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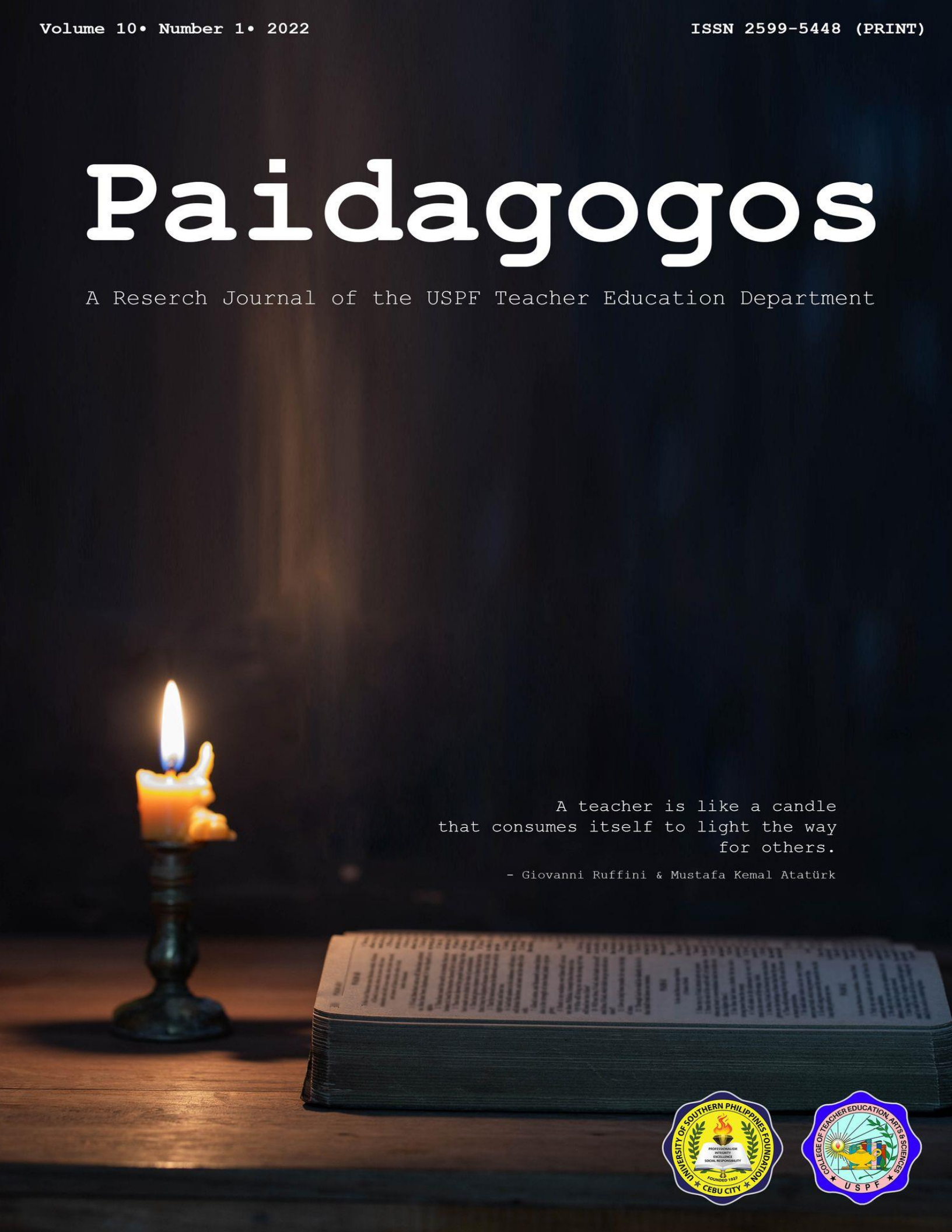

A teacher is like a candle
that consumes itself to light the way
for others.

- Giovanni Ruffini & Mustafa Kemal Atatürk

Editorial Page

Foreword

Paidagogos is the research journal of the College of Education now the Teacher Education Department. This is the first online issue but the tenth (10th) volume of the print journal with ISSN 2599-5448.

The articles are products of the collaborative effort of the researchers with the guidance of their advisers.

Journals like this is a clear manifestation of the University's initiatives in establishing a culture of research and become a research university.

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University President

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THE EFFICACY OF PORTFOLIO ASSESSMENT AND THE LEARNING OUTCOMES OF THE THIRD YEAR FIELD STUDY EDUCATION STUDENTS

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Abstract

Assessment plays a crucial role in education. There is a shift from the traditional mode of assessment to alternative modes of assessment in measuring students' performance and development. One of the alternative methods in education is portfolio assessment. The main purpose of the study is to determine the significant relationship between the efficacy of portfolio assessment and the learning outcomes of the Third Year Field Study Education students in the second semester of S.Y. 2019-2020. The study made use of the descriptive correlation method with twenty students as respondents identified through purposive sampling. Researcher-made questionnaires were used and gathered data were tested using simple percentage, weighted mean, and Pearson r. Findings revealed that portfolio assessment is often effective in both areas such as student development and student self-assessment.

Keywords: *efficacy, portfolio assessment, learning outcomes, field study*

INTRODUCTION

Recent developments and demands in science and society have deeply affected education (Birign, O. & Baki, A., 2007). There is a shift from the traditional mode of assessment to alternative modes of assessment in measuring students' performance and development. One of the alternative methods in education is portfolio assessment. Although there are numerous assessment tools and strategies being used, ones that may be particularly relevant to the educational context of developing countries such as Indonesia, Malaysia, Mexico, Philippines, Thailand and Turkey are the use of portfolios (Price et al., 2011). Recent research efforts have demonstrated numerous benefits of using nontraditional assessment that provide a clearer picture of student learning which allow demonstration of knowledge as cited by Melanie and Oscar (2017). Portfolios can be a source of motivation for students as well as promote student development and student self-assessment as elicited by McDonald (2012). Helping students develop a love of learning, become self-directed learners, and have a positive sense of self are often identified by teachers as the most important goals to achieve with their students. When teachers articulate these or other personal goals, they are better able to select instructional and assessment approaches that will help them, and their students achieve both personal goals and external goals. Portfolio assessment enables teachers to meet both personal and external goals

because the process of developing a portfolio and the product created can target a variety of goals (Bower, B. et al., 2020).

The main purpose of the study was to determine the significant relationship between the efficacy of portfolio assessment and learning outcomes with the hypothesis that there is no significant relationship between the level of portfolio assessment and the level of learning outcomes of the Third Year level Field Study Education students on the second semester of S.Y. 2019-2020.

METHODOLOGY

Research Design, Respondents, Instrument and Statistical Tools

The researchers used the descriptive correlation method to describe and interpret the gathered data. The respondents were the 23 Third year Education students who took up Field Study subject. Purposive sampling was used, and the survey questionnaires were pilot tested. The instrument is a researcher- made test from the study of Thomas, S. (1996) entitled "Portfolio Analysis: A Survey of Teacher Attitudes and Knowledge," the study of Elango et al. (2005) entitled "Portfolio as a Learning Tool: Students' Perspective" and The National Academies Press (2020). They were modified to fit the kind of students who answered the test. The instruments were pilot tested and validated using Cronbach's Alpha. The result of validation of both tools were 0.8 which means that the tools were good. Simple percentage, weighted mean, and Pearson r were utilized in the study.

RESULTS

Table 1

Profile of the Field Study students in terms of Major

Majors	Number of Respondents	Percentage
Bachelor of Elementary Education Major in Content Area	7	35%
Bachelor of Elementary Education Major in Special Education	2	10%
Bachelor of Secondary Education Major in English	5	25%
Bachelor of Secondary Education Major in Physical Science	3	15%
Bachelor of Secondary Education Major in Biology	1	5%
Bachelor of Secondary Education Major in Computer Education	2	10%
TOTAL	20	100%

Table 1 shows the profile of the respondents in terms of Major. Most of the respondents were students enrolled in Bachelor of Elementary Education Major in Content Area with a total number of **7** and which percentage reveals **35%** out of **100%**. This has been followed by another **5** respondents enrolled under the degree program of Bachelor of Secondary Education Major in English which percentage shows **25%** out of **100%** and **3** respondents were enrolled in Bachelor of Secondary Education Major in Physical Science. The degree programs Bachelor of Elementary Education Major in Special Education and Bachelor of Secondary Education Major in Computer Education have the same number of respondents with a percentage rate of **10%** out of **100%**. Lastly, **1** respondent is under the degree program of Bachelor of Secondary Education Major in Biology.

Table 2

Level of Portfolio Assessment Effective in terms of Student Development

Indicators	Weighted Mean	Responses	Interpretation
1. **There needs to be more teacher training to explain how portfolios work and how they may benefit students.**	**4.4**	**Agree**	**Often Effective**
2. **Writing the portfolio has helped my personal and professional development.**	**4.5**	**Agree**	**Often Effective**
3. **Students would develop a more positive attitude about writing and reading by developing an individual portfolio of their own.**	**4.8**	**Strongly Agree**	**Always Effective**
4. **I normally write the portfolio on a regular basis in every posting.**	**4**	**Agree**	**Often Effective**
5. **I use resources other than textbooks to write the learning issue.**	**4.5**	**Agree**	**Often Effective**
6. **The portfolio is a useful additional learning tool.**	**4.6**	**Agree**	**Often Effective**
7. **The portfolio writing has changed my approach to learning.**	**4.4**	**Agree**	**Often Effective**
8. **Writing the portfolio has help me to monitor the learning goals.**	**4.5**	**Agree**	**Often Effective**
9. **I can appreciate that my written communication has improved.**	**4.4**	**Agree**	**Often Effective**
Overall mean	**4.5**	**Agree**	**Often Effective**

Legend:

4.6 - 5.0	**Strongly Agree**	**Always Effective**
3.7 - 4.5	**Agree**	**Often Effective**
2.8 – 3.6	**Neutral**	**Occasionally Effective**
1.9 – 2.7	**Disagree**	**Rarely Effective**
1.0 – 1.8	**Strongly Disagree**	**Never Effective**

Table 2 reveals the level of portfolio assessment effective in terms of student development. The result shows an overall mean of **4.5** which means that portfolio assessment is often effective among students. The highest weighted mean is **4.8** in which most of the respondents strongly agreed that portfolio assessment enable students develop a more positive attitude about writing and reading by developing an individual portfolio of their own, thus always effective. The lowest weighted mean is **4** which means that portfolio assessment is often effective since most of the respondents normally write the portfolio on a regular basis in every posting.

Table 3
Level of Portfolio Assessment Effective in terms of Student Self-Assessment

Indicators	Weighted Mean	Responses	Interpretation
1. **I enjoy writing the portfolio.**	**4.4**	**Agree**	**Often Effective**
2. **Reviewing others' portfolios is very useful.**	**4.5**	**Agree**	**Often Effective**
3. **The portfolio encourages self-reflection.**	**4.6**	**Strongly Agree**	**Always Effective**
4. **Writing the portfolio has given me an insight into outcome-based education.**	**4.5**	**Agree**	**Often Effective**
5. **I usually reflect on the problems that I am discussing.**	**4.2**	**Agree**	**Often Effective**
6. **The portfolio has changed the way I think when I encounter problems.**	**3.9**	**Agree**	**Often Effective**
7. **Writing the portfolio has helped me to recognize my strength and weakness.**	**4.3**	**Agree**	**Often Effective**
8. **It has helped me in self-directed learning as I can analyse problems on my own.**	**4.4**	**Agree**	**Often Effective**
9. **Writing the portfolio has helped me to revise my work.**	**4.4**	**Agree**	**Often Effective**
Overall mean	**4.3**	**Agree**	**Often Effective**

Legend:		
4.6 - 5.0	**Strongly Agree**	**Always Effective**
3.7 - 4.5	**Agree**	**Often Effective**
2.8 – 3.6	**Neutral**	**Occasionally Effective**
1.9 – 2.7	**Disagree**	**Rarely Effective**
1.0 – 1.8	**Strongly Disagree**	**Never Effective**

Table **3** reveals the level of Portfolio Assessment effective in terms of student self-assessment with an overall weighted mean of **4.3**. The highest weighted mean is **4.6** which means that portfolio assessment is always effective since it encourages self-reflection. The lowest weighted mean is **3.9** which means that portfolio assessment is often effective in terms of the way portfolio have changed the way they think when encountering problems.

Table 4
Level of Learning Outcomes in the area of Knowledge

Indicators	Weighted Mean	Responses	Interpretation
1. **Gaining knowledge classifications, works, major figures, etc.**	**4.7**	**Strongly Agree**	**Extremely Satisfied**
2. **Gaining an understanding of theories, fundamental concepts, or other important ideas.**	**4.5**	**Agree**	**Very Satisfied**
3. **Learning to understand professional/scholarly literature.**	**4.6**	**Strongly Agree**	**Extremely Satisfied**
4. **Learning to interpret primary texts or works.**	**4.5**	**Agree**	**Very Satisfied**
5. **Learning techniques and methods for gaining new knowledge in this subject.**	**4.8**	**Strongly Agree**	**Extremely Satisfied**
6. **Gaining an understanding of the relevance of the subject matter to real-world issues.**	**4.7**	**Strongly Agree**	**Extremely Satisfied**
7. **Gaining an understanding of the historical and social context in which the subject has developed.**	**4.7**	**Strongly Agree**	**Extremely Satisfied**
8. **Gaining an understanding of different views and perspectives on the subject.**	**4.5**	**Strongly Agree**	**Extremely Satisfied**
9. **Discovering the implications of the course material for understanding myself (interests, talents, preconceptions, values, etc).**	**4.9**	**Strongly Agree**	**Extremely Satisfied**
Overall mean	**4.6**	**Strongly Agree**	**Extremely Satisfied**

Legend:		
4.6 - 5.0	**Strongly Agree**	**Extremely Satisfied**
3.7 - 4.5	**Agree**	**Very Satisfied**
2.8 – 3.6	**Neutral**	**Unsure**
1.9 – 2.7	**Disagree**	**Slightly Satisfied**
1.0 – 1.8	**Strongly Disagree**	**Not at all satisfied**

Table 4 shows the level of learning outcomes of the Third Year Level Field Study Education students in the area of knowledge. Findings revealed that the highest weighted mean is **4.9** which states that almost all of the respondents are extremely satisfied in discovering the implications of the course material for understanding themselves specifically interests, talents, preconceptions and values. The lowest weighted mean are numbers 2, 4 and 8 with a weighted mean of **4.5** which means that respondents are very satisfied in gaining an understanding of theories, fundamental concepts, or other important ideas, learning to interpret primary texts or works and gaining an understanding of different views and perspectives on the subject.

