challenges encountered by EEGs teaching other fields, and how EEGs think these reasons can be properly addressed.

Review of Related Literature

English competency and the Philippines. English is an official language in the Philippines (Wa-Mbaleka, 2014), the language of business and commerce (Cabigon, 2017), and the primary medium of instruction and the preferred language of textbooks and communication (Leyaley, 2016). Despite the country's vast linguistic differences, English continues to receive high functional popularity in the different areas of daily life in the nation (Wa-Mbaleka, 2014). As a matter of fact, majority of Filipinos have some degree of fluency in speaking English, making the country one of the largest English speaking nations in the world (Cabigon, 2017).

However, research revealed that not all Filipinos are successful language learners (Gaerlan, 2016), and that the English language proficiency of Filipinos has deteriorated over the years (Leyaley, 2016). A number of reasons contributed to this challenge: (a) introduction of the mother-tongue-based instruction; (b) limited number of instructional resources and academic preparations for teaching the language (Wa-Mbale-ka, 2016); (c) quality English teachers recruited and are working abroad (Mandar, 2016; Wa-Mbaleka, 2016) leaving the country with average English proficiency level teachers (Leyaley, 2016); (d) and students having not enough opportunities and English language exposure in schools (Gaerlan, 2016; Leyaley, 2016). These variables put the English learning status of Philippines in the verge of an educational crisis.

The role of teachers in learning. Teachers play a pivotal role in the learning process. Teacher quality is one of the most important school-related factors for improving student academic performance (Master, Loeb, Whitney, & Wyckoff, 2016) since they (teachers) play a crucial role in supporting student's development in their core academic skill and other areas (Blazar & Kraft, 2017). Effective teaching also strongly influences what and how much students achieve in school (EFA Global Monitoring Report, 2015). In fact, despite several innovations in the areas of individualized learning and computer-mediated learning, the centrality of the teacher in the teaching and learning process has not shifted. The role of the teacher as manager in a teaching-learning context is still unassailable (Okoli & Okpara, 2017).

Since teaching entails a lot of tasks, all of which are dependent on teacher's understanding of what it is that students needs to learn, teachers are expected to have a thorough understanding of the subjects they teach. Weldon (2016) claimed that mastery of the subject content is one of the key attributes of highly effective teachers. Previous research findings also proved that there is a positive relationship between teacher cognitive ability and student achievement (Fong-Yee & Normore 2013). Khan, Khan, Ul-Islam, and Khan (2017) also indicated that for effective teaching, teacher requires good communication skills, classroom

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management, and even personality. Sanders in Mandar (2016) even believed that the achievement of students is determined by what the teachers know and what they can do.

English teacher preparation. Central to students' success are professionally prepared teachers (Al-Issa, 2017). They (professionally-prepared teachers) are described as the ones who flourish lives through engaging in critical and deep self-reflection, critical questioning of knowledge and its sources and ways of its delivery (Grant, as cited in Al-Issa, 2017). They possess knowledge, skills, and dispositions (Creasy, 2015) and are competent to transpose information to their students' content and language knowledge simultaneously (Master, Loeb, Whitney, & Wyckoff, 2017).

Specific skills are expected of professionally-prepared English teachers - vocabulary being one of them. Randomized controlled trials revealed that English Language Learners benefit from explicit teaching of academic vocabulary (Master, Loeb, Whitney, & Wyckoff, 2017). In addition, English teachers should be able to easily break down words phonetically, have a strong command of sentence structure and grammar rules, have a systematic and consistent approach to enforcing them and must know how to integrate appropriate teaching styles that encourage classroom participation and caters students' individual needs (Gill, 2012). Teachers also ought to be expert instructional designers (Shaikh & Khoja, 2012). It means that teachers need to be innovative and knowledgeable regarding where and how to locate the resources he needs in teaching a subject.

Especially in the secondary level, Parvin (2017) claimed that professionally-prepared teachers are necessary to help students tackle challenges of globalization. This must have been the reason why second-ary education major students have specific field of specializations – to ensure that teachers will possess majority if not all of the above-mentioned competencies and subject-specific techniques.

Out-of-field teaching. Teachers teaching "out-of-field" (OOF) is an international phenomenon which refers to the situation where teachers teach in specializations for which they have no formal qualifications (Weldon, 2016). In other words, this happens when teacher's qualifications do not match the subjects they teach. It means that they (teachers) are deficient in: (1) subject matter content knowledge, and (2) pedagogical content knowledge; which are two important aspects for being good teachers (Zhou, 2012).

This phenomenon exists globally. The United States of America deals with out-of-field teachers (Wooten & Goldstein, 2017). In fact, this issue has been ongoing over the past two decades concerning policy makers and researchers alike who see raising teachers' subject matter knowledge as the main policy lever to improve teacher quality (Zhou, 2012).

Theoretical Framework

According to *Ericsson's Expertise Theory*, an expert goes through certain stages in order to become an elite performer. These stages include a playful interaction with a certain domain, deliberate practice, major commitment to the domain, and going beyond to produce a unique contribution for that specific domain. Ericsson also estimated that it roughly takes ten years for an individual to be considered an expert (Theiler, n.d). Thus, four years of studying a certain area of specialization in College may be an insufficient basis for a teacher to be called an expert.

In 2017, the Department of Education initiated the formulation of the Philippine Professional Standards for Teachers (PPST), which was anchored in the National Competency-Based Teacher Standards institutionalized in 2009. This aids the government's reform initiatives to raise the quality of teachers from pre-service education to in-service training. Also, it seeks to cope to the demand for quality teachers who will teach the K to 12 curriculum. This set of standards gives clear and measurable indicators on what teachers should know, be able to do and value to be competent, to improved student learning outcomes, and in the long run, the quality of education. Professional teachers who aspire to continually grow as experts may utilize this standards to assess their personal growth and professional development. Learner-centeredness, lifelong learning, and inclusivity are the teaching philosophies that serve as the foundation for this standard (Department of Education-Teacher Education Council, 2017). **98**

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Methodology

This qualitative research utilized Gestalt-Phenomenological perspective to understand why some of the English teachers are teaching out of their field of specialization. Six non-practicing English teachers from were purposively selected from both public (n = 3) and private (n = 3) secondary schools in the Philippines where four were females and two were males. Participants were given pseudonyms to keep their identities confidential. An expert-validated semi-structured interview guide was used to conduct the one-one-one interviews. The researchers also secured an audio-recording of the conversation and took note of the body language and tone and manner of speaking of the participants. Then, audio recordings were transcribed by each interviewer. Thematic analysis was employed to extract the themes out of the transcriptions and the data was analyzed through the process of noticing similar themes.