Table 5
Level of Learning Outcomes in the area of Skills

Indicators	Weighted Mean	Responses	Interpretation
1. **Developing skill in critical thinking.**	**4.6**	**Strongly Agree**	**Extremely Satisfied**
2. **Developing skill in problem solving.**	**4.7**	**Strongly Agree**	**Extremely Satisfied**
3. **Developing skill in critical/analytical writing.**	**4.7**	**Strongly Agree**	**Extremely Satisfied**
4. **Developing creative capacities.**	**4.8**	**Strongly Agree**	**Extremely Satisfied**
5. **Developing the ability to conceive and carry out independent work.**	**4.6**	**Strongly Agree**	**Extremely Satisfied**
6. **Developing the ability to work collaboratively with others.**	**4.7**	**Strongly Agree**	**Extremely Satisfied**
7. **Developing skill in expressing ideas orally.**	**4.5**	**Agree**	**Very Satisfied**
8. **Developing skill in expression through art, music, media, writing, design, or performance.**	**4.5**	**Agree**	**Very Satisfied**
9. **Developing specific skills or competencies, such as artistic techniques, production methods, laboratory methods, quantitative techniques, computer applications, or fieldwork methods.**	**4.5**	**Agree**	**Very Satisfied**
Overall mean	**4.62**	**Strongly Agree**	**Extremely Satisfied**

Legend:

4.6 - 5.0	**Strongly Agree**	**Extremely Satisfied**
3.7 - 4.5	**Agree**	**Very Satisfied**
2.8 – 3.6	**Neutral**	**Unsure**
1.9 – 2.7	**Disagree**	**Slightly Satisfied**
1.0 – 1.8	**Strongly Disagree**	**Not at all satisfied**

Table 5 reveals the level of learning outcomes of the Field Study students in the area of skills. The highest weighted mean is **4.8** which means that respondents are extremely satisfied in developing creative capacities. On one hand, the lowest weighted mean is **4.5** under numbers **7**, **8** and **9** which means that respondents are very satisfied specifically in developing skill in expressing ideas orally, developing skill in expression through art, music, media, writing, design, or performance and developing specific skills or competencies, such as artistic techniques, production methods, laboratory methods, quantitative techniques, computer applications, or fieldwork methods.

Table 6

Correlation between the Efficacy of Portfolio Assessment and the Learning Outcomes of the Third Year Level Field Study Education Students on the Second Semester of S.Y. 2019-2020

Variables	Computed r	Degree of Relationship	Computed P-value	Decision	Interpretation
Efficacy of Portfolio Assessment vs Learning Outcomes	**0.106**	**Negligible Correlation**	**0.675**	**Accept H_0**	**Not Significant**

Table 6 reveals the correlation between the Efficacy of Portfolio Assessment and the Learning Outcomes of the Third Year Level Field Study Education Students on the Second Semester of S.Y. 2019-2020. The study aimed to determine if there is a significant relationship between the two variables. The **r** represents the measure of the strength of the association between the two variables which results to **0.106**. The degree of relationship is negligible correlation as the findings revealed that anything less than **0.4** is considered a weak or no correlation. The computed p-value of **0.675** is higher than the conventional alpha of **0.05**, thus the correlation coefficient is statistically not significant.

DISCUSSION

This study was conducted because the researchers would like to test and determine if portfolio assessment is effective and has a significant relationship on the learning outcomes of the Third Year Field Study Education students on the Second Semester of S.Y. 2019-2020. The findings of the study revealed the following:

- Majority of the respondents are Bachelor of Elementary Education Major in Content Area. The respondents were 3rd Year Level Field Study Education students;
- In terms of the efficacy of portfolio assessment, both the student development and student self-assessment of the students agree;
- The level of the Third Year Field Study Education students' learning outcomes in knowledge and skills are both strongly agree; and
- There is no significant relationship between the efficacy of portfolio assessment and the learning outcomes of the Third Year Field Study Education students in the Second Semester of S.Y. 2019-2020.

It can be deduced that portfolio assessment is often effective in terms of student development and student self-assessment. This is supported in the study entitled "A Study on Portfolio Assessment as an Effective Self-Evaluation Scheme" by Lucas, G. (2008). Data showed that through this alternative self-evaluation scheme, students were able to identify the various

linguistic problems involving all the macro-skills. Moreover, through this assessment students were able to address these deficiencies through the learned independence and self-autonomy in learning that they have developed.

In terms of students' learning outcomes in knowledge and skills, both aspects gained an extremely satisfied result. The study of Sjoberg, M. and Nyberg, E. (2019) entitled "Professional Knowledge for Teaching in Student Teachers' Conversations about Field Experiences" showed the possibilities of structured group discussions about field experiences in a collegiate setting in a short-track teacher education program, regarding student teachers' development as becoming teachers. A different study entitled "Development of Training Skills in Students as the Precondition for Educational Competencies" by Medeshova, A. (2016) deals with the development of educational competencies through active approach to the content of modern Kazakhstani education, research opinions on student training skills and interconnection between personal skills and competence of students. Assimilation of educational content by the students presents a complex process. Because of this process, students expand their knowledge, develop their abilities and skills and thus competence is formed through the development of relevant knowledge and skills. As stated by Bishop and Glynn (2017), students who are actively building their understanding of new concepts (rather than merely absorbing information), who have developed a variety of strategies that enable them to place new ideas into a larger context, and who are learning to judge the quality of their own and their peer's work against well-defined learning goals and criteria, are also developing skills that are invaluable for learning throughout their lives.

On the efficacy between portfolio assessment and learning outcomes, the study showed that there is no significant relationship between the two variables. The study conducted by Sharifi, A. (2007) negates the findings of the study. It dedicated itself to investigate the effect of using portfolio assessment technique and reflection activities on students' writings and process writing as part of the learning outcomes of the students in the area of skills. Based on the findings achieved in this study, the effectiveness of the treatment was confirmed. The study of Sulistyo, K. et al. (2020) showed that the implementation of portfolio assessment increased the students' knowledge and skills. It was also found that the students' knowledge of global issues (content and organization) also increased more significantly than the local issues (grammar, vocabulary, and mechanics) which also negates the findings of the study.

CONCLUSION

Portfolio is an important tool in the assessment of students' performance. Field Study Education students should continue to use it as a way of identifying their strengths and weaknesses, assess their own learning and enhance or develop their own personal and professional growth as future educators. Teachers should create and provide enough materials needed to enhance students' skills and knowledge to equip them to compete globally and possess the skills of a 21st century educator. As the locale of the study is confined within the school, future researchers may adapt and enhance the findings of this study.

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ANTON MAKARENKO'S EDUCATIONAL ENVIRONMENT AND LEV VYGOTSKY'S THEORY OF SOCIAL CONSTRUCTIVISM

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Abstract

Inclusive education is one of many common trends in Philippine education nowadays. It is where diverse types of students who have different backgrounds, learning styles, strengths and weaknesses are merged into one classroom setting. This contributes greatly to stress that teachers have experienced. However, there is one Ukrainian educator in the name of Anton Makarenko who made it possible to educate various types of students such as young street waifs and strays, teenage prostitutes, and juvenile delinquents into successful professionals. In line with these thoughts, this study endeavors to prove that Anton Makarenko's view on motivating the students, his educational practices, educational principles, and educational theory are reflections of Lev Vygotsky's Theory of Social Constructivism. The testimonies of nine students were studied utilizing a qualitative content analysis employing Mayring's deductive coding. As revealed in the findings, Anton Makarenko's view on motivating the students is intrinsic in orientation. His principles involve the principle of scaffolding and social interaction while his practices include challenging tasks and group work with the teacher as a guide, and his theory of collaboration are reflections of Lev Vygotsky's social constructivism.

Keywords: *Anton Makarenko, Lev Vygotsky, social constructivism, educational theory*

INTRODUCTION

Education is the most powerful weapon which you can use to change the world (Mandela, 1994; Loo, 2018). Loo (2018) elaborated that education is an investment necessary for an individual to reach their full potential and make their own impact in the world. The education systems all over the world change as people and culture change (Coutts, 2016). This could be proven by various historical accounts written about education. What began as informal education before where parents pass their traditions and customs to their children gradually became formalized as different influences came into the picture (Teacher PH, 2018). Along with these changes are underlying general educational goals that every individual must achieve such as survival, production of knowledgeable students, fostering curiosity and inquisitiveness, improve understanding, widening imagination, civilizing students, promote rationality and autonomy, make students care, be concerned of humanity, and develop appropriate social attitudes (Siegel, Phillips, & Callan, 2018). Together with all these identified goals is the birth of interesting educational theories which suggests practical ways on how to make learning effective and consequently achieve those goals. However, there really has not been a single theory which proves to be the

most effective for all types of learners and learning situations (Corley, 2008). Nevertheless, educational theories are important to guide educators before, during and after their classroom instruction (Masaisai, 2018).

The latest goal in education widely known by learners and curriculum planners is to produce transformed lifelong learners equipped with 21st Century skills which include critical thinking, creativity, collaboration, communication, information literacy, media literacy, technology literacy, flexibility, leadership, initiative, productivity, and social skills (United Nations Educational, Scientific, and Cultural Education, 2018). Moreover, in line with this goal, UNESCO (2018) emphasized the importance of the four pillars of education which include learning to know, learning to do, learning to live together, and learning to be. Taking a closer look at these ideas, one would understand the importance of socialization.

Social competence is among the skills needed to survive in this fast-paced and demanding generation (Phillips, 2018). As what Dr. Marjory Phillips (2018) said, social competence does not merely include the ability to fluently speak and maintain good relationships among people but it is a complex and interconnected set of skills that includes the ability to understand social rules, perspectives of people in the society, learning from the ideas of others and sharing what one learned to other people, manage emotions, and using these abilities effectively and appropriately even when dealing with conflict. With all these said, there is basically so much emphasis given on the importance of the role of society in educating learners of today's generation.

Even if there have been so many improvements done in the educational system of the Philippines, it is a nagging truth that out of the estimated 39.2 million Filipinos with an age between 6 and 24 years old, 3.6 million of them are out of school. This is mainly because of social reasons, where 37% is due to family matters, and 24.7% identify lack of personal interest as a reason (Philippine Statistics Authority, 2018). It is only given that, with the weight placed on the role of society in education, educators should be familiar with educational theories which involve society.

Furthermore, as time passes by, inclusive education has become a trend in Cebu City long after it was pioneered by Leonard Cheshire Disability Philippines Foundation last 2005 (Leonard Cheshire Disability Philippines Foundation, n.d.). According to McManis (2017), inclusive education is a setting wherein students, regardless of any challenges they may have, are offered high-quality instruction in a general education classroom. On the other side, Traylor (2018) said that no matter how promising could this be, the fact that this type of education also has its own setbacks should not be ignored. Learners with learning difficulties, different backgrounds, and exceptionalities can be a victim of bullying as what many educators fear, though there may be laws promulgated against it already (Traylor, 2018). And UNESCO's aim to produce learners who know how to live harmoniously with others is at risk.

In line with UNESCO's endeavor to produce learners who know how to live harmoniously with people, University of Southern Philippines Foundation together with its College of Education also made it their mission to produce socially responsible individuals (University of Southern Philippines Foundation, 2018). Carrying the burden of ensuring the safety of students inside the classroom, it is with great importance that teachers, as well as future teachers, equip themselves

with a lot of methods, techniques, and principles that will help them keep a peaceful school environment by handling school and classroom related social issues efficiently.

The aim of the study is for student teachers and educators to have an additional theory to their repertoire of social constructivist theories; that their knowledge about social constructivism will not be limited to Lev Vygotsky's Social Development Theory alone. Thus, the researchers then find it necessary to analyze the contents of an educational theory by Anton Semyonovich Makarenko, which give emphasis on the importance of society in educating the young, to prove that his educational environment is in line with the distinguishing characteristics of a social constructivist theory.

METHODOLOGY

This study employed Mayring's (as cited by Drisko & Maschi, 2016) deductive method of qualitative content analysis. The method primarily used a theory from which themes or categories are made. Also, out of the theory definitions for each theme are drawn out. Those definitions become the basis for the coding of data. Two books were used as instrument in this study. The first book wass entitled "Makarenko: His Life and Works" by Medinsky (1955) and the other book was entitled "Vygotsky's Developmental and Educational Psychology" by Langford (2005).

RESULTS

Table 1

Social Constructivism as Reflected in Anton Makarenko's Views on Motivating Students

Social constructivism view	Anton Makarenko's views through codes
Motivation refers to the reason why a student continues to engage in the learning process.	S1: "….that by showing us such trust Makarenko awakened in us the best human qualities that had lain dormant within us." (Kalabalin as cited by Medinsky, 1955, p. 73)
Criteria for codes: -Intrinsic in origin (Berkeley Graduate Division, 2019).	S2: "Makarenko treated everyone with respect & trusted the children so much so, that we felt ashamed to betray that trust… " (Roitenberg as cited by Medinsky, 1955, p. 87)
-Students feeling a sense of satisfaction and achievement must be the end product of activities undertaken (Woolfolk, 2004).	S3: "The right method of approach to them had to be found, their work had to be made interesting for them, and a sense of pride for the Colony's economic successes had to be cultivated in them." (Ferre as cited by Medinsky, 1955, p. 95)
	S4: "… it has finally come to a point the little communards' life that they read books, watch p-plays and perform their roles in the colony because they love to do it, they know they function as one." (Gorky as cited by Medinsky 1995)
	S5: ''At the moment I entered the dormitory. What happened next had better be told in makarenko's own word"(Zemiyansky as cited by Medinsky, 1955)
	S6: " Makarenko a teacher of klaudia who helps to choose his future career" (Boriskina as cited by Medinsky, 1955).
	S7:"There was one subject that united us more strongly than anything else, and that was Soviet children, their mentality, their future", (Chukovsky as cited by Medinsky, 1955, p. 136).
	S8: "Readers were not only captivated by the brilliance of the pages they had read. They were stirred by the author's personality, by the great feat of his own life, by the heart of wisdom they felt beating beneath his stern exterior. (Fink as cited by Medinsky, 1955, p. 141)
	S9: "Makarenko as being absolutely honest, a very honest person, a very upright, honest, and noble nature, cultured, absolutely honest, no tracer whatever of street-waiftaint, collectivist, a splendid comrade, straightforward, no traces of egoism.(Vigdorovaas cited by Medinsky, 1955, p. 146)

Table 1 showed the data coded regarding Anton Makarenko's educational view on motivating the students. According to Berkely Graduate Division (2019), social constructivism's view on motivating the students is intrinsic in nature. Woolfolk (2004) also emphasized that activities undertaken by the students should produce a sense of satisfaction and achievement. The data coded from sample 2 (Roitenberg as cited by Medinsky, 1955, p. 87) which says that "Makarenko treated everyone with respect & trusted the children so much so, that we felt ashamed to betray that trust…" suggests that students were motivated to learn not because Makarenko trusted them, but because they do not want to feel that feeling of shame. They wanted to face Makarenko with pride.