Results and Discussion

Reasons for Teaching Outside Field of Specialization

Responding to a need. The researchers found out that in the field, teachers do not have the prerogative to choose what subject they can teach considering their qualifications. One participant stated that in the real-life setting, the need of the school is one of the primary considerations in the assignment of teaching loads of teachers. According to Teacher Daisy, a master degree- holder in English who is currently teaching Filipino and Araling Panlipunan,

"The need encompasses all... (laugh) all considerations talaga (really). It doesn't matter. Ako Masters degree graduate ako (I am even a Master degree graduate). But they were not, it wasn't considered. Noh? Kasipuno na eh (It's really because the slots are already filled.). Ayoko naman mag-impose ng sarili ko (I don't want to impose myself). "

Also, Teacher Lily, an EEG who is a pre-school teacher said:

"Okay, for me, it was kind of given because that was the need... So automatically because we own this school...So, when I graduated the need was for a nursery teacher."

In other schools, the lack of teachers who are qualified to teach some of the minor subjects paved the way for Teacher Dawn, a graduate of English Education who teaches MAPEH for 8 years now, to teach a subject other than his field of expertise.

"Due to lack of teachers here in SEDHS National High School. It is my responsibility as a government official to accept the fact that there are teachers that cannot teach English or cannot teach their major fields because of, first, lack of teachers."

"Teaching out-of-field is a situation many teachers experience throughout their career, particularly those entering the profession" (Caldis, 2017). Wooten and Goldstein (2017) reported that most out-of-field teaching happens as a solution in schools and districts with teacher shortages in those subjects. This is only one of the many reasons underlying this phenomenon.

Du Plessis (2017) agrees stating that "the unsuitable assignment of teachers point towards 'crisis management' as a solution for teacher shortages, and school management carrying out inadequate needs analyses" (p. 4).

Willingness to teach. For some participants, one reason that they were able to identify for their situation as an OOF teacher is their willingness to teach a subject even though it is not in-lined to their field of expertise. We found out that most of them were not hesitant when they were given teaching loads outside their field. Teacher Rose, a teacher to Arts in Intergalactic Academy for 8 years, relayed to us that, "...*It was actually 2009 second semester when I was asked by Ma'am L, former principal of the academy. She asked me if I want to teach arts ...actually, I have an eye for art. I am not an art major but I really have an eye for art so I told her okay."*

She even added, "I faced it smoothly kase (because) the moment I accepted the offer. I told myself 'you have accepted it so you have to do it heartily, professionally and you have to deal with the students the way you deal with your own major profession."

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On the other hand, Teacher Daisy said, "Another reason that I can think of is, because of my willingness to teach other subjects. Even though that this is not my major so some principal approach me to teach it. To teach subjects in lieu of English."

Most of the participants didn't see teaching a non-English subject in a negative light. Most of them took it in a positive light. As one of the participants exclaimed,

"Actually I was very happy. I'm not disappointed like, 'English [subject] was not given to me, it's not appropriate. No! No! No! 'Actually, it's an achievement. 'Maybe the Lord has a reason', I said. Actually it's an edge, right? Because I am teaching MAPEH and English and at the same time. I have more edge than my colleagues since I can teach English and I can also teach MAPEH at the same time. So, it's okay; I was very happy, that's the first reaction that I feel." (Teacher Twilight)

Another teacher confirmed this as she said, "How did I react? (laughs) ...It was something I look forward to. So was happy naman to, I was happy to ...to., take all the challenge of teaching the younger ones. Not, it wasn't negative na ayoko (that I don't like)... it's more okay. I'm happy to do it." (Teacher Lily)

Aside from professional competence, teachers who are found to be highly effective demonstrate positive teaching behaviors, one of which is their willingness to carry out the duties of the teaching career. It is said that high quality instruction depends not only on competence but also on the individual attitudes of each teacher (Fong Yee & Normore, 2013). Teachers must not be seen as semi-skilled workers, ready to perform any job, because unsuitably placed teachers who are struggling can complicate an already complex system of constantly changing curricula and procedures.

Personal reasons. During the interview, several personal reasons arouse as to why teachers happen to teach outside their field of specialization: To prioritize a working opportunity in the country and having the skills in the assigned subject area (even outside their field of expertise) are the identified reasons of teachers teaching outside their field.

Prioritizing working opportunity in the country. "...I wanted to stay here in the Philippines... I am not yet ready to go out kase (because) at that time I'm suppose(d) to go back to Indonesia when Ma 'am L told me that one. " (Teacher Rose)

Having the skills to teach the assigned subject area. "In the very first place, the first thought that comes into my mind is that I've got the skills. I am teaching MAPEH for now, which is my first choice to take but unfortunately there is no MAPEH major in our school, so So I decided to opt for English, and that's the degree I got. "(Teacher Twilight)

It can be hinted from the reasons mentioned by the participant that some teachers resort to the teaching opportunity available because of their own personal considerations and convictions. Wyld (2014) mentioned that the employees' decision of staying or leaving an organization is dynamic and changing. Thus, teachers' reasons to stay in a teaching post that is outside their specialization can be dynamic and changing too. EFA Monitoring Report (2015) suggests that, "trained teachers should be encouraged to accept positions in areas where they are most needed through appropriate working conditions, and a combination of incentives, such as good housing and extra allowances or bonuses. Improving pay and working conditions and providing an attractive career path are the best ways to retain good teachers, and encourage and maintain their commitment to teaching" (p.19).

Challenges Encountered by EEGs Teaching Other Fields

Few challenges may arise as teachers strive to adapt to the demands and expectations of teaching subjects they have little or no background or experience to teach. Participants in this study listed some of the challenges they encountered while teaching other fields. These include challenges in knowing the content and pedagogy in teaching the subject matter.

Content. As out-of-field EEG teachers were given teaching loads outside their field of specialization, they have to grapple in learning the content of their assigned subject matter. According to EFA MonJournal of Education, Psychology, and Humanities | ISSN 2599-5294

itoring Report (2015), the quality of education can be jeopardized by hiring untrained teachers who lack qualifications, preparation, and other professional competencies. Students in class will be asking questions and a teacher is expected to know how to address it professionally.

"There was a question ahh that goes ahh that went like this... 'Ma 'am is it true that the Taj Mahal was created out of a big rock?' (smiles) you see? What will I say if don't know what's the answer? Tendency I will just say, okay we will research on that. What if I'll just always say 'we will research on that; we will research on that.'? So, the biggest challenge is that I have to see to it that at least I know something if not everything on that subject matter. That's it." (Teacher Rose)

Another participant attested that having no mastery on the assigned subject is a challenge of outof-field EEGs. Teacher Daisy stated that, "the number one challenge really is mastery. Ahm, of course that is not what you are trained to teach. But ahm as time goes by, you have to self-learn." In addition, "When it comes to terms, yes, probably there are some difficulties. Because there are some words that are in lined with English, but it is somehow very deep and very not familiar with me." (Teacher Dawn)

Coe, Aloisi, Higgins and Major (2014) explained that the most effective teachers are those who have deep knowledge on what they teach and must have a strong understanding of the material being. It is important to know what to teach for this is a key attributive of highly effective teachers. It is said that the numerous tasks of teaching (selecting appropriate learning activities, giving helpful explanations, asking productive questions, and evaluating students' learning) are all dependent on the teacher's understanding of what it is that students are to learn (Weldon, 2016).

Pedagogy. Content knowledge or the "what to teach" and pedagogical knowledge or the "how to teach" are key components of teacher competence that affect student progress (Baumert, et al., 2012). It is said that there is a strong relationship between these two. Thus, an OOF teacher who struggles in knowing what to teach may also have a hard time in knowing how to teach the assigned subject. One participant cited practical challenges she encountered in the field as an OOF teacher, "*Ah, in Arts [class], I thought of the proper way of handling the brush, (smile) ... Good thing is we have internet access. Then, before I have to try it first before asking them to do it.*" (Teacher Rose)

Also, Teacher Lily, an EEG who is now currently teaching pre-school, described her struggle: "The subject matter is easy but the delivery is hard...I tried this, it doesn't work, I tried this it doesn't work, so I have to find what works so that's the challenge." (Teacher Lily)

The role of educators is not only acting as a medium of knowledge transfer, but also to ensure that the knowledge received his/her learners is understandable and thus can be applied in the next field. Zhou (2012) states that according to research, effective teachers tend to be those who are able to use a variety of teaching strategies and demonstrate a flexible style rather than a single, rigid approach.

Generally, effective teachers are able to adjust their teaching style to fit the needs and style of different learners because they have a wide range of approaches and strategies, such as direct teaching, modelling interactive teaching strategies, cooperative learning techniques, and experienced-based and skill-based approaches (Hammond, as cited in Zhou, 2012). Since OOF teachers teach a subject that is beyond the teachers' field of expertise, the struggle could stem from the mismatch their knowledge on how to transfer learning in learning content of English to the learning content of other subjects. Teaching a different subject would require a teacher to implement teaching styles and strategies.

Addressing the Challenges Encountered by EEGs

After verbalizing the sentiments of the OOF English Teachers interviewed, suggestions were gathered from them on how these phenomena can be addressed. These include: Sticking to one's major and that administrators should be objective in assigning teaching loads to teachers.

Sticking to one's major. Teachers should stick to their area of specialization in order for this phenomenon to be addressed. According to Teacher Twilight, in order to prevent EEGs to teach outside their field of specialization he/she must, "Stick to your major. Whatever your major is, that's it."

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Another participant agreed to the idea that an education graduate should only stick to his/her major as she stated "Know how to look forward or be straight forward don't branch out." (Teacher Rose)

However, some participants argued that Out-of-field teaching is not totally a bad idea after all. According to them, it even gives the edge to teachers to maximize their skills and grow in other areas of learning. "The downside is you are congesting the learning experience of what the teacher's capabilities of. You have limited that you can only do this, that you cannot branch out. What if sooner or later you will become a supervisor, a coordinator, or a principal? Though you are not aiming for that, what if? Right? So, what if your teacher [in another subject are] is absent? Who will solve it then?"

"I don't only teach English subjects. I also teach Technology subjects because other teachers refuse to take them as if they do not want to learn how to teach other subjects. They seem to be close-minded. So, no one wants it. For me, I'm willing to learn even if I do not know any, I still go for it." (Teacher Daisy)

She also added on the later part of the interview that it even became her strength to teach subjects outside her field she said. "It's not bad at all because all things work for good; as long as your willingness to serve is there." Out-of-field teachers tend to be constantly aware of their own detrimental situation and often feel guilty about any perceived deficiency in the development of their students, a natural survival instinct. Aware of a gap in their content knowledge, some teachers also experience difficulties in getting their curricula established or organizing the necessary resources to support effective teaching. However, since schools have to find ways to deal with teacher shortages, in Germany, Ireland and Australia it is said that once teachers are in a school, the principal is "legally allowed to assign them any subject (Bosse & Torner as cited in Kenny & Hobbs, 2015).

Practicing Objectivity. The objectivity of administrators in assigning teaching loads for teachers according to one participant is important. She said that they should review the qualifications of the teachers and assign them subjects which they are eligible to teach. She exclaimed, "*They [administrators] should review the [teaching] loads they give to their teachers. Since the teaching loads of teachers vary yearly. So, they should 've made changes. They should be more objectives and personal issues must not overrule."* (Teacher Daisy)

School-leaders' decisions have implications on the social-structural engagements within schools, and greatly influence the "inner lives of individuals" (Schieman & Plickert, as cited in du Plessis, 2017). In assigning teachers, educational leaders' awareness of the value of "hire for fit" is crucial. Interestingly, few would require cardiologists to deliver babies, real estate lawyers to defend criminal cases, chemical engineers to design bridges, or sociology professors to teach English (Ingersoll, as cited in du Plessis, 2017); though the reality in the field is that each school community has its own needs. In order to meet these needs, it is suggested that school-leaders must prioritize needs and fill teaching positions accordingly (du Plessis, 2017).