Table 2

Social Constructivism as Reflected in Anton Makarenko's Educational Principles

Social constructivism view	Anton Makarenko's views through codes
Principles refer to the reason why a student continues to engage in the learning process. Criteria for codes: - Scaffolding principle is emphasized where the teacher guides the students in doing a task if the students are having a hard time accomplishing the task (Woolfolk, 2004). -Emphasized the principle of social interaction to maximize learning (Vygotsky, 1931). -Learning should take place in a cultural or natural setting and concepts are best understood that way (Woolfolk, 2004).	S1: "The members of the special night detachment for combating robbery on the high road were colonist who had themselves been sent to the Colony for taking part in robberies. These arrangements astounded us….Together with us he lay in ambush at night and sometimes risked his life…Makarenko's private office was always crowded. The colonists went there to consult him not only in questions connected with the life of the collective, but on purely private matters." (Kalabalin as cited by Medinsky, 1955, pp.73-75) S2:"…in a few brief words telling me about the great tasks that confronted the commune and about the joys of collective work and life." (Roitenberg as cited by Medinsky, 1955, p. 87) S3: In a context where the students are interested to do gardening but had no idea what to do, a teacher applied what he learned from Makarenko saying "I had to show the children how to clean the seeds, how to speed up transportation of the bags with seed", on another situation the author wrote, "although we were short of hands during the busy farming season, The Commander's Council (composed of teenagers), with the complete approval of Makarenko, always detailed necessary work on the flower beds…" on the scenario when a problem erupted at the colony, the author wrote, "the next morning, Makarenko called a emergency meeting of the Commander's Council; he sat there listening to the students' suggested solutions to the problem until they had a consensus and arrived at an appropriate solution."(Ferre as cited by Medinsky, 1955, pp. 96; 97-98; 105) S4: "Every day children could be seen all over the place, working together, busily engaged in washing, mending, cleaning and painting…" (Gorky cited as Medinsky,1995) S5: "When the Dzerzhinsky Commune was well established Makarenko presented to the children his final demand: No let downs, not a day of demoralization, not a moment of despair."(Zemiyansky as cited by Medinsky 1955) S6: "People of the most professions went out into the world from the Dzerzhinsky Commune. I became an actress."(Boriskina as cited by Medinsky 1955) S7: "Subsequently, I often had occasion to see demonstrations of affection towards him on the part of these young people, but at that time, on the first day we met, what struck me most of all was the delicacy which Makarenko had cultivated in them".(Chukovsky as cited by Medinsky, 1955, pp.136) S8: "A multitude of people, finding themselves for various reasons in a perplexed state of mind, turned to him for advice and comfort. They wrote him, and came to him from far and near to unburden their hearts to him. (Fink as cited by Medinsky, 1955, p. 141) S9: "The book deals with many events, but each of them sinks deep into one's mind. They have a good deal of thought behind them, and this in turn begets new thoughts in the reader". (Vigdorova as cited by Medinsky, 1955, p. 146)

Table 2 presented the data coded regarding Anton Makarenko's educational principles. In this study, three principles of social constructivism were emphasized. The first principle emphasized is the principle of scaffolding which maintains that the teacher stands as a guide to students (Woolfolk, 2004). The second principle pointed out is the principle which states that

social interaction maximizes learning (Vygotsky, 1931). The last principle highlighted is the principle which states that learning should take place in a cultural or natural setting since concepts are best understood in this type of setting (Woolfolk, 2004).

Table 3

Social Constructivism as Reflected in Anton Makarenko's Educational Practices

Social constructivism view	Anton Makarenko's views through codes
Practices refer to the actions undertaken in the educational context in accordance with a theory. Criteria for codes: -Teacher serves as a guide for students' learning (Langford, 2004). -Tasks should challenge students; enough for them not to feel bored nor discouraged (Langford, 2004). - Group work or peer learning is incorporated (Woolfolk, 2004).	S1: "The members of the special night detachment for combating robbery on the high road were colonist who had themselves been sent to the Colony for taking part in robberies. These arrangements astounded us….Together with us he lay in ambush at night and sometimes risked his life." (Kalabalin as cited by Medinsky, 1955, p.73) S2: "the educative importance of productive and profitable collaborative work in the commune was tremendous, but no less important than the work were study and of life, both of which were soundly natural and rationally organized. Life, work, and study were the basis of education…. Makarenko suggested that each of us should write out a new receipt for the money we had received, stating how much he had left. We didn't believe that the communards would honestly make out receipts for the correct sums, but Makarenko said 'I know the communards will make out the right receipts'… believe it or not it worked out exactly to the kopek." (Roitenberg as cited by Medinsky, 1955, p. 88-89) S3: On the scenario when a problem erupted at the colony, the author wrote, "the next morning, Makarenko called an emergency meeting of the Commander's Council; he sat there listening to the students' suggested solutions to the problem until they had a consensus and arrived at an appropriate solution." (Ferre, as cited by Medinsky, p.105) S4:"…Makarenko never interfered unless necessary in the matters of the colony, he was training the communards do reasonable decisions that were made for the good of the community." (Gorky as cited by Medinsky, 1955) S5: "He wrote about children being living human lives, beautiful lives, and that they should there be treated as comrades and cities, and their rights and obligations should be recognized and respected their right to happiness and their obligation to responsibility."(Zemiyansky cited as Medinsky, 1995) S6: "Klaudia wants to be an actress in the theatre. Makarenko is a sensitive person and he was a great lover of theatre so he sense the interest of Klaudia then he suggested to Klaudia the idea of the theatre"(Boriskina as cited by Medinsky 1955) S7: "Obviously, it was not only work discipline he demanded of them, but a fine sensibility as well."(Chukovsky as cited by Medinsky 1955) S8: "Can you name a single work of world literature in which personal happiness is described? You can't and you know it! There no such works..." (Fink as cited by Medinsky 1955p. 143) S9: "Makarenko wrote to his student, Leonid Konisevich: "A disciplined, honest boy and excellent comrade, ardently devoted to the Commune…(Vigdorova as cited by Medinsky 1955, p. 146)

Table 3 showed the coded data regarding Anton Makarenko's educational practices. The researchers had drawn out three key practices in the social constructivist point of view. In a social constructivist setting, the teacher serves as a guide for students' learning, tasks implemented are challenging enough, and group or collaborative work is emphasized.

Table 4

Social Constructivism as Reflected in Anton Makarenko's Educational Theory

Social constructivism view	Anton Makarenko's views through codes
Theory is described as a set of interrelated concepts (Office of Behavioral and Social Sciences Research, 2018) used to understand events, behaviors, and situations (Taraya, 2014). Criteria for codes:	S1: "The members of the special night detachment for combating robbery on the high road were colonist who had themselves been sent to the Colony for taking part in robberies. These arrangements astounded us….Together with us he lay in ambush at night and sometimes risked his life…Makarenko's private office was always crowded. The colonists went there to consult him not only in questions connected with the life of the collective, but on purely private matters." (Kalabalin as cited by Medinsky, 1955, p.73-75)
Emphasizes society as an important source of learning (Woolfolk, 2004; Langford, 2004).	S2: "…in a few brief words telling me about the great tasks that confronted the commune and about the joys of collective work & life…. The educative importance of productive and profitable collaborative work in the commune was tremendous, but no less important than work were study and of life… " (Roitenberg as cited by Medinsky, 1955, p. 87 & 88)
Collaborative work is of importance (Woolfolk, 2004).	S3: On the scenario where the students gathered around to come up with a solution, the author wrote "…Belenky and his mates had it all worked out and were able to prove that our station had never operated at full capacity…" on the later part of the day the author described the output of Belenky's work, ".. and when it became perfectly clear at last that the light had come to stay, everyone began shouting, laughing and cheering…" (Ferre as cited by Medinsky, pp. 106-107) S4: "…in such times, Makarenko never made himself absent, he sees to it that when the communards sit down for dinner, he is there to interact with them…" (Gorky as cited by Medinsky, 1955) S5:"I was with Makarenko at the height of the difficult drive against waifdom. It was in the early years of the Soviet Republic's existence. One day some Cheka men came down and told us they needed our help in housing several hundred street waifs who had their haunt on the outskirts of Kharkov"(Zemiyansky as cited by Medinsky ,1955) S6: "He had never said anything about this in the Commune .I read these lines over a thousand times.They stirred me to the depths of my soul, roused in me a feeling of infinite love for my father, my friend, and protect."(Boriskina as cited by Medinsky, 1955) S7: "He had saved both of his pupils from a criminal career. And now that one is a medical worker. He'll make a good surgeon and as for the one – there'll come a time when you'll queue up to book a seat for one of his concerts".(Chukovsky as cited by Medinsky, 1955) S8: ""There are all kinds of happiness. Happiness at work, in struggle with Nature, with bad social arrangements, with scoundrels – a hard, troublesome, restless happiness. It always goes about in bumps and bruises, but, mark you, it's the only thing that keeps the world going. There is also the quiet happiness of a man who is contented with everything and who wants nothing." (Fink as cited by Medinsky, 1955,p.145) S9: " Its characters continue to live outside its pages. For all of them are real living people, not imaginary ones. They are living and working amongst us, both those whom we know from The Road to Life and those who, though not described in it, grew up and were brought up and educated in the Gorky Colony and the Dzerzhinsky Commune." (Vigdorova as cited by Medinsky, 1955)

Table 4 showed the data coded regarding Anton Makarenko's educational theory. All the data coded from 9 samples suggest that Anton Makarenko's educational theory reflected social constructivism. For one, the coded data from sample one (Kalabalin as cited by Medinsky, 1955, p.73-75) with the italicized statements, "These arrangements astounded us….Together with us he lay in ambush at night and sometimes risked his life…Makarenko's private office was always crowded. The colonists went there to consult him not only in questions connected with the life of the collective, but on purely private matters" pictures a scenario where the students were formed into detachment groups who work together to guard the colony at night. These detachment groups together with Makarenko, learnt a lot from each other and sometimes sought Makarenko for advice.

DISCUSSION

Social constructivism is reflected in Anton Makarenko's educational view on motivating the students in such a way that he also emphasized the importance of intrinsic motivation. The following statements suggests that students were motivated to learn not because Makarenko trusted them, but because they do not want to feel that feeling of shame. They wanted to face Makarenko with pride. This also implies that intrinsic motivation is really emphasized in Anton Makarenko's way of educating his students.

> *"Makarenko treated everyone with respect & trusted the children so much so, that we felt ashamed to betray that trust… "*

> *"….their work had to be made interesting for them, and a sense of pride for the Colony's economic successes had to be cultivated in them"*

In Anton Makarenko's educational principles, social constructivism is reflected through the use of scaffolds. He makes use of social interaction so that students learn important concepts, and he also makes use of natural settings as his learning environment. He suggested solutions to problems until they had a consensus and arrived at an appropriate solution. This is evident in these statements.

> *"…I had to show the children how to clean the seeds."*

> *"..the next morning, Makarenko called an emergency meeting of the Commander's Council; he sat there listening to the students'*

Social constructivism is gleaned in Anton Makarenko's educational practice in a way that he maintained the role of the teacher as guide for student learning. He constantly challenges his students to do the best, and he primarily makes use of group or collaborative work as his learning activity. This can be proven by these statements.

> *"….the educative importance of productive and profitable collaborative work in the commune was tremendous"*

> *"Makarenko suggested that each of us should write out a new receipt for the money we had received, stating how much he had left"*

Each of these statements suggested that Makarenko's educational practice was collaborative and challenging at the same time. The receipts being stolen was a big problem for all students in the colony, that they came to Makarenko for help. Makarenko, seeing that the problem was indeed alarming, interfered and suggested this solution. This only proved that Anton Makarenko's view on the teacher's role as a guide to the learner is true. In fact, Medinsky (1955) highlighted that Makarenko insisted that teachers should serve as facilitators or guides to students.

Furthermore, social constructivism is resonated in Makarenko's educational theory in a way that it emphasized the importance of society as a source of learning. He makes use of collaborative work to make his students learn important concepts. This is mirrored in this statement.

> *"…These arrangements astounded (groupings) us…. Together with us he lay in ambush at night and sometimes risked his life…Makarenko's private office was always crowded. The colonists went there to consult him not only in questions connected with the life of the collective, but on purely private matters"*

CONCLUSION

The results provided a glimpse of the similarities between Anton Makarenko's educational theory to that of Lev Vygotsky's Social Development Theory. Anton Makarenko's view on motivating students reflects a social constructivist nature, his educational principles and practices are parallel with social constructivist's principles, and his educational theory is aligned with that of a social constructivist. Upon thorough analysis of the study, it is hereby recommended that teachers who are teaching major education subjects should tackle Anton Makarenko's theory of collaborative education when theories are discussed. Education students should be encouraged to study more about Anton Makarenko's educational theory. Curriculum planners should make it a point to include in the course syllabi the discussion of Anton Makarenko's educational theory and practices. Finally, future researchers may conduct a study about the effectiveness of Anton Makarenko's educational theory and practices in an inclusive classroom.

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THE PRE-SERVICE TEACHERS' ATTITUDE TOWARD BLENDED LEARNING

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Abstract:

Attitude toward learning is an important factor on every learners' development for it entails educational success. It is attributed to an individual's feeling and behavior toward something. One of the innovations in education is blended learning. It offers flexible time frames that can be personalized to each person, offering them the ability to learn at their own pace. This study investigates the attitude of student teachers toward several dimensions of blended learning. It adopted a survey research methodology to examine the students' attitude. The instrument consisted of 37 items that measured the six different aspects of blended learning: learning flexibility, online learning, study management, technology, classroom learning, and online interaction. The profile of the respondents in terms of enrolled program, level of attitude and the significant difference between the pre-service teachers' attitude toward blended learning and their program enrolled were part of the study. Simple percentage, weighted mean, and t-test were the statistical tools used in interpreting the gathered data. Results showed that there is no significant difference between the pre-service teachers' attitude toward blended learning.

Keywords: *pre-service teachers, attitude, blended learning, descriptive correlation*

INTRODUCTION

Blended learning is a mixture of learning methods that incorporate multiple teaching modals–most frequently eLearning and traditional face-to-face learning (Teachthought.com). It is a natural development to the growing accessibility of eLearning, online resources, and the continued need for a human component in the learning experience. A blended learning approach ensures that the learner is engaged and driving his individual learning experience as this also helps cater to the individual needs of the learner.

Blended learning is important because it breaks down the traditional walls of teaching, ones that don't work for all students and now with access to present-day technologies and resources we can tailor the learning experience for each student. Blended learning also offers flexible time frames that can be personalized to each person, offering them the ability to learn at their own pace (Giarla, 2016). Roberta Gogos (2014), one of the authors in eLearning Industry and VP of Marketing at Loop, explained that blended learning is a buzz word that has been thrown around quite a bit lately that brings together the best of both classroom learning and eLearning. It seems

to be the ideal solution all-around as it appeals to all learning styles, circumstances, needs and demands. It combines the support of classroom learning with the flexibility of eLearning.

A study conducted by Mugenyi Justice Kintu, Chang Zhu and Edmond Kagambe (2017) entitled "Blended Learning Effectiveness: The Relationship between Student Characteristics, Design Features and Outcomes" found that some of the student characteristics/backgrounds and design features are significant predictors for student learning outcomes in blended learning. Another study by Kintu and Zhu (2016) investigated the possibility of blended learning in an Ugandan University and examined whether student characteristics (such as self-regulation, attitudes towards blended learning, computer competence) and student background (such as family support, social support and management of workload) were significant factors in learner outcomes (such as motivation, satisfaction, knowledge construction and performance). The characteristics and background factors were studied along with blended learning design features such as technology quality, learner interactions, and Moodle with its tools and resources. The findings from that study indicated that learner attitudes towards blended learning were significant factors to learner satisfaction and motivation while workload management was a significant factor to learner satisfaction and knowledge construction. Among the blended learning design features, only learner interaction was a significant factor to learner satisfaction and knowledge construction. A study conducted by Aladwan, F. et. Al.,(2018) entitled " Students Attitudes toward Blended Learning among Students of the University of Jordan" indicated that blended learning is useful to students, and that most students fully understand the goals of e-learning through blended learning. In general, the students have shown positive attitude towered blended learning.

In this study, the researchers would like to examine the attitude of the pre-service teachers toward the several dimensions of blended learning whether they have a positive attitude or a negative one. It also seeks to find out if there is a significant difference in their attitude toward blended learning and their enrolled program.

METHODOLOGY

The researchers used the descriptive correlation method to determine and interpret the data gathered on the pre-service teachers' attitude towards blended learning. The respondents of the study were the twenty Fourth year Education students at University of Southern Philippines Foundation.

The survey questionnaire measuring students' attitudes was adapted from Tang and Chaw's (2013) study on student readiness for blended learning. It was cited at Dr. Roland Birbal, Dr. Mala Ramdass & Mr. Cyril Harripaul's study at Journal of Education and Human Development, Vol. 7, No. 2, June 2018. Their instrument consisted of 37 items that measured students' attitudes towards six different aspects of blended learning: learning flexibility (4 items); online learning (10 items); study management (5 items); technology (4 items); classroom learning (5 items); and online interaction (9 items). Simple percentage, weighted mean, and t-test were the statistical tools used.

RESULTS

Table 1

Profile of Pre-service Teachers in Terms of Program Enrolled

Program	Total Number of Respondents	Percentage
BEED	14	70%
BSED	6	30%
TOTAL	**20**	**100%**

Table 1 showed the profile of the pre-service Education teachers based on their program enrolled. There was a total of 20 respondents from the College of Education. The said respondents were the Fourth-year students enrolled in the Elementary Education and Secondary Education. Most of the respondents in the study were in Elementary education which consisted of 14 students and 6 Secondary education students.

Table 2

Summary Data of the Six Factors of Blended Learning

Indicators	Weighted Mean	Responses	Interpretation
Learning Flexibility	4.62	Strongly agree	Very Positive
Online Learning	3.70	Agree	Positive
Study Management	3.95	Agree	Positive
Technology	4.48	Strongly agree	Very Positive
Classroom Learning	4.52	Strongly agree	Very Positive
Online Interaction	3.92	Agree	Positive
Overall Mean	**4.09**	**Agree**	**Positive**

Legend:

4.24-5.00	Strongly Agree	Very Positive
3.43-4.23	Agree	Positive
2.62-3.42	Undecided	Somewhat Positive
1.81-2.61	Disagree	Somewhat Negative
1.00-1.80	Strongly Disagree	Negative

Table 2 showed the summary data of the pre-service teachers' attitude toward the different factors of blended learning in terms of learning flexibility, online learning, study management, technology, classroom learning and online interaction. Learning flexibility has a weighted mean of 4.62 with an interpretation of very positive. Online learning has a weighted mean of 3.70 with an interpretation of positive. Study management has a weighted mean of 3.95 with an interpretation of positive. Technology has a weighted mean of 4.48 with an interpretation of very positive. Classroom learning has a weighted mean of 4.52 with an interpretation of very positive. Lastly, online interaction has a weighted mean of 3.92 with an interpretation of positive. The pre-service teachers' attitude toward the different factors of blended learning has an overall mean of 4.09 with an interpretation of positive.

Table 3

Significant Difference between the Pre-service Teachers' Attitude toward Blended Learning and Program Enrolled

Variables	Computer *t*	Computed *p*-value	Decision
Pre-service teachers' attitude towards blended learning Between BSED & BEED Program	5.5311	0.56934	There is no significant difference

Legend:

4.24-5.00	Strongly Agree	Very Positive
3.43-4.23	Agree	Positive
2.62-3.42	Undecided	Somewhat Positive
1.81-2.61	Disagree	Somewhat Negative
1.00-1.80	Strongly Disagree	Negative

Table 3 showed that the computed P-value of 0.56934 is greater than the alpha of 0.05, thus there is no significant difference between the pre-service teachers' attitude toward blended learning and the program enrolled.

DISCUSSION

The study of Subrahmanian Muthuraman (2018) entitled "Quality of Blended Learning Education in Higher Education" stated that effective blended learning is in transforming students into active learners in their specialized field. Findings reveal that the level of the pre-service teachers' attitude towards blended learning based on learning flexibility factor is very positive, online learning is positive, study management is positive, technology is very positive, classroom learning is very positive and online interaction is positive. The highest mean among the 6 factors of blended learning is the learning flexibility factor that has a weighted mean of 4.62 with an interpretation of very positive.

The findings are supported by Ayoub C. Kafyulilo (2015) in the study entitled "Challenges and Opportunities for E-Learning in Education: A Case Study" which states that learning flexibility is the learning opportunities that technology provides, where a learner can learn from anywhere and at any time, if she has a digital device that could be connected to the Internet, such as a cell phone, laptop or iPod. According to Shurville et al. (2008), flexible learning is a set of educational philosophies and systems, concerned with providing learners with increased choice, convenience, and personalization to suit the learner. In particular, flexible learning provides learners with choices about where, when, and how learning occurs. According to Lundin (2014), flexible learning is an idealized state where there is a mixture of educational philosophy, pedagogical strategies, delivery modalities and administrative structures which allows students to choose according to their learning needs, styles and circumstances. In principle, flexible learning

approaches may be applied to any subject; still, an accurate analysis of the demands of the learner and of the viability of this approach is highly recommended.

The lowest mean is the online learning factor that has a weighted mean of 3.70 which is interpreted as the pre- service teachers' positive attitude towards this factor. According to Gupta (2017) online learning accommodates everyone's needs. The online learning approach is ideally suited to anyone. The digital revolution has led to significant changes in how to access, consume, analyze, and distribute the content. A prime advantage of online learning is to guarantee that you are in phase with current learners. This helps the learner to access updated content whenever he wants. E-Learning has a positive influence on an organization's profitability. It makes it easy to grasp the content and digest it: it results in improved scores on certifications, tests, or other types of evaluation; higher number of students who achieve 'pass' or mastery' level; enhanced ability to learn and implement the new processes or knowledge at the workplace and it helps in retaining information for a longer time.

CONCLUSION

The results provided a glimpse of the pre-service teachers' attitude toward blended learning. They exhibited a positive attitude toward the different factors in the aspects of learning flexibility, online learning, study management, technology, classroom learning and online interaction. They are ready to face and conquer the different aspects of blended learning whether in a typical classroom setting or in an online setting.

Moreover, education students are encouraged to integrate technology in learning. Teachers should also provide activities and exercises for students to discover and enrich learning specifically in the use of technology. An improved internet connection in school is also needed for the betterment of the students' performance. Current studies have revealed that blended learning (BL) has the potential to help address students' diverse need and learning styles, advance students' learning experience by developing their engagement, motivation, and capacity for reflection, and provide learners with direct experience with technology-supported skills essential for 21st-century success style (Pardede, 2019). Blended learning helps in improving teaching conditions, offers access to global resources and materials that meet the students' level of knowledge and interest, provides more opportunities for collaboration and meaningful professional development, and improves time efficiency (Ju & Mei, 2018).

In the onset of blended learning, students should be continuously monitored by the teacher when technology and social media are being integrated during classroom activities. Teachers should allow students to collaborate with their learning experiences through the use of online training platform. Furthermore. teachers should create a more flexible teaching and learning environment to improve student learning outcomes.

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THE PRE-SERVICE TEACHERS' SELF-EFFICACY AND PROFESSIONAL ATTITUDE TOWARD TEACHING

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Abstract

Self-efficacy is the belief that an individual can perform an expected action. This belief motivates the individual to pursue career goals in life. Teaching is a noble profession and not all individuals are suited to become teachers. A pre-service teacher's attitude toward teaching could greatly impact performance. The main purpose of this study was to determine the level of self-efficacy and professional attitude of the pre-service teachers. It also seeks to find out if there is a significant relationship in the level of self-efficacy and the professional attitude among the pre-service teachers at the College of Education toward teaching. The researchers utilized the descriptive correlational method. To determine the self-efficacy and professional attitudes of the pre- service teachers, a validated and standardized self-efficacy and professional attitude questionnaire was used. It was hypothesized that there is no significant relationship between self-efficacy and professional attitude of pre-service teachers. Results showed a significant relationship between self-efficacy and professional attitude.

Keywords: *pre-service teacher, professional attitude, self-efficacy, descriptive correlational research*

INTRODUCTION

Pre-service teachers are students enrolled in an initial educator preparation program, studying to become practicing teachers. They complete supervised field-based teaching experiences with the support and mentorship of university faculty and K-12 cooperating teachers. Richards & Schmidt (2002) defined them as those students who participated in pre-service training or education a "course or program of study which student teachers complete before they begin teaching."

Preservice teaching is a period of guided, supervised teaching. The college student is gradually introduced into the teaching role for a particular class by a mentor or cooperating teacher. In addition, the cooperating teacher works with and encourages the preservice teacher to assume greater responsibility in classroom management and instruction as the experience progresses. The preservice teacher begins as an observer and finishes the preservice teaching experience as a complete professional (Virginia Wesleyan University). In an article published in Frontiers in Education, it was stated that field-based experiences are a central tenet of global teacher education, in which preservice teachers transition from theory to practice (Ball and Cohen, 1999). It was also

added that field experiences will enable preservice teachers to better understand and facilitate their own transition from student to classroom teacher (Heafner et al., 2014).

Self-efficacy is the conviction that one can successfully execute the behavior required to produce the outcomes (Bandura, 1977; Lopez-Garrido, 2020). Omrod (2008) defines self-efficacy as a belief that a person is able to perform certain behaviors or achieve certain goals. It is also a belief in his/her own abilities, especially the ability to meet the challenges ahead and complete a task successfully (Akhtar, 2008). Self-efficacy relates to the beliefs that one has the ability to perform the expected action while high efficacy means that the person has a plan to face the goal to be desired. Therefore, self- efficacy can affect the nature and intensity of emotional experience. There is limited information in the relevant literature concerning the relationship among teachers' self-efficacy, personality, and academic self- regulation. However, since teachers' sense of efficacy is found to be significantly associated with their instructional practices and with students' motivation and achievement, there is a need to investigate the factors influencing the development of teachers' self-efficacy beliefs starting with pre-service years.

In an article entitled "Displaying a Professional Attitude," it was professed that attitude at work can determine the quality of professional relationships, affect the productivity level and determine the overall success (Miller, 2018). Consequent study shows that (Grazadio, 2007) that attitudes is one of the most defining factors in the workplace, therefore, it is important to always display a professional attitude. According to the University of Northern Iowa Business Professional Readiness Program, a professional attitude means that a person could effectively manage time, display leadership, act in an ethical manner, show tenacity and determination, act and think creatively, appreciate diversity, focus on customer satisfaction, manage conflicts effectively and display emotional intelligence (Miller, 2018). Hürsen Ç (2012) stated that teaching profession, professional development and teachers are defined as a combination of personal and professional experience. The attitude of the teaching profession is an important variable because it can have a serious effect on the successful representation of the knowledge and skills relevant to the teaching profession (Adronache, D., Bocos, M., Bocos, V., & Macri, C., 2014). Teachers' professional attitude greatly affects their performance in the teaching and learning process (Ahmad, 2013). Pre-service education often provides the first step in the professional development of teachers (Chong et.al, 2015). It exposes pre-service teachers to new perspectives as well as prepares them in knowledge and skills.

Higher education institutions which train teachers should have an objective to train successful, idealistic, and qualified teachers having effective teaching characteristics and positive attitudes towards teaching profession (Teknici, 2010). Therefore, it is important that pre-service teachers are trained well enough that they have both created their teaching and learning conceptions via their academic autonomy and developed positive attitudes towards teaching profession. In other words, attitude toward the teaching profession may help predict the success and job satisfaction of the pre-service teachers before they start as teachers. Therefore, the aim of this study is to evaluate the pre-service teachers' self-efficacy and their professional attitude toward the teaching profession.