Conclusion and Recommendations

The career experiences of teachers are an integral part of their professional development. However, the opportunities and demands in the field don't always fit teachers' qualification. Thus, out-of-field (OOF) phenomenon occurs. In the bigger picture, this situation was proven to pose significant threats to both students and teachers. The career track of English teachers will be misaligned while student learning and achievement may be affected.

On the other hand, some find light amidst the challenges this phenomenon brings. Teaching outside their field of specialization hones teachers to be more flexible in learning other areas of specialization. It can be concluded that this gives more edge to teachers as they were able to extend their knowledge in teaching beyond their area of specialization. This also gives solution to the need for teachers to teach other subject areas in the field; thus, maximizing the teaching workforce.

Based on the results of the study the following recommendations are formulated: (a) the world of education should open its view that education graduates may not teach a subject aligned to their area of spe-

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cialization. Thus, on-going programs and strategies should be implemented not only for English teachers, but for every educator in the field in order to help them to either cope up or get around this situation; (b) out-of-field English teachers should continually seek for opportunities to grow in their field of specialization which is English. They must strive to get around this situation by not settling to a teaching pose that is not related to their field; (c)

BSE English students should have a foresight on what they want to happen in their career path in the future. They have to be realistic in setting their goals and continually build networks and develop competencies that will give them more teaching opportunities in the once they graduate; (d) Educational leaders from institutions offering English education should provide post-bachelor career empowerment programs where graduates of the BSE- English can link themselves to institutions in order to locate English teacher positions in the field; and (e) Future researchers can do further study on effective strategies and programs to alleviate the rising number of English teachers teaching non-English subjects. Moreover, another study using qualitative approach may be conducted, involving a bigger number of participants.

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Face-To-Face Driver Model: Effects on the Academic Performance and Attitude towards Mathematics of 4th Grade Learners

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Abstract

This experiment was conducted to determine the effects of Face-to-Face Driver Model to the academic performance and attitude towards Mathematics of fourth grade learners. The researcher used quasi-experimental design. Sixty respondents came from two sections of 4th grade learners in one of the elementary schools in Dasmariñas. Control and experimental groups were statistically equated at the start of the experiment. Findings revealed that there was a significant difference in the mean achievement in Mathematics and academic performance mean scores of each groups. The group exposed in the integration of technology obtained a higher mean gain. There is no significant difference in the attitude of the control group. However, there was a significant difference in the attitude of the experimental group. There was a significant difference in the gain score between the experimental and control groups, but no significant difference existed on achievement and attitude of the group according to types of learner. There was a significant difference in the change in attitude and performance of the students in the experimental and control group while there was no significant difference in the change on attitude and performance of different type of learners. Likewise, the interaction effect of treatment (control and experimental) and type of learner (auditory, visual, and tactile) was not significant. The result indicated that learners' performance and positive attitude of learning towards Mathematics increased when technology is integrated. The findings also led to the conclusion that Faceto-Face Driver Model proves to be a better approach in teaching 4th grade Mathematics.

Keywords: Face-to-Face Driver Model, 4th Grade Mathematics, type of learner

Mathematics is the science that deals with the logic of shape, quantity and arrangement. Although Mathematics seemed to be everywhere, many people do not have the basic mathematics skills needed to function successfully in school (Hom, 2013). In addition, those difficulties in Math can persist and become seriously debilitating in adulthood (Garnett & Fleischner, 1987).

It is very important that in every stage, the ability and confidence of students to perform basic arithmetic is developed and nurtured. Pupils should understand and perform complete solution involving basic concept and arithmetic before they are promoted to the next level. Incomplete mastery of basic number facts, such as the multiplication tables or simple addition and subtraction, is a common problem for math pupils. Number facts are the building blocks for learning math and are necessary for understanding more complex concepts.

Mathematics educators are faced with lots of struggles and problems on how they can improve mathematics education to help pupils improve their performance. This drove the teaching staff to use the modern teaching technologies to face some of the main problems, which education and its productivity encounter, by increasing the learning level which may be achieved through providing equivalent opportunities for all people whenever and wherever they are, while taking into account the individual differences between learners (Saied, 1997; Wilkinson, 1986).

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But until today, the traditional "chalk-talk" classroom situation still exists. This technique needs slight modification considering the advancement of technology. Integrating technology in the classroom proved to be efficient. Blending instruction will help the teachers to give more opportunity for the learners to be happier and more engaged during the course.

Today's K-12 pupils are very different even from their recently graduated peers. They live in a world in which digital technology is part of the texture of their daily lives. They have never known a world without technology. Technology is their native language and they expect to use technology in school. Technology have fundamentally transformed all aspects of our lives, and many education reformers agree that it can and must be an important part of the current efforts to personalize education (Christensen, 2008; Collins & Halverson, 2009; U.S. Department of Education, 2010; Wellings & Levine, 2009; Woolf et al., 2010) as cited by (Moeller & Reitzes, 2011) . Despite its availability, technology is not widely integrated into the learning experience; but it can be a powerful tool for educators if it is made part of a comprehensive and systemic effort to change education (Moeller & Reitzes, 2011).

One theory that supports increased access to quality digital learning resources is the behaviorist philosophy of learning. According to this philosophy, teaching should emphasize ways to increase desired behaviors, which can occur through connectionism or operant conditioning. Connectionism stresses that learners form associations between sensory experiences and neural impulses often through trial and error practices. One key component of this theory is that learning should involve practice and rewards that increase desired behaviors, which is what many educational technology applications are built around. Many apps serve to increase drill practice such as learning a foreign language and doing math drills or spelling practice, which all help a student's overall learning (Wardlow, 2016).

This study is supported by Cognitive Learning Theory of Piaget that emphasizes the stages of intellectual growth. This theory provides foundation for understanding the learner's schema as an organize knowledge structure that is designed to interpret information. Knowledge acquisition can be identified as the outcome of interaction between new experiences and knowledge that has already been obtained. In regards to blended learning, when teachers apply a cognitive approach to the curriculum they are able to focus, understand, and apply concepts in terms of their relationships. Learners are able to understand the connections made between concepts, the breakdown of information, and the rebuilding of new information.