METHODOLOGY

This study employed the descriptive correlational research. Twenty Fourth year Education students were the respondents of the study and purposive sampling was used. The study was conducted at University of Southern Philippines Foundation, College of Education. The research questionnaire on the Self-Efficacy and Professional attitudes of the Pre-Service Teachers towards teaching was an adapted tool from Mr. Sujata Mishra. Simple percentage, weighted mean, and Pearson r were the statistical tools used.

RESULTS

Table 1

Profile of College of Education Pre-Service Teachers Based on Major

Major	Total Number of Respondents	Percentage
Content Area	11	55%
Special Education	3	15%
English	6	30%
Science	0	0%
Computer	0	05
Total	20	100%

Table 1 showed the profile of College of Education Pre-service teachers in terms of major. There was a total of 20 respondents from the College of Education. There are two degree programs under distinctive majors, namely: Bachelor of Elementary education and Bachelor of Secondary Education. Of the BEED major in Content Area, there were 11 respondents, BEED major in Special Education with 3 respondents. For the Bachelor of Secondary education major in English, there were 6 respondents. For the courses BSED major in Computer Education and BSED major in Science, both programs had 0 respondent.

Table 2

Pre-Service Teachers' Level of Self-Efficacy

Indicator	Weighted Mean	Responses	Interpretation
As a student teacher:			
1. I have full authority on the subject I am teaching.	4.10	AGREE	MODERATELY DO THIS BEHAVIOR IN TEACHING
2. Besides my teaching subject. I have the ability to teach other needed subjects like current like current events, general knowledge etc.	4.30	STRONGLY AGREE	ALWAYS DO THIS BEHAVIOR IN TEACHING
3. I advice the students to solve their problems according to their needs.	4.00	AGREE	MODERATELY DO THIS BEHAVIOR IN TEACHING
4. I give due opportunities to the students for proper motivation. 5. I use more rewards and lesser punishment in the classroom.	4.40	STRONGLY AGREE	ALWAYS DO THIS BEHAVIOR IN TEACHING
5. I use more rewards and lesser punishment in the classroom for achievement of desired aims.	4.35	STRONGLY AGREE	ALWAYS DO THIS BEHAVIOR IN TEACHING
6. A lengthy curriculum does not allow a teacher to use teaching aids or blackboard.	3.90	AGREE	MODERATELY DO THIS BEHAVIOR IN TEACHING
7. I use civilized language with the students.	4.10	AGREE	MODERATELY DO THIS BEHAVIOR IN TEACHING
OVERALL MEAN	**4.15**	**AGREE**	MODERATELY DO THIS BEHAVIOR IN TEACHING

Legend:	RESPONSES	INTERPRETATION
4.24-5.00	STRONGLY AGREE	ALWAYS DO THIS BEHAVIOR IN TEACHING
3.43-4.23	AGREE	MODERATELY DO THIS BEHAVIOR IN TEACHING
2.62-3.42	NEUTRAL	SLIGHTLY DO THIS BEHAVIOR IN TECHING
1.81-2.61	DISAGREE	OFTEN DO THIS BEHAVIOR IN TEACHING
1.00-1.80	STRONGLY DISAGREE	NEVER DO THIS BEHAVIOR IN TEACHING

Table 2 showed the pre-service teachers' level of self-efficacy. The overall mean was 4.15. The highest mean is 4.65 and the lowest mean is 3.85. The overall mean of 4.15 implied that the respondents moderately do all the behavior related to self-efficacy in teaching.

Table 3

Pre-service Teachers' Level of Professional Attitude toward Teaching

Indicator As a student teacher, I believe that:	Weighted Mean	Responses	Interpretation
1. Teaching skills is highly technical.	4.05	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
2. Good teaching keeps the record of position holders.	3.80	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
3. Teaching helps in making a person, more and more progressive.	4.10	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
4. Teaching helps in developing ones social circle.	3.75	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
5. By teaching through the principle of "Learning by doing" the teacher develops dignity of labour in the student.	4.30	STRONGLY AGREE	ALWAYS HAVE THIS ATTITUDE TOWARDS TEACHING
6. Classroom teaching strengthens the desire to learn.	4.10	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
7. Good teaching helps in fulfilling instructional objectives.	4.05	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
8. Good relationships between teacher and a student is essential for teaching.	3.85	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
9. Teaching of us an opportunity to enjoy the company of intellectual people.	3.60	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
10. Good teaching demands effective communication abilities.	4.35	STRONGLY AGREE	ALWAYS HAVE THIS ATTITUDE TOWARDS TEACHING
OVERALL MEAN	**3.56**	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARD TEACHING

Legend:	RESPONSES	INTERPRETATION
4.24-5.00	STRONGLY AGREE	ALWAYS HAVE THIS ATTITUDE TOWARDS TEACHING
3.43-4.23	AGREE	MODERATELY HAVE THIS ATTITUDE TOWARDS TEACHING
2.62-3.42	NEUTRAL	SLIGHTLY HAVE THIS ATTITUDE TOWARDS TECHING
1.81-2.61	DISAGREE	SELDOMLY HAVE THIS ATTITUDE TOWARDS TEACHING
1.00-1.80	STRONGLY DISAGREE	NEVER HAVE THIS ATTITUDE TOWARDS TEACHING

Table 3 showed the pre-service teachers' level of professional attitude. The overall mean was 3.56. The highest mean is 4.50 and the lowest mean is 2.35. The overall mean of 3.56 implies that the respondents moderately have all the professional attitude toward teaching.

Table 4

Relationship between Pre-service Teachers' Self-efficacy and Professional Attitude toward Teaching

Variable	Computed r	Degree of Relationship	Computed p value	Decision	Interpretation
Pre-Service Self-Efficacy					
Vs.	0.5	High positive correlation	0.25	Reject	Significant
Pre-Service Teachers' Professional Attitude					

Table 4 showed the correlation between the pre-service teachers' level of self-efficacy and professional attitude toward teaching. The findings revealed that there is a significant relationship between the pre-service teachers' level of self-efficacy and professional attitude towards teaching.

DISCUSSION

The result of the pre-service teachers' level of efficacy implies that the respondents moderately do all the behavior related to self-efficacy in teaching. This result proves the study of Dicke, T., Marsh, H., Parker, P., Kunter, M., Schmeck, A., & Leutner, D. (2014) that a moderated mediation model is hypothesized where self-efficacy in classroom management predicts emotional exhaustion via classroom disturbances, but the strength of this whole mediation process is moderated by teachers' level of self-efficacy in classroom management. The highest mean of 4.65 implies that the respondents always do the behavior related to self-efficacy in teaching. In the book entitled Improving School Leadership by Pont, B., Nusche, D., & Moorman, H. (2018) it stated that school leadership has become a priority in education policy agendas internationally. It plays a key role in improving school outcomes by influencing the motivations and capacities of teachers, as well as the school climate and environment. Effective school leadership is essential to improve the efficiency and equity of schooling. The lowest mean of 3.85 affirmed the study of Plthomasedd (2014) that missionary zeal can be seen in almost blind commitments to phonic teaching, group research, circles of literature, understanding by design and many more.

On the pre-service teachers' level of professional development, the respondents moderately have all the professional attitude toward teaching. This result proved the study of Hürsen (2012) which stated that the teaching profession, professional development, and teachers are defined as a combination of personal and professional experience. The highest mean of 4.50 implies that the respondents always have this professional attitude toward teaching. This result proved the study

of Adronache, D., Bocos, M., Bocos, V., & Macri, C. (2014) that the attitude of the teaching profession is an important variable because it can have a serious effect on the successful representation of the knowledge and skills relevant to the teaching profession. The lowest mean of 2.35 reinforced the study of Barros, S. & Elia, M. (n.d.) that attitude decides what each person is going to see, hear, think and do. We are grounded in practice and do not become a repetitive automatic behavior.

On the relationship between the pre-service teachers' self-efficacy and professional attitude toward teaching, the findings revealed a significant relationship. This proved Bandura's (1997) statement that teachers who have high level of self-efficacy tend to use different teaching methods and their students' motivation is higher than the other teachers' students. It can be said that prospective teachers strongly believe that they will create a classroom including respect and politeness in which the students study collaboratively and participate in the process of learning actively. This study was also proven by Akdemir (2018) that teachers developing positive attitude toward teaching has an important effect on performance, that positive attitude is important for the teaching process. The fact that students who will be the teacher in the future love their profession and have a positive attitude toward the profession is required to be successful teachers. The more self-efficacy increases, the more is the attitude toward teaching professionals become positive. Teachers with high self-efficacy beliefs will have more positive feelings and attitude towards the profession (Caprara, G., Barbaranelli, C., Steca, P., & Malone, P., 2006).

CONCLUSION

One of the most important components of pre-service teacher education program is practical field experience. This is appreciated by both pre-service teachers and teacher educators (Arnold, Gröschner, & Hascher, 2014) and is therefore a key aspect of a teacher education program (Beck & Kosnik, 2002). The results and the findings of the study revealed that the pre-service teachers moderately do the behavior with regards to their self-efficacy but displayed a positive attitude toward teaching. They are highly motivated in doing their job as future teachers.

It is therefore recommended that the pre-service teachers need continued exposure on activities that would motivate them further. Activities like seminars or programs that would prepare them to become future educators are necessary for continued development. Future researchers could conduct a study that will evaluate the effectiveness of the motivational plan implemented based on the results of this present study.

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THE SOCIAL MEDIA USAGE AND EMOTIONAL INTELLIGENCE OF THE FOURTH YEAR EDUCATION STUDENTS

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Abstract

The world today is a global village, and everyone is connected with one another in this vast network generated by the internet. Social media usage continues to grow, set to hit three billion people worldwide by 2021 and as the social platform usage expands, so does our reliance on social networks. The images and text we share on social media reflect interests, habits, attitudes, and behavior. This quantitative study aimed to present the social media usage of the Fourth-year Education students using the Social Media Addiction Scale - Student Form and tried to present its relationship to their emotional intelligence as measured by the Emotional Intelligence questionnaire taken from the website of National Health Service Leadership Academy. Analyzed and statistically treated results reveal that the social media usage of the respondents has no significant correlation to emotional intelligence.

Keywords: *social media, emotional intelligence, Education students, descriptive correlational*

INTRODUCTION

The world today is a global village, and everyone is connected to one another in this vast network generated by the internet (Karadkar, 2015). Kapoor (2018) stated that as social media usage continues to grow, set to hit three billion people worldwide by 2021 and as social platform usage expands, so too does our reliance on social networks as a key interactive and connective option. Gurpinar, K. et. al (2019) conducted a study and find out that 95.8 % of the participants use mobile phones to use social media, 75.3 percent of the respondents use social media to communicate with family and friends, 81.0 percent to follow news and current events, 65.2 percent to spend their free time, 15.8 percent to share their lives and ideas, 11.2 percent for meeting new people, 25.8 percent for sharing photos and video, and 5.8 percent for other reasons. Whiting (2018) identifies ten uses and gratifications that provide a comprehensive understanding of why consumers utilize social media. These are: social interaction, information seeking, pastime, entertainment, relaxation, communicatory utility, expression of opinions, convenience utility, information sharing and surveillance and watching others.

Emotional intelligence is the ability to understand, use, and manage own emotions in positive ways to relieve stress, communicate effectively, empathize with others, overcome challenges, and defuse conflict (Segal et al., 2018). Preston (2014) cited Talent Smart's findings that 90% high

performers at work place possess high emotional intelligence while 80% of low performers have low EI. He added that unlike IQ, which does not change significantly over a lifetime, our EQ can evolve and increase with our desire to learn and grow. He provided six keys to increasing emotional intelligence namely the ability to reduce negative emotions, the ability to stay cool and manage stress, the ability to be assertive and express difficult emotions, when necessary, the ability to stay proactive, the ability to bounce back from adversity and the ability to express intimate emotions in close personal relationships.

The relationship between media use and emotional intelligence was studied and explored by AbdelKader, W. & Elnakeeb, M. in 2017. The study revealed a positive relationship between the total times spent using media and emotional intelligence. Adolescents tend to resort to media to deal with stressors. Chandel (2018) explored how social media was seen to be significant only on intrapersonal awareness among all other dimensions and overall emotional intelligence. Results show that students who spend more time on social networking sites are aware about themselves as they devote time to spread awareness about their own thoughts, views, and lives. Ramasubbu (2015) emphasized in his article how technology impacted emotional intelligence. He conducted a survey of 298 users of social media wherein 50% said social media made their self-esteem worse. After conducting the survey, he saw that ability to stay focused is affected by technology, besides technology-induced distractions are a common complaint among parents and teachers. He also highlighted an example, the Oregon Assessment of Knowledge and Skills (OAKS). He conducted it online where students enjoyed taking an exam more via the computer, answered more questions rather than guessing or quitting, which they would have done in a paper-pencil exam. He also used E-communication tools such as chat, messaging, and social networking websites, while offering the possibility of breaking free of geographic confines which pose a challenge to developing empathetic relationships with another human being.

This study aims to determine the relationship between social media usage and the emotional intelligence of the Fourth-year students in the College of Education. It is hypothesized that there is a significant correlation between social media usage and emotional intelligence.

METHODOLOGY

This study utilized the descriptive correlational method. There were 15 respondents, all were Fourth-year Education students enrolled at University of Southern Philippines Foundation. There were two research instruments used in the study. The first instrument was taken from the study of Sahin (2017) entitled Social Media Addiction Scale- Student Form: The Reliabilty. The instrument has 29 indicators. The second instrument was a validated Emotional Intelligence questionnaire from the National Health Services Leadership Academy researched through the internet. The researchers sent an email to the organization to ask for permission in the use of the tool and was granted permission for its utilization. The Emotional Intelligence Leadership Kit is composed of fifty item indicators. The five domains of Emotional Intelligence have 10 indicators. The researchers followed the steps of the questionnaire to determine the emotional intelligence of the respondents. Data gathered was subjected to simple percentage, weighted mean, and Pearson Product- Moment Coefficient of Correlated Means to get the results.