Osguthorpe and Graham (2003) stated that instructional objectives, many different personal learning styles and learning experiences, the condition of online resources, and the experience of trainers, play an important role in designing an effective blended learning environment and establishing the equilibrium between face to face and e – learning environment. As some authors (Maddux, Ewing-Taylor, & Johnson, 2002; Thiele, 2003) have noted, when designing e –learning environment, adequate support strategies must be provided for students with different learning styles and adapt online course design to accommodate these styles. Catering to the different learning styles could result in higher retention in e – learning environment.

According to recent studies, students learn better in a blended model rather than fully online or in a traditional brick and mortar environment (McLester, 2011). By integrating blended learning models into the classroom, students are more successful with their studies while gaining the critical skill set necessary for survival in the emerging technology world. Blended learning offers a student-centered approach that can foster community, collaboration, and communication by combining the most effective strategies of traditional and technology-based education. When implementing a blended learning model into the classroom, teachers should always first consider a student's individual learning style and needs to assure effective alignment of instructional delivery strategies (McLester, 2011).

Personalizing the teaching learning process would be a great help to all learners. Teachers can find resources that would appeal to all types of learners and at times, give learners the choice as to which to use, it is what every learner needs providing the system a true customization of the teaching-learning process.

Moreover, technology is both highly customizable and intrinsically motivating to students, it is particularly well-suited to expand the learning experience, enhance the acquisition of knowledge and skills and it can improve 21st century learner's outcomes as well. But the question is "how can teachers use

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technology, the Internet, or the computer to enhance instruction and engage students in a meaningful and enjoyable learning experience?" Face-to-face driver model of blended leaning is the answer.

The face-to-face driver model is a type of blended learning in which technology is used alongside traditional teaching to increase success in educational outcomes. Face-to-face classroom teaching is the main mode of delivery in this model, but technology is used to supplement in classroom material and remediation for students. In face-to-face driver model, the teacher delivers most of their curricula in face to face instruction. The physical teacher deploys online learning in a case-by-case basis to supplement or remediate, often in the back of the classroom or in a technology lab (Horn & Staker, 2012).

Kenney and Newcombe (2011) did their comparison to establish effectiveness in view of grades and found that blended learning had higher average score than the non-blended learning environment. One research study, designed by Garrison (2004) concluded that blended learning has the proven potential to enhance both the effectiveness and efficiency of meaningful learning experiences.

Objectives of the Study

The main objective of the study is to determine the effects of face-to-face driver model on the academic performance and attitude towards Mathematics of 4th grade learners of an elementary school in Dasmariñas, Cavite for School Year 2017-2018, knowing the difference between the 4th grade learners who are given instructions using face-to-face driver model (the experimental group) and those who are given instruction using face-to-face classroom teaching (the control group).

Specifically, the study aimed to:

- 1. Determine the comparability of the pre-test scores of the control and experimental groups;
- 2. Determine the Academic Performance and Attitude towards Mathematics of the respondents in each group before and after the experiment;
- Determine the significant difference between the:
 a. pre-test and post-test scores of the experimental group;
 b. pre-test and post-test scores of the control group;
- 4. Determine the significant difference in the gain score between the experimental and control groups.
- 5. Determine the difference on achievement and attitude of the grouped according to types of learner. auditory, visual and tactile learners.
- 6. Determine the moderation effects of the type of learners on the relationship between treatment and a. performance
 - b. attitude

Hypotheses

At 0.05 level, the following hypotheses were tested:

- 1. There is no significant difference between the:
 - a. pretest and post-test scores of the experimental group;
 - b. pretest and post-test scores of the control group;
- 2. There is no significant difference in the gain score between the experimental and control groups.
- 3. There is no significant difference on achievement and attitude of the grouped according to types of learner.

Scope and Limitation of the Study

This study focused on the effects of face-to-face driver model to the academic performance and attitudes towards mathematics of 4th grade learners of an elementary school in Dasmariñas, Cavite for School Year 2017-2018.

Respondents of the study came from two intact grade 4 classes handled by the researcher, the two sections were taught using face-to-face driver model (experimental group) and face-to-face classroom teaching (control group) but only those pupils with complete data such as pretest and posttest in Mathematics Achievement, pretest and posttest in the attitude scale and academic performance in Mathematics before

and after the experiment were considered.

Methodology

Research Design

This study utilized quasi – experimental design to determine the effects of face-to-face driver model to the academic performance and attitudes towards mathematics of 60 4th grade learners. Moreover, to evaluate the outcome of the students' achievement, academic performance, and attitude towards the treatment, the descriptive method was used. This study utilized three instruments—achievement test (pretests and post-tests), attitude scale, and online questionnaire for types of learners (Auditory, tactile and visual). To determine the students' achievement test, the researcher used an adapted twenty five-item test (multichoice) from grade 4 k-12 Philippine Mathematics book (Teachers Guide).

Attitude scale and questionnaires to identify types of learners is taken from online resources.

Research Procedure

The researcher secured a permit from the administration for the conduct of the study.

The experimental group was exposed to face-to-face driver model of blended learning, face-to-face classroom teaching is the main mode of delivery in this model, but technology is used to supplement in the classroom material and remediation for students, with the help of online learning such as YouTube videos, Quipper, online educational resources and the like. In this group, the sections were divided in to two groups. The first group of blendies are already at their mastery level proceeding at a more rapid pace of learning and extending an additional one hour twice a week; the second group of blendies are those learners having difficulties in mastering and comprehending the lessons. Each of the second group were given appropriate skill remediation in an effort to accelerate their learning. They extend an additional one hour 3 times a week. If majority of the class struggled on certain topics, the teacher integrates the use of technology in the classroom/technology lab during Math class with the experimental group.

For the control group (face-to-face classroom teaching), the teacher applied the face-to-face classroom teaching. The teacher delivers the curricula with her own means without the aid of technology and the use of online learning.

The researcher used considered the previous (2nd quarter) and final Math grades (3rd quarter) of the learners to determine the academic performance of the learners before and after the experiment.