RESULTS

Table 1

Students' Profile on Programs Enrolled

Program	No. of Respondents	Percentage
BEED-ENGLISH	4	25%
BEED-SPED	3	19%
BEED-CA	9	56%

Table 1 showed the percentage of the different majors of the respondents. First, the highest percentage rates were Bachelor of Elementary Education major in Content Area (BEED-CA) with 9 or 56%. Secondly, Bachelor of Secondary Education major in English (BSED-ENGLISH) with 4 or 25%. Lastly, Bachelor of Elementary Education major in Special Education (BEED-SPED) with 3 or 19%. Most of the respondents were students enrolled in Bachelor of Elementary Education major in Content Area.

Table 2

Level of Social Media Usage

Indicators	Weighted Mean	Responses	Interpretation
I am eager to go on social media.	3.50	Agree	Often Use Social Media
I look for internet connectivity everywhere so as to go on social media.	3.81	Agree	Often Use Social Media
Going on social media is the first thing I do when I wake up in	3.06	Neutral	Sometimes Uses Social Media
I see social media as an escape from the real world.	3.25	Neutral	Sometimes Use Social Media
Overall Mean	2.84	Neutral	Sometimes Use Social Media

Legend:

4.2– 5.0	Strongly Agree	Always Use Social Media
3.4 – 4.1	Agree	Often Use Social Media
2.6 – 3.3	Neutral	Sometimes Use Social Media
1.8– 2.5	Disagree	Seldom Use Social Media
1.0– 1.7	Strongly Disagree	Never Use Social Media

Table 2 showed the respondents' level of social media usage where the highest mean was 3.81 with an interpretation often use social media. The lowest mean was 2.00 with an interpretation seldom use social media. The overall mean was 2.84 with an interpretation that respondents sometimes use social media.

Table 3

The Emotional Intelligence of Fourth Year Students in Terms of Self-Awareness

Indicators	Weighted Mean	Responses	Interpretation
I realize immediately when I lose my temper	4.50	Strongly Agree	Always Aware
I know when I am happy	4.63	Strongly Agree	Always Aware
I usually recognize when I am stressed	4.25	Strongly Agree	Always Aware
When I am being 'emotional' I am aware of this	4.38	Strongly Agree	Always Aware
When I feel anxious, I usually can account for the reason(s)	4.06	Agree	Often Aware
I always know when I'm being unreasonable	3.94	Agree	Often Aware
Awareness of my own emotions is very important to me at all times	4.69	Strongly Agree	Always Aware
I can tell if someone has upset or annoyed me	4.13	Agree	Often Aware
I can let anger 'go' quickly so that it no longer affects me	3.69	Agree	Often Aware
I know what makes me happy	4.69	Strongly Agree	Always Aware
Overall Mean	**4.29**	**Strongly Agree**	**Always Aware**

Legend:

4.2– 5.0	Strongly Agree	Always Aware
3.4 – 4.1	Agree	Often Aware
2.6 – 3.3	Neutral	Sometimes Aware
1.8– 2.5	Disagree	Seldom Aware
1.0 – 1.7	Strongly Disagree	Never Aware

Table 3 showed the emotional intelligence of the respondents in terms of self- awareness. The highest weighted mean was 4.69 with an interpretation of often aware. The lowest mean was 3.69 with an interpretation of often aware. The overall mean was 4.29 with an interpretation of always aware.

Table 4

The Emotional Intelligence of Fourth year Students in Terms of Managing Emotions/Self- Regulation

Indicators	Weighted Mean	Responses	Interpretation
I can 'reframe' bad situations quickly	3.88	Agree	Often Manage Emotions
I do not wear my 'heart on my sleeve'	3.44	Agree	Often Manage Emotions
Others can rarely tell what kind of mood I am in	3.50	Agree	Sometimes Manage Emotions
I rarely 'fly off the handle' at other people	3.25	Neutral	Sometimes Manage Emotions
Difficult people do not annoy me	3.00	Neutral	Sometimes Manage Emotions
I can consciously alter my frame of mind or mood	3.88	Agree	Sometimes Manage Emotions
I do not let stressful situations or people affect me once I have left work	4.25	Strongly Agree	Often Manage Emotions
I rarely worry about work or life in general	3.44	Agree	Often Manage Emotions
I can suppress my emotions when I need to	3.94	Agree	Often Manage Emotions
Others often do not know how I am feeling about things	3.94	Agree	Often Manage Emotions
Overall Mean	**3.65**	**Agree**	**Often Manage Emotions**

Legend

4.2 – 5.0	Strongly Agree	Always Manage Emotions
3.4 – 4.1	Agree	Often Manage Emotions
2.6 – 3.3	Neutral	Sometimes Manage Emotions
1.8– 2.5	Disagree	Seldom Manage Emotions
1.0– 1.7	Strongly Disagree	Never Manage Emotions

Table 4 showed the emotional intelligence in terms of self-regulation. The highest weighted mean of 4.25 which was described as strongly agree had an interpretation of always manage emotions. The lowest mean was 3.00 with an interpretation of sometimes manages emotions. The over-all mean is 3.65 which means that the respondents can often manage emotions.

Table 5

The Emotional Intelligence of Fourth year Students in Terms of Motivation

Indicators	Weighted Mean	Responses	Interpretation
I am able to always motive myself to do difficult tasks	3.94	Agree	Often Motivated
I am usually able to prioritize important activities at work and get on with them	3.75	Agree	Often Motivated
I always meet deadlines	3.50	Agree	Often Motivated
I never waste time	3.06	Neutral	Sometimes Motivated
I do not prevaricate	3.25	Neutral	Sometimes Motivated
I believe you should do the difficult things first	3.81	Agree	Often Motivated
Delayed gratification is a virtue that I hold to	3.56	Agree	Often Motivated
I believe in 'Action this Day'	4.13	Agree	Often Motivated
I can always motivate myself even when I feel low	4.00	Agree	Often Motivated
Motivations has been the key to my success	4.00	Agree	Often Motivated
Overall Mean	**3.7**	**Agree**	**Often Motivated**

Legend:

4.20– 5.0	Strongly Agree	Always Motivated
3.4 – 4.1	Agree	Often Motivated
2.6 – 3.3	Neutral	Sometimes Motivated
1.8– 2.5	Disagree	Seldom Motivated
1.0 – 1.7	Strongly Disagree	Never Motivated

Table 5 showed the emotional intelligence of the respondents in terms of motivation. The highest weighted mean is 4.13 and the lowest mean is 3.06. The over-all mean of 3.7 means that the respondents are often motivated.

Table 6

The Emotional Intelligence of Fourth year Education Students in Terms of Empathy

Indicator	Weighted Mean	Responses	Interpretation
I am always able to see things from the other person's viewpoint	3.69	Agree	Often Empathize
I am excellent at empathizing with someone else's problem	3.69	Agree	Often Empathize
I can tell if someone is not happy with me	4.13	Agree	Often Empathize
I can tell if a team of people are not getting along with each other	3.94	Agree	Often Empathize
I can usually understand why people are being difficult towards me	3.38	Neutral	Sometimes Empathize
Other individuals are not 'difficult' just 'different'	4.13	Agree	Often Empathize
I can understand if I am being unreasonable	3.94	Agree	Often Empathize
I can understand why my actions sometimes offend others	3.81	Agree	Often Empathize
I can sometimes see things from others' point of view	4.25	Strongly Agree	Always Empathize
Reasons for disagreements are always clear to me	3.75	Agree	Often Empathize
Overall Mean	**3.87**	**Agree**	**Often Empathize**

Legend:

4.2– 5.0	Strongly Agree	Always Empathize
3.4 – 4.1	Agree	Often Empathize
2.6 – 3.3	Neutral	Sometimes Empathize
1.8– 2.5	Disagree	Seldom Empathize
1.0 – 1.7	Strongly Disagree	Never Empathize

Table 6 showed the emotional intelligence of the respondents in terms of empathy. The highest weighted mean was 4.25 and the lowest mean was 3.38. The over-all mean of 3.87 means that the respondents can often empathize.

Table 7

The Emotional Intelligence of the Fourth year Education Students in Terms of Social Skills

Indicator	Weighted Mean	Responses	Interpretation
I am an excellent listener	3.69	Agree	Often Socialize
I never interrupt other people's conversation	3.56	Agree	Often Socialize
I am good at adapting and mixing with a variety of people	3.75	Agree	Often Socialize
People are the most interesting thing in life for me	3.88	Agree	Often Socialize
I love to meet new people and get to know what makes them 'tick'	3.88	Agree	Often Socialize
I need a variety of work colleagues to make my job interesting	4.19	Agree	Often Socialize
I like to ask questions to find out what it is important to people	4.13	Agree	Often Socialize
I see working with difficult people as simply a challenge to win them over	3.25	Neutral	Sometimes Socialize
I am good at reconciling differences with other people	4.06	Agree	Often Socialize
I generally build solid relationships with those I work with	4.31	Agree	Often Socialize
Overall Mean	**3.87**	**Agree**	**Often Socialize**

Legend:

4.2– 5.0	Strongly Agree	Always Empathize
3.4 – 4.1	Agree	Often Empathize
2.6 – 3.3	Neutral	Sometimes Empathize
1.8– 2.5	Disagree	Seldom Empathize
1.0 – 1.7	Strongly Disagree	Never Empathize

Table 7 showed the emotional intelligence of the respondents in terms of social skills. The highest weighted mean was 4.31 and the lowest mean was 3.25. The overall mean was 3.87 which means that the respondents often socialize with others.

Table 8

Relationship between Social Media Usage and Emotional Intelligence

Variable	Computed *r*	Degree of Relationship	Computed *t*	Critical *value of t*	Decision	Interpretation
Social Media Usage vs. Emotional Intelligence	0.32	Moderately Low	1.26		Reject the Null Hypothesis	Not Significant

Table 8 showed the correlation between social media usage and the emotional intelligence of the Fourth-year education students. The r represented the significant relationship of the two variables with a result of 0.32 which means a degree of moderately low relationship. With the computed value of 1.26 which is lower than the table value of 1.753 set at 0.05 level of significance, the findings revealed that there was no significant relationship between social media usage and emotional intelligence, thus, the null hypothesis was rejected.

DISCUSSION

One of Forbes' articles contributed by Esade (2020) highlights the consequences of social media platforms that function on a quasi-monopolistic scale which are just now beginning to be understood. But, like many industries, there are undesirable consequences that work against the great social welfare. Serious conversations on how social media platforms should be regulated to minimize their social costs are critically needed.

Findings reveal that the Fourth-year Education students sometimes use social media. There is self-awareness; however, there is a need to regulate when it comes to managing emotions. They have no problem with motivation and empathy and socialization. Kornienko, D.S. et.al (2018) analyzed the results obtained in his study and it showed that enthusiasm for using social network is associated with both procrastination and a lack of self-regulation. The presence of negative relationships between procrastination and self-regulation suggests that low self-regulation acts as the basis for procrastinating behavior, which in turn leads to the intensive use of a social network and can form network-dependent behavior. Simanjuntak, E. (2018) explore the relationship between self-regulated learning (SRL) and internet addiction among first year university students. Data were collected by using Young's internet addiction test (IAT), and self-regulated learning scale (SRLS). Results showed that significant correlation is found between self-regulated learning and internet addiction. It can be concluded that self-regulated learning relates with internet addiction among university students. Students with high SRL can control their internet use and have low tendency in internet addiction.

Chandel (2018) attempted to explore how social media was seen to be significant only on intrapersonal awareness among all other dimensions and over-all emotional intelligence. Students who are spending more time on social networking sites are more aware about the self as they have

devoted more time to spread awareness about their own thoughts, views, and lives. Hence, they in turn get better awareness about themselves. Social media is not whipping people into a frenzy on average, but rather, predominantly calming. While counterintuitive, this result is robust and is found with both Facebook and Twitter (Panger, 2017).

CONCLUSION

The respondents of the study are not always inclined to the use of social media. They are self-aware, motivated, socially inclined, and can empathize. However, there is a need to improve in regulating emotions. It is also found out that social media usage has no impact on emotional intelligence. It is therefore recommended that students be exposed to seminars and workshops on the proper regulation of emotions as well as on emotional intelligence. Teachers and parents alike should constantly remind students on the proper use of social media. Raising awareness campaigns and producing infomercials, vlogs, blogs, infographics, and pamphlets can be helpful to the students. Future research can also enhance and improve the results of the aforementioned study.

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LEVEL OF TEACHING COMPETENCIES AND PRC-BLEPT MOCK BOARD RESULTS OF PRE-SERVICE TEACHERS OF THE COLLEGE OF EDUCATION

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Abstract

CHED Memorandum Order No. 11 s. 1999 states that the main mission of teacher education is the preparation of globally competitive teachers imbued with ideals, aspirations and sufficiently equipped with pedagogical knowledge and skills. One of the key elements in many of the education reforms is the professional training of teachers. This quantitative study is aimed to determine the level of teaching competencies of the pre-service teachers at the College of Education utilizing a tool based on the Philippine Professional Standards for Teachers and PRC Licensure (LET) reviewer. It seeks to determine the relationship to the performance level in the Philippine Professional Regulation Commission / Board Licensure Examination for Professional Teachers-Mock Board Examination covering general education and professional education courses. Data were collected from 21 pre-service teachers at the College of Education in USPF. Results showed that the level of teaching competencies of the pre-service teachers has no significant relationship to the PRC-BLEPT mock board results.

Keywords: *teaching competencies, PRC-BLEPT mock board, pre-service teachers, education*

INTRODUCTION

Teacher effectiveness has rapidly risen to the top of the education policy agenda, as many nations have become convinced that teaching is one of the most important school-related factors in student achievement (OECD). Teacher preparation and development are also key building blocks in developing effective teachers. According to Kirk (1998), one of the key elements in many of the education reforms is the professional training of teachers. The dual role of teachers as subjects and objects of change makes the field of professional development an essential element (Villegas-Reimers, 2003). CHED Memorandum Order No.11 s. 1999 states that the main mission of teacher education is the preparation of globally competitive teachers imbued with ideals and aspirations and are sufficiently equipped with pedagogical knowledge and skills.

Teacher Education in the Philippines considers performance in the Licensure Examination for Teachers (LET) as a measure of educational quality (Visco, 2015). According to the Professional Regulations Commission and CHED (2004), the performance in the board

examinations is taken as one of the measures of the quality of a program. If the rate of the first attempt passing is high, then it is a good measure of program excellence. Today, prospective teachers must clear a series of hurdles to obtain and maintain a teaching certificate – one of this is to pass the Licensure Examination for Teachers (Libman, 2009). Licensure Examination for Teachers (LET) is a test of the overall knowledge and proficiency of prospective teachers to provide a reliable structure, which the practice of prospective teachers can be measured and proven, and it gives access to continuing growth and development. (Riney, et al, 2006). Thus, graduates of teacher education courses all aim to pass the Licensure Examination for Teachers. This will make them registered professional teachers and become eligible to teach either in public or private educational institutions.