Questionnaire from online resources was administered before the experiment to identify the type of learners.

Achievement test and attitude scale was administered to the 2 classes before and after the treatment. All throughout the test, the respondents don't know about experiment of what is going on. Further, detailed statistical analysis was conducted for data analysis.

Statistical Treatment

The data gathered were analyzed using the descriptive statistic, t-test for independent and dependent and multivariate analysis of variance (MANOVA). Descriptive statistics such as mean and standard deviation will be used to determine the academic performance, achievement in, and attitude of the respondents before and after the experiment.

The t-test for correlated sample was utilized for the statistical significant difference between the pretest and posttest scores in achievement test of the experimental and control groups. Gain score analysis is employed to determine the significant difference of the gain scores between the experimental and control groups. T-test for independent samples was also employed in testing the academic performance of the two groups of subjects, before and after the experiment. MANOVA was used to determine the difference on achievement and attitude of the groups according to types of learner.

Results and Discussion
108 Table I

somparability of the Tre Test Scores of the Control and Experimental Groups								
Groups	n	Pretest Mean	t-value	p-value	Remarks			
Control	30	10.1333	490	0.626	NS			
Experimental	30	10.6333						
NO NI (O' 'C (

Comparability of the Pre-Test Scores of the Control and Experimental Groups

NS: Not Significant

Table 2

Attitude Towards Mathematics of the Respondents in Each Group Before and After the Experiment

		Bet	Before After		_			
Groups	n	Mean	SD	Mean	SD	t-value	p-value	Remarks
Control	30	2.4250	.36862	2.4812	.27374	914	.368	NS
Experimental	30	2.4562	.25646	2.7583	.20548	-6.400	.000	S
S: Significant		NS- Not Sig	gnificant					

Table 1 shows that there was no significant difference in the pre-test scores of the experimental and control groups since the t-value of 0.490 has a p-value (0.626) greater than 0.05. The null hypothesis of no significant difference was accepted. This indicates that the two groups were comparable at the start of the experiment.

The table shows the attitude of the respondents towards Mathematics before and after the implementation of the treatment. Based on the results, the respondents on both groups have a positive attitude towards Mathematics before and after the conduct of the study with a mean of (before) 2.43, 2.46 and (after) 2.48, 2.7, respectively, in favour of the experimental group. The standard deviations of the pretest and posttest indicate that the scores of the respondents from each group are close to each other in terms of attitude towards mathematics.

It also revealed that there was no significant difference in the attitude of the control group before and after the experiment since the t-value of 0.914 has a p-value (0.368) greater than 0.05. However, there is a significant difference in the attitude of the experimental group before and after the experiment since the t-value of 6.400 has a p-value (0.000) less than 0.05. Therefore, there was a significant improvement in the attitude of the experimental group after the treatment. The group also showed a positive increase in their attitude towards Mathematics after the integration of face-to-face driver model in teaching compared to the conventional approach.

This supports the study of Gishti (2016) which states that the use of technology in the classroom makes the teaching-learning process more effective and more attractive when delivered on a basis of suitable teaching learning methodologies, thus increasing positive impact on both the student and the learning outcomes.

Likewise, according to Eyyam and Yaratan's (2014) study about the impact of use of technology in mathematics lesson, the students expressed quite positive attitudes towards the use of educational technology.

Table 3

109 Face-To-Face Driver Model: Effects on the Academic Performance and Attitude towards Mathematics of 4th Grade Learners Academic Performance Towards Mathematics of the Respondents in Each Group Before and After the Experiment

		Bef	ore	After				
Groups	n	Mean	SD	Mean	SD	t-value	p-value	Remarks
Control	30	82.8667	2.81294	83.8333	2.99521	-9.522	.000	S
Experimental	30	83.3000	3.52479	85.2667	3.73181	-12.104	.000	S

S: Significant

The control group obtained a mean score of 82.87 before the conduct of the study while the experimental group obtained a mean score of 83.30. After the application of the face-to-face driver model the control group had a mean score of 83.83 while the experimental group obtained 85.27. In addition to this, the standard deviations of the control and experimental groups before and after the treatment were 2.81 and 3.52, and 3.00 and 3.73, respectively. Thus, there was a significant difference in the academic performance of the control and experimental group before and after the experiment since it has a *t*-value of 9.522 has a *p*-value (0.000) less than 0.05 and a *t*-value of 12.104 have a *p*-value (0.000) less than 0.05. The null hypothesis of no significant difference was rejected. There was a significant improvement in the academic performance of the experimental group after the treatment. This implies that the academic performance of both groups increased in favour of the experimental group. This supported the study of Bitter and Pierson (2005) stating: "A recent meta-analysis demonstrated that students using technology had modest but positive gains in learning outcomes over those students who used no technology" (p.107). Vernadakis, N. Giannousi, M. Derri, V. Michalopoulos, M. & Kioumourtzoglou E. (2012). provides a persuasive argument to blended learning supporters that effective learning can also take place in a nontraditional or a blended learning environment.

Pre-Test and Post-Test of Difference Between the Experimental and Control Groups										
		Pre	test	Posttest						
Groups	n	Mean	SD	Mean	SD	t-value	p-value	Remarks		
Control	30	10.6333	3.48873	16.0333	3.82806	-10.090	.000	S		
Experimental	30	10.1333	4.36864	18.1333	4.35283	-14.152	.000	S		

Table 4

S: Significant

The statistics showed that there was a significant difference in the pre-test and post-test scores of the control group before and after the experiment since the t-value of 10.090 has a p-value (0.000) less than 0.05. The null hypothesis of no significant difference was rejected. There was a significant change in the scores of the control group after the treatment. It revealed a significant difference in the pre-test and post-test scores of the experimental group before and after the experiment since the t-value of 14.152 has a p-value (0.000) less than 0.05. The null hypothesis of no significant difference was rejected. Therefore, there was a significant change in the scores of the experimental group after the treatment.

Evidently, the respondents in the experimental group revealed a higher mean gain than the respondents from the control group. It also revealed that learning took place using both teaching approaches under study.

Blended learning substantially improves test scores (Rapposelli, 2013). This affirmed the study of Vernadakis, N. Giannousi, M. Derri, V. Michalopoulos, M. & Kioumourtzoglou E. (2011). indicating that students who attended blended instruction had higher performance scores than those who attended traditional instruction.

Table 5

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Test of Difference Between Gain Score of Experimental and Control Groups								
Groups	n	Mean	SD	t-value	p-value	Remarks		
Control	30	5.4000	2.93140	3.340	.001	S		
Experimental	30	8.0000	3.09616					

S: Significant

The facts showed that there was a significant difference in the gain scores of the control and experimental groups since the t-value of 3.340 has a p-value (0.001) less than 0.05 in favor of the experimental group. The null hypothesis of no significant difference was rejected. The gain score of the experimental group is higher than the control group. This implies that the face-to-face driver model proved to be a better approach in teaching mathematics in so far 4th grade Mathematics is in consideration. This conformed to the study of Gambari, A.I., Shittu, A.T., Ogunlade O., & Osunlade R.O.(2017). which revealed that learners exposed to blended learning mode of instruction performed better than those in traditional teaching method. These findings also, in agreement with Al-Qahtani and Higgins (2013), reported significant difference among the blended learning, e-learning, and traditional teaching method in favor of blended learning. However, the finding of this study contradicts that of Chang, Shu, Liang, Tseng, and Hsu (2014) and Elmer, Carter, Armga, and Carter (2016) which reported no significant difference in achievement of students exposed to blended learning mode, traditional teaching method, and traditional laboratory, respectively.

Table 6

	-			
Groups	Type of Learner	n	Mean	SD
	Auditory	24	11.0000	4.53968
Duotost	Tactile	10	9.1000	3.95671
Pretest	Visual	26	10.3077	3.28353
	Total	e of LearnernAuditory24Tactile10Visual26Total60Auditory24Tactile10Visual26Total60Auditory24Tactile10Visual26Total60Auditory24Tactile10Visual26Total60Auditory24Tactile10Visual26Total60Auditory24Tactile10Visual26Total60	10.3833	3.92770
	Auditory	24	17.5000	4.41342
Deattast	Tactile	10	15.4000	4.94862
Postiest	Visual	26	16.7308	4.51272
	Total	60	16.8167	4.52673
	Auditory	24	2.4271	.29870
Pretest Posttest Attitude before Attitude after	Tactile	10	2.4563	.24482
Attitude before	Visual	26	2.4471	.36129
Pretest Posttest Attitude before Attitude after	Total	60	2.4406	.31523
	Auditory	24	2.6250	.28965
Attitude offer	Tactile	10	2.6438	.25009
Attitude after	Visual	26	2.6058	.28601
	Total	60	2.6198	.27768

Achievement and Attitude of the Auditory, Visual, and Tactile Learner

Table 6 reveals that the pretest mean of auditory learners was 11.00, the tactile learners 9.10 and visual learners 10.31 with a standard deviation of 4.54, 3.96 and 3.28, respectively. The mean for the posttest was 17.50 for auditory learners, 15.40 for tactile, and 16.73 for visual with standard deviations of 4.41, 4.95, and 4.51, respectively.

The mean for the attitude before the treatment was 2.45 for the auditory learners, 2.44 for tactile,

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111 Face-To-Face Driver Model: Effects on the Academic Performance and Attitude towards Mathematics of 4th Grade Learners and 2.63 for visual with a standard deviation of .30, .24 and .36, respectively. The mean for the attitude after the treatment was 2.63 for the auditory learners, 2.64 for tactile, and 2.61 for visual with a standard deviation of .29, .25 and .29, respectively. The number of respondents for each type of learner is as follows: auditory (24) tactile (10) visual (26). Auditory and visual learners are close in number while tactile learners are a few. This is similar to Amran, N., Bahry, F.D., Yusop, Z.M. & Abdullah, S.(2011) findings that tactile learners were the least among their study population. On the other hand, the result displays that the population of this experiment involves more visual learners. Thus, it supports the notion of Louis (2017), "approximately, 65 percent of the population are visual learners, so it's likely you'll have several in your group." But despite of the type of learners, the means and standard deviations are relatively close.

Table 7

		Sum of Squares	Mean Square	F	Sig.	Remarks
	Between Groups	25.745	12.872	.830	.441	NS
Pretest	Within Groups	884.438	15.516			
	Total	910.183				
	Between Groups	31.468	15.734	.762	.472	NS
Posttest	Within Groups	1177.515	20.658			
	Total	1208.983				
A 44:47 1 -	Between Groups	.008	.004	.039	.962	NS
before	Within Groups	5.855	.103			
belote	Total	5.863				
A 44:4- 1.	Between Groups	.012	.006	.072	.930	NS
Attitude	Within Groups	4.538	.080			
anter	Total	4.549				

Test of Difference on Achievement and Attitude of the Auditory, Visual and Tactile Learners

NS: Not Significant

As reflected, it turned out that there was no significant difference in pretests and posttests between groups in terms of achievement and attitude since the F-values of 0.830, 0.762, 0.039, 0.072 and 0.008 have p-values (0.441, 0.472, 0.962, 0.930) greater than 0.05. The null hypothesis that there is no significant difference on achievement and attitude of the grouped according to types of learner was accepted.

This is similar to Awang, H., Samad N.A., Faiz N., Roddin R. (2017) study that there is no significant difference between learning style with students and academic achievements. Omar, Mohamad, and Paimin, (2015) proved that learning style does not affect academic achievement. This can be carried out with Abd Wahab (2006) who stated that academic achievement is not due to students' learning style as cited by Awang, H., Samad N.A., Faiz N., Roddin R. (2017. However, these results contradicted with the research study of Mutua Meshack Nzesei (2015) that there is a significant relationship between learning styles and educational achievement.

Moreover, Kopsovich's (2001) study on the relationship between learning styles of students and their Mathematics scores on the Texas assessment of academic skills test established that the learning style preferences of all students in the area of persistence significantly impacted their math achievement scores.