Research reveals that how teachers instruct and interact with students is the cornerstone around which to build effective schools. Teacher competencies offers practical strategies, practices, and rules to guide teachers in ways to improve instruction that improves student performance and the quality of the work experience. Competencies are the skills and knowledge that enable a teacher to be successful. To maximize student learning, teachers must have expertise in a wide-ranging array of competencies in an especially complex environment where hundreds of critical decisions are required each day (Jackson, 1990; The Wing Institute, 2022). According to Vavral (2013) the competent teacher is one who effectively and efficiently accomplishes a task (instructs) in a given context (in classroom) using appropriate knowledge, skills, attitudes, and abilities that have adjusted and developed with time and needs.

Passing the Licensure Examination for Teachers is not a simple matter. It requires adequate preparation and readiness. Most importantly, it requires good knowledge and background as they obtain a rating of at least 75% in the the areas of General Education and Professional Education for BEED graduates, and General Education, Professional Education and area of Specialization for BSED graduates to pass the licensure examination. CHED statistics revealed that there were 119,091 BEEd examinees in 2016. Out of this number, only 35,395 or 29.72% passed the LET for Elementary level. On the other hand, there were 144,588 BSEd examinees in the same year, but only 49,966 or 34.56% successfully hurdled the board exam for secondary level (CHED, 2017). The study of Guanson and Marpa (2013) revealed that graduates in the secondary education perform better in the licensure examination and that LET takers have difficulty in the areas of professional education and the major subjects. Pachejo and Allaga (2013) in their study regarding academic predictors in LET performance of education graduates in Rizal Technological University found out that there is a linear relationship between the overall LET ratings and the three academic courses such as general education, professional education courses and specialization. Their findings were supported by the study conducted by Rabanal in 2016 who analyzed the performance of BEEd graduates in the University of Northern Philippines. Her study likewise revealed that academic achievements in general education, professional education and major courses were significantly related to the different test components in the board examination. The findings of Garcia (2013) deviated slightly from those mentioned above in professional education courses where a weak positive correlation with LET performance was noted.

METHODOLOGY

The researchers utilized a descriptive correlation method to determine the level of teaching

competencies and the PRC-BLEPT mock board results of the pre-service teachers of the College of Education. The study was conducted at the University of Southern Philippines Foundation, Salinas Drive, Lahug, Cebu City. A total of 21 pre-service teachers, both from BEED and BSED, were the respondents of the study.

The instruments employed in the study were the portion of the PPST and the Licensure Examination for Teachers (LET Reviewer). For the PPST, the tool was taken from the Philippine Professional Standards for Teachers that was developed through the Research Center for Teacher Quality (RCTQ) with the support of the Australian Government (2017) and Department of Education-Teacher Education Council. The question focuses on the skills of beginning teachers in terms of content knowledge and pedagogy, learning environment, diversity of learners, curriculum and planning, assessment and reporting, community linkages and professional engagement and personal growth and professional development. As for the LET reviewer, the tool was taken from the PRC board of 2019. The questionnaire was composed of two parts: the general education subjects and professional education subjects, both of which were composed of a 150 item-test.

The statistical tools used in the study were simple percentage, weighted mean, and Pearson's product-moment coefficient of correlated means.

RESULTS

Table 1

Profile of the Respondents

Program Enrolled	Major	Number of Respondent	Percentage
BSED	English	6	29%
BEED	Content Area	12	57%
	Special Education	3	14%
TOTAL		21	100%

Table 1 showed the program enrolled and the different majors of the pre-service teachers of the College of Education. The highest percentage rates were Bachelor of Elementary Education major in Content Area (BEED-CA) with 12 or 57% followed by Bachelor of Secondary Education major in English (BSED-ENG) with 6 or 29% of the respondents. Lastly, Bachelor of Elementary Education major Special Education (BEED-SPED) with 3 or 14%. Most of the respondents were Elementary Education major in Content Area.

Table 2

Summary of All Domains

Interpretation	Weighted Mean	Responses	Interpretation
1. Content Knowledge and Pedagogy	4.11	Agree	Most of the time they demonstrate
2. Learning Environment	4.90	Strongly Agree	All the time they demonstrate
3. Diversity of Learners	4.5	Strongly Agree	All the time they demonstrate
4. Curriculum and Planning	4.50	Strongly Agree	All the time they demonstrate
5. Assessment and Reporting	4.35	Strongly Agree	All the time they demonstrate
6. Community Linkages and Professional Engagement	4.34	Strongly Agree	All the time they demonstrate
7. Personal Growth and Professional Development	4.41	Strongly Agree	All the time they demonstrate
Over-all Mean	**4.45**	**Strongly Agree**	All the time they demonstrate

Legend:

4.2-5.0	Strongly Agree	All of the time they demonstrate
3.4-4.1	Agree	Most of the time they demonstrate
2.6-3.3	Undecided	Seldom they demonstrate
1.8-2.5	Disagree	Sometimes they demonstrate
1.0-1.7	Strongly Disagree	Never they demonstrate

Table 2 showed the summary of all domains. The result indicated that pre-service teachers in the College of Education at the University of Southern Philippines Foundation agree that most of the time they can demonstrate with knowledge about content and pedagogy, learning environment, diverse learners, curriculum and planning, assessment and reporting, community linkages, and professional engagement and personal growth and professional development.

Table 3

Pre-service Teachers' Mock Board Results in General

Score Range	Weighted Mean	Description	Frequency	Percentage
121-150	4.21-5.0	Excellent	0	0%
91-120	3.41-4.20	Very Satisfactory	7	33%
61-90	2.61-3.40	Satisfactory	13	62%
31-60	1.81-2.60	Fair	1	5%
0-30	0.08-1.80	Poor	0	0%
TOTAL			**21**	**100%**
OVER-ALL WEIGHTED MEAN	**3.29 (Satisfactory)**			

Table 3 showed the pre-service teachers mock board results in general education subjects. It identified the frequency and percentage distribution of the respondents. There were 7 students who gained under the 91-120 scores with a percentage of 33% indicating a very satisfactory rate; 13 students gained scores from 61-90 with a percentage of 62% indicating a satisfactory rate; 1 student gained a score from 31-60 with a percentage of 5% indicating a fair rate. The standard passing rate for any major exam in the college of education was 70%. The over-all weighted mean was 3.29 which means a satisfactory rating.

Table 4

Pre-service Teachers' Mock Board Results in Professional Education

Score Range	Weighted Mean	Description	Frequency	Percentage
121-150	4.21-5.0	Excellent	0	0%
91-120	3.41-4.20	Very Satisfactory	7	33%
61-90	2.61-3.40	Satisfactory	12	57%
31-60	1.81-2.60	Fair	2	2%
0-30	0.08-1.80	Poor	0	0%
TOTAL			**21**	**100%**
OVERALL WEIGHTED MEAN	**3.34 (Satisfactory)**			

Table 4 showed the mock board results on Professional Education subjects of the pre-service teachers at the College of Education. Seven (7) students gained a score of 91-120 with a percentage of 33% indicating a very satisfactory rate; twelve (12) students gained a score of 61-90 with a percentage of 57% indicating a satisfactory rate; two (2) students gained a score within the 31-60 range. The over-all weighted mean was 3.34 which means a satisfactory rating.

Table 5

Relationship between Level of Teaching Competencies and PRC-BLEPT Mock Board Results

Variable	Computed r	Degree of Relationship	Computed p-value	Decision	Interpretation
Level of Teaching Competencies vs. PRC-BLEPT Mock Board Results	1	High Positive Correlation	0.443763	Accept the Null Hypothesis	Not Significant

Table 5 showed the significant relationship between the level of teaching competencies and the PRC-BLEPT mock board results of the pre-service teachers at the College of Education. It was observed that the computed p-value of 0.443763 is greater than the alpha f 0.05, thus, there is no significant relationship between the level of teaching competencies and the PRC-BLEPT mock board results of the pre-service teachers at the College of Education.

DISCUSSION

According to the National Academy of Sciences (2018), pedagogical content knowledge is different from general teaching methods. Expert teachers know the structure of their disciplines, and this knowledge provides them with cognitive road maps that guide the assignments they give to students, the assessments they use to gauge students' progress and the questions they ask in the

give and take of classroom life. Their knowledge of the discipline structure does not in itself guide the teacher. Expert teachers are sensitive to those aspects of the discipline that are especially hard or easy for new students to master. Teacher qualities are important determinants of student achievement according to the study of Darling-Hammond (2016). there is a need to focus on teacher competence through the development of teachers' PCK. It has been recognized that the foundation of science PCK is thought to be the amalgam of a teacher's pedagogy and understanding of content such that it influences his/her teaching in ways that will best stimulate student learning for understanding. This emphasis on PCK is justified based on the assumption that PCK can make a significant impact on the quality of instruction that the students receive and thus the quality of learning the students experience in the classroom. In support of this idea, Hill et al. (n.d.) said that pedagogical content knowledge (PCK) is an essential and critical element in determining a teacher's success in handling the teaching and learning process that further produces effective teaching.

Pawilen (2016) affirms that teachers in a global classroom must possess a high degree of expertise in content and pedagogy. They should serve as an ambassador of goodwill to all people across different cultures. The statement affirms that from the beginning of their formation as teachers, they should be equipped with the necessary knowledge and skills for them to teach effectively in the future. Being a teacher is a process that is developed and honed through the years as confirmed in the study conducted among beginning teachers in Singapore. It was found out those beginning teachers' pedagogical knowledge and skills increased significantly, but at different rates, in all three factors at the end of their third year of teaching. It was declared that learning to teach is an ongoing process that begins from the pre-service teacher education program and continues into the initial three years of teaching (Choy et al., 2013).

CONCLUSION

Results indicated that pre-service teachers need to improve on content knowledge and pedagogy. In terms of PRC-BLEPT mock board exams, the results are only satisfactory. The passing percentage in the College of Education is 75%. Given a 150-item test, students must get 105 to pass. In PRC, it is a 75% passing rate from the total scores. If it is a 150-item test, students are expected to get 113 to pass. It is therefore recommended that students should be involved in review sessions for both online and offline board operations. Exposure to in-house reviews and self-study could also be of big help to prepare for the licensure exam. Teachers on the other hand need to observe students' academic achievement. They should facilitate the students in taking the mock board examinations for both online and offline and must strictly monitor the students' progress. If the students fail to meet the passing rate, they must provide removal examinations. Administration support is also crucial. They could benchmark from LET performing institutions, choose the right faculty to teach a course, secure the validity and/or reliability of instructional materials and assessment tools with LET competencies, strictly implement the admission and retention policy, and regularly assess the efficacy of the course audit in all areas to increase LET performance.

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BLENDED LEARNING IN THE NEW NORMAL IN HIGHER EDUCATION TOWARD ENHANCING ENGLISH LANGUAGE PROFICIENCY

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Abstract

The pandemic has forced educational institutions around the world to shift from classroom to online class. In the Philippines, the emergence of the online classroom has resulted in the demand of using blended learning. There are several studies on the impact of using blended learning. This study investigates the effectiveness of blended learning in enhancing the English language proficiency in terms of pronunciation and reading comprehension of the second-year Teacher Education students in the University of Southern Philippines Foundation. The researchers used the quasi-experimental design employing the pre-test post-test method to determine the effects of blended learning. The statistical tools used are simple percentage, mean, and t-test. The results showed a significant difference between the respondents using conventional learning and the respondents who are using blended learning.

Keywords: *blended learning, new normal, English language proficiency, quasi-experimental design*

INTRODUCTION

In this digital era, technology can help seamlessly support a 21st-century learning environment by blending physical and digital arrangements (Machado, 2020). Academic institutions worldwide use Online Learning primarily in three ways: first, to introduce new online classes efficiently and serve more students; second, to provide teachers with more innovative tools to integrate into their classes; and lastly third, to give learners lifelong learning opportunities.

The outbreak of Covid 19 took hold on the academic institutions' opening and forced them to switch to online teaching and learning. During the pandemic, numerous countries worldwide have adopted different answers to continue the education process. Teachers are using Zoom, Google Meet, Facebook Messenger, and others to give their lectures remotely (UNESCO, 2020). More courses are blended learning, which utilizes many resources and activities that promote student-centered learning experiences (Schwenger, 2016). Blended learning is considered a mixture of educational technology and education (E. Chew, N. Jones, and D. Turner, 2016). It utilizes differentiated instruction to best serve students' needs based on their learning styles, knowledge level, interests, abilities, and skills (Baro, 2011). There are several studies on the impact of using blended learning. Teachers need to think of technology as a tool that enables them and

their students to reach resources quickly and effectively. The traditional method requires weeks of planning and effort to achieve a successful activity like field trips, educational movies, conferences, and many other activities (Dagett, 2010). However, within the blended learning strategy, these activities become easier to plan and implement. Students can virtually access books and resources they need while being seated in their classrooms or even in the comfort of their bedroom (Bath and Bourke, 2010). Brew (2008) states that blended learning through integrating offline and online teaching and learning facilitates convenient learning experiences. Blended learning allows the learners to visualize, listen, feel, and interact with the learning material. Students can learn according to their pace, which creates the opportunity for more individualized education. The achievers can increase their learning and learn things that are not within the school syllabus. However, the slow achievers can repeat and revise notes and get feedback from their teachers to overcome their problems and challenges (Bailey and Martin, 2013).

Schools should take a step towards applying technology in their classes and learning environment to connect the students' interest and the outside world. Technology gives learners the chance to experience the real world moderately and smoothly (Jackson, 2014). Most jobs require learners to master information technology skills. Students taught in blended learning obtain more skills as they are exposed to more real-life resources (Van, 2010). Schools need to prepare and be able to pursue every student's challenge in implementing quality education. In Asia, the Philippines has the lowest web access. Such problems will be disparities in equity, protection, the security of the student's impaired learning quality, and weak evaluation outcomes (Winthrop, 2020). However, the Department of Education stressed that it would not merely mean that teachers and students would go to schools and study in classrooms. Various modalities are devised to ensure that online learning is the best choice among all others in this new learning environment (DepEd, 2020). Likewise, the new normal would be virtual classrooms in higher education institutions. The Commission on Higher Education proposed strengthening online and mixed learning platforms, such as but not limited to Google Classroom, Messenger, Zoom, Facebook, and YouTube (CHED, 2020). Also, both will follow various options for learning delivery, including but not limited to face-to-face, mixed learning, distance learning, homeschooling, and other delivery modes (CHED, 2020; DepEd, 2020). The new normal of learning opens to many new kinds of research on effective online learning. To investigate the effectiveness in delivering quality and results-based education to students from the boundaries of virtual reality.