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The Moderation Effects of the Type of Learners on the Relationship Between Treatment and Performance								
Type III Sum of Squares	DF	Mean Square	F	Sig	Remarks			
1012.749a	6	168.791	36.422	.000	S			
143.889	1	143.889	31.049	.000	S			
3.204	2	1.602	.346	.709	NS			
18.712	2	9.356	2.019	.143	NS			
250.251	54	4.634						
1263.000	60							
	Journal of Education, <i>ffects of the Type of Learne</i> Type III Sum of Squares 1012.749a 143.889 3.204 18.712 250.251 1263.000	Journal of Education, Psychology ffects of the Type of Learners on the Type III Sum of Squares DF 1012.749a 6 143.889 1 3.204 2 18.712 2 250.251 54 1263.000 60	Journal of Education, Psychology, and Humanities ISSN 259 ffects of the Type of Learners on the Relationship Be Type III Sum of Squares DF Mean Square 1012.749a 6 168.791 143.889 1 143.889 3.204 2 1.602 18.712 2 9.356 250.251 54 4.634 1263.000 60 60	Journal of Education, Psychology, and Humanities ISSN 2599-5294 ffects of the Type of Learners on the Relationship Between Treat Type III Sum of Squares DF Mean Square F 1012.749a 6 168.791 36.422 143.889 1 143.889 31.049 3.204 2 1.602 .346 18.712 2 9.356 2.019 250.251 54 4.634	Journal of Education, Psychology, and Humanities ISSN 2599-5294 ffects of the Type of Learners on the Relationship Between Treatment and Type III Sum of Squares DF Mean Square F Sig 1012.749a 6 168.791 36.422 .000 143.889 1 143.889 31.049 .000 3.204 2 1.602 .346 .709 18.712 2 9.356 2.019 .143 250.251 54 4.634			

a. R Squared = .802 (Adjusted R Squared = .780)

The statistics showed that there was a significant difference in the change in performance of the students in the (type) experimental and control group (F-value = 31.049; p-value = 0.000) while no significant difference in the change in performance of different learners (F-value = 0.346; p-value = 0.709).

Likewise, the interaction effect of treatment (type) and type of learner (auditory, visual and tactile) was not significant (F-value = 2.019; p-value = 0.143). This further implies that the type of learner was not a moderating variable in the effect of the treatment on the performance of the learners.

McWilliams (2001) observed student performances in computer-assisted learning environments and did not find a significant difference in terms of learning styles. In a similar study, Corman (1986) did not find a significant difference between learning styles and performance. This also agreed with the study of Pellon, Nome, and Aran, (2013) that learning styles do not affect the academic performance of the students. Both variables act independently of each other.

On the contrary, this study opposed the findings of Chermahini, Ghanbari, and Talab (2013) that learning style can be considered as a good predictor of academic performance and it should be taken into account to improve students' performance.





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perimental and control groups. Meanwhile since the lines are intersecting, this indicated that the means (performance) of the 3 learners are not different.



Figure 2. Means Academic Performance of Experimental and Control groups

The graph on Figure 2 shows that there was a difference in the means (performance) of the experimental and control groups. Meanwhile the two sets of lines indicated that the means (performance) of the 3 learners are not different.

Table 9

The Moderation Effects of the Type of Learners on the Relationship Between Treatment and Attitude

Source	Type III Sum of Squares	DF	Mean Square	F	Sig	Remarks
Model	31.165a	6	5.194	26.685	.000	S
Туре	5.747	1	5.747	29.524	.000	S
Learner	.171	2	.086	.440	.646	NS
Type * Learner	.223	2	.111	.572	.568	NS
Error	10.511	54	.195			
Total	41.676	60				

a. R Squared = .748 (Adjusted R Squared = .720)

Table 9 reveals that there was a significant difference in the change in attitude of the students in the (type) experimental and control group (F-value = 29.524 and p-value = 0.000) while no significant difference in the change in attitude of different learners (F-value = 0.440 and p-value = 0.646). Likewise, the interaction effect of treatment (type) and type of learner (auditory, visual and tactile) was not significant (F-value = 0.572 and p-value = 0.568). This further implies that the type of learner is not a moderating variable in the effect of the treatment on the attitude of the learners.

In addition, this agrees with the study result of Azizoglu and Ceti (2009) that learning styles do not

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affect the attitude of students towards studies course. However, the results seemed to be in conflict with the study of Irvine and York (1995) that a student's learning style, if accommodated, can result in improved attitudes toward learning. Çalişkan and Kilinç (2012) found out that there is a positive significance between the learning styles of learners and their attitude levels towards the subject.



Figure 3. Means Academic Performance of Experimental and Control groups

Figure 3: shows that there was a difference in the means (performance) of the experimental and control groups. Meanwhile since the lines are intersecting, this indicated that the means (performance) of the 3 learners are not different.



Figure 4. Means Academic Performance of Experimental and Control groups The graph on Figure 4 shows that there was a difference in the means of the experimental and

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Face-To-Face Driver Model: Effects on the Academic Performance and Attitude towards Mathematics of 4th Grade Learners control groups. Meanwhile since the lines the two sets of lines indicated that the means (attitude) of the 3 learners were not different.

Conclusions and Recommendations

Based on the results of the study, an integration of technology in the learning environment is amusing and stimulating on the part of the learners; it promotes learner-centered learning which can eventually lead to an increase in their involvement and participation in the learning process. Both groups improved in their achievement and academic performance whether exposed to technology or not, but it was clearly shown that learners in the experimental group performed better by having higher mean scores and positive responses towards Mathematics after they have received instruction through the facilitation of the experiment regardless of their learning style. Thus, it can be concluded that learners provided with face-to-face driver model instructions have higher performance and have more positive attitude towards Mathematics, and it was proved to be a better approach in teaching appropriate for 4th graders.

The study revealed that application of face-to-face driver model improved the performance and attitude of the learners towards Mathematics. In line with this, the researcher recommends that the school administration provide a venue for teachers to learn and practice the use of face-to-face driver model that includes seminars and forum. Likewise, Mathematics teachers should be updated from the modern trends in teaching so as to maximize the benefits of learning. Lastly, a replication of this research may be conducted in a bigger population and higher grade levels for further assessment of this model in other subject areas or other aspects not covered by this study, especially that the current curriculum strongly promotes more meaningful activities rather than lecturing. As well as to provide great management insights into developing effective strategies that will allow schools to create new opportunities for their learners and teachers.

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