This research investigates the effectiveness of blended learning that merges the conventional online learning session in the new normal. It aims to determine the degree of effectiveness of such techniques in enhancing English Language proficiency. With the emergence of information and communication technology, it is assumed that blended learning increases the Education students' level of English Language proficiency in their pronunciation and reading comprehension. The research findings are projected to help the researchers create enrichment activities that will enhance the English Language proficiency of the students in the new normal of education.

METHODOLOGY

This study made use of the quasi-experimental design employing the pre-test post-test method. The respondents of the study, through simple random sampling, were the twenty second-

year students of the College of Teacher Education of University of Southern Philippines Foundation. The even numbers were assigned in the control group (conventional learning) and the odd numbers were assigned in the experiment group (blended learning).

Two instruments were utilized to determine the degree of effectiveness of blended learning in enhancing English language proficiency in pronunciation and reading comprehension. One was the ELSA application and the second one was the PISA 2018 reading literacy questionnaire. The statistical treatment employed were simple percentage, mean, and t-test.

RESULTS

Table 1

Pre-test Scores of Teacher Education Students in Pronunciation

Score Range	Description	Pronunciation			
		Control Group (Conventional Learning)		Experimental Group (Blended Learning)	
		f	%	f	%
81 -100	Excellent	1	10	4	40
61 - 80	Very Good	9	90	6	60
41 - 60	Good	0	0	0	0
21 - 40	Fair	0	0	0	0
0 - 20	Poor	0	0	0	0
Total		10	100	10	100
Mean		75	Very Good	79	Very Good

Table 1 showed the pre-test level of English language pronunciation proficiency of the second-year teacher education students. The result revealed that 1 or 10% got an excellent score; 9 or 90% got a very good score in the controlled group, and 4 or 40% got an excellent score while 6 or 60% got a very good score in the experimental group. The mean score of the controlled group was 75, and the mean score of the experimental group was 79.

Table 2

Pre-test Scores of Teacher Education Students in Reading Comprehension

Score Range	Description	Reading Comprehension			
		Control Group (Conventional Learning)		Experimental Group (Blended Learning)	
		f	%	f	%
9 - 10	Excellent	0	0	0	0
7 - 8	Very Good	0	0	0	0
5 -6	Good	5	50	4	40
3 - 4	Fair	4	40	4	40
0 - 2	Poor	1	10	2	20
Total		10	100	10	100
Mean		4	Fair	4	Fair

Table 2 presented the pre-test level of English language reading proficiency of the second-year teacher education students. The result revealed that 5 or 50% got a good score, 4 or 40% got a fair score, 1 or 10% got a poor score in the controlled group, while 4 or 40% got a good score, 4 or 40% got a fair score; 2 or 20% got a poor score in the experimental group. The mean score of both groups was 4 which was fair.

Table 3

Post-test Scores of Teacher Education Students in Pronunciation

Score Range	Description	Pronunciation			
		Control Group (Conventional Learning)		Experimental Group (Blended Learning)	
		f	%	f	%
81 -100	Excellent	2	20	10	100
61 - 80	Very Good	8	80	0	0
41 - 60	Good	0	0	0	0
21 - 40	Fair	0	0	0	0
0 - 20	Poor	0	0	0	0
Total		10	100	10	100
Mean		78	Very Good	93	Excellent

Table 3 presented the post-test level of English language pronunciation of the second-year teacher education students. The result revealed that 2 or 20% got an excellent score, 8 or 80% got

a very good score in the controlled group, while 10 or 100% got an excellent score in the experimental group. The mean score of the controlled group was 78 which means very good while the mean score of the experimental group was 93 which means excellent.

Table 4

Post-test Scores of Teacher Education Students in Reading Comprehension

Score Range	Description	Reading Comprehension			
		Control Group (Conventional Learning)		Experimental Group (Blended Learning)	
		f	%	f	%
9 - 10	Excellent	0	0	0	0
7 - 8	Very Good	0	0	5	50
5 -6	Good	8	80	4	40
3 - 4	Fair	1	10	1	10
0 - 2	Poor	1	10	0	0
Total		10	100	10	100
Mean		5	Good	7	Very Good

Table 4 presented the post-test level in English language reading comprehension of the second-year teacher education students. The result revealed that 8 or 80% got a good score, 1 or 10% got a fair score, 1 or 10% got a poor score in the controlled group, while 5 or 50% got a very good score; 4 or 40% got a good score; 1 or 10% got a fair score in the experimental group. The mean score of the control group was 5 which is good while the mean score of the experimental group was 7 which is very good.

Table 5

Pre-test Mean Scores in Pronunciation between the Controlled Group and Experimental Group

Group	Computed Test Value	Critical Value of t	Decision	Interpretation
Control group (Conventional Learning) vs Experimental group (Blended Learning)	1.68569	2.262	Accept Ho1	Not Significant

Table 5 presented the pronunciation pre-test mean score between the controlled group and the experimental group. It showed the computed test value of 1.68569, which was lower than the critical value of t 2.262. It indicated that the first null hypothesis was accepted; it was not significant.

Table 6

Pre-test Mean Scores in Reading Comprehension between the Controlled Group and Experimental Group

Group	Computed Test Value	Critical Value of t	Decision	Interpretation
Control group (Conventional Learning) vs. Experimental group (Blended Learning)	0.27975	2.262	Accept Ho1	Not Significant

Table 6 presented the reading comprehension pre-test mean score between the controlled group and the experimental group. It showed the computed test value of 0.27975, which was lower than the critical value of t 2.262. It indicated that the first null hypothesis was accepted; it was not significant.

Table 7

Post-test Mean Scores in Pronunciation between the Controlled Group and Experimental Group

Group	Computed Test Value	Critical Value of t	Decision	Interpretation
Control group (Conventional Learning) vs Experimental group (Blended Learning)	11.52917	2.262	Reject Ho1	Significant

Table 7 presented the pronunciation post-test mean score between the controlled group and the experimental group. It showed the computed test value of 11.52917, which was higher than the critical value of t which was 2.262. It indicated that the first null hypothesis was accepted; it was not significant.

Table 8

Post-test Mean Scores in Reading Comprehension between the Controlled Group and Experimental Group

Group	Computed Test Value	Critical Value of t	Decision	Interpretation
Control group (Conventional Learning) vs Experimental group (Blended Learning)	3.26381	2.262	Reject Ho1	Significant

Table 8 presented the reading comprehension post-test mean score between the controlled group and the experimental group. It showed the computed test value of 3.26381, which was higher than the critical value of t which was 2.262. It indicated that the first null hypothesis was rejected; it was significant.

Table 9

Mean Score Gain in Pronunciation Using Conventional Learning Method

Group	Computed Test Value	Critical Value of t	Decision	Interpretation
Control group (Conventional Learning)	1.83065	2.262	Accept Ho2	Not Significant

Table 9 presented the mean score gain of the English language proficiency in pronunciation using the conventional learning method. It showed the computed test value of 1.83065, which was lower than the critical value of t which was 2.262. It indicated that the second null hypothesis was accepted; it was not significant.

Table 10

Mean Score Gain in Pronunciation Using Blended Learning

Group	Computed Test Value	Critical Value of t	Decision	Interpretation
Experimental group (Blended Learning)	5.60401	2.262	Reject Ho2	Significant

Table 10 presented the mean score gain of the English language proficiency in pronunciation using the conventional learning method. It showed the computed test value of 5.60401, which was higher than the critical value of t which was 2.262. It indicated that the second null hypothesis was rejected; it was significant.

Table 11

Mean Score Gain in Reading Comprehension Using Conventional Learning

Group	Computed Test Value	Critical Value of t	Decision	Interpretation
Control group (Conventional Learning)	0.7381	2.262	Accept Ho2	Not Significant

Table 11 presented the mean score gain of the English language proficiency in terms of reading pronunciation using the conventional learning method. It showed the computed test value of 0.7381 which was lower than the critical value of t which was 2.262. It indicated that the second null hypothesis was accepted; it was not significant.

Table 12

Mean Score Gain in Reading Comprehension Using Blended Learning

Group	Computed Test Value	Critical Value of t	Decision	Interpretation
Experimental group (Blended Learning)	4.15741	2.262	Reject Ho2	Significant

Table 12 presented the mean score gain of the English language proficiency in terms of pronunciation using the conventional learning method. It showed the computed test value of 4.15741 which was higher than the critical value of t which was 2.262. It indicated that the second null hypothesis was rejected; it is significant.

DISCUSSION

The pre-test scores of the education students in the controlled group (conventional learning) and the experimental group (blended learning) are at a very good level in pronunciation and both respondents in the controlled group and experimental group are at a fair level in reading comprehension. English has long been one of the Philippines' official languages and is spoken by over 14 million Filipinos (Cabigon, 2015). The Philippines is regarded as one of the largest English-speaking nations in the world, with the largest of its population possessing at least a degree of fluency in English. This is supported by the study of Valderama (2019) stating that the Philippines' literacy rate is high at 94 percent, and 70 percent of the population are fluent in speaking the English language. This makes the Philippines one of the largest English-speaking countries in the world. On the other hand, reading comprehension as expressed by San Juan (2019) is one of the reading competencies that every students must develop for it is essential for a wide variety of human activities. This is supported by Marquez's (2008) study, as cited in Bilbao, Donguila, & Vasay (2016), which states that comprehension is the primary purpose of reading; without comprehension, reading is a meaningless activity regardless of age or ability of the reader.

The post-test scores of the education students in the control group (conventional learning) are at a very good level in pronunciation and at a good level in reading comprehension while the education students in the experiment group (blended learning) are at an excellent level in pronunciation and at a very good level in reading comprehension. The results showed that students performed better in their English subjects when blended learning is employed (Oweis, 2018). This is supported by Kirkgoz' study wherein it revealed that English pronunciation significantly improved for the students taking a blended version of the course. Students in the blended group had a richer vocabulary range and more varied intonation than those in the traditional groups previously taught. According to the study of Pertiwi (2018), results showed three conclusions.

First, blended learning motivates the learners to learn more various materials that support improving vocabulary mastery. Second, blended learning motivates the learners to do various online tasks and provides interactive feedback. Third, blended learning effectively improves the learners' vocabulary proficiency.

In testing the significant difference, results show that there is no significant difference in the pre-test scores of the control group (conventional learning) and the experimental group (blended learning). However, there is a significant difference in the post-test scores of the control group (conventional learning) and the experiment group (blended learning). As stated in the study of Ghazizadeh & Fatemipour (2017), blended learning can be adopted in the English language classes to facilitate the learning process, especially that of the reading skill. Their study indicates that blended learning has a statistically significant positive effect on Iranian EFL learners' reading proficiency. This is supported by the study of Alnauri (2018), which showed that the blended learning method influenced the improvement of the students' reading comprehension. Similarly, Behjat (2012) study concluded that those who practiced reading comprehension in a blended learning environment could enhance their comprehension of English much better than those who only use the conventional method.

CONCLUSION

It can be concluded that the second-year teacher education students are at a very good level in pronunciation and a fair level in reading comprehension. Students in the control group indicated a few or no improvements in pronunciation and reading comprehension. However, those who are in blended learning has greater improvement in pronunciation and reading comprehension. Both groups have the same level of English language proficiency in pronunciation and reading comprehension. Students exposed to conventional learning show a low level of improvement compared to those students who are exposed to blended learning. Blended learning increases the education student's level of English language proficiency in their pronunciation and reading comprehension.

It is therefore recommended that the following measures be undertaken based on the results. Curriculum planners should implement blended learning with the recommended curriculum. Exposure to activities and lessons that would develop the pronunciation and reading comprehension proficiency of the students is important. The College of Teacher Education should do remedial online classes for pronunciation and reading comprehension through blended learning. Teachers and pre-service teachers should attend webinars, seminars, and workshops on how to use supplemental applications for blended learning in teaching. Further research about blended learning could further help develop the necessary skills to augment students' skills.

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STUDENTS' SCIENTIFIC REASONING SKILLS AND ENGLISH LANGUAGE PROFICIENCY ON THE ACQUISITION OF SCIENCE CONTENT KNOWLEDGE

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Abstract

Scientific reasoning skills are an essential factor in encouraging students' thinking ability in learning that contributes to scientific literacy. One of the main educational objectives in the Philippines is science literacy for all students. Personal decisions on issues concerning society as well as the reporting of scientific discovery and understanding can be made using scientific processes in understanding science and applying scientific skills. It is therefore imperative that students learn not only the concepts but also the scientific process in general. On the other hand, English has always been one of the official languages of the Philippines spoken by many Filipinos. It is the language of commerce and law and the primary medium of instruction in education. The teaching and learning of science in English are practiced in several countries around the globe. The learning of science works hand in hand with the learning of a language for it is quite difficult to explain old concepts or construct new science discoveries without language. This paper aims to examine the correlation of scientific reasoning skills and English language proficiency of the Grade 12 Senior High School STEM students on their acquisition of science content knowledge as measured by standardized English and Science tests.

Keywords: *scientific reasoning skills, English language proficiency, science content knowledge, descriptive correlational*

INTRODUCTION

Knowledge of science is crucially in demand in the era of globalization. The focus has been on fostering interest in the field of Science, Technology, Engineering, and Mathematics (STEM) (Waris, Sanin & Szczerbicki, 2018). Science has become very important and essential. It is therefore imperative that students learn not only the concepts but also the scientific process in general. Educators should focus on developing the reasoning among students that is essential to learning science (Bao et al., 2016).

The teaching and learning of science in English are practiced in several countries around the globe. As Dearden (2016) argues, English as a medium of instruction is becoming a global phenomenon, as it is adapted to all levels of schools around the world. Irrefutably, it is implemented in countries with English as a second or even foreign language. According to Hand, Norton-Meier, Gunel, and Akkus (2016), science cannot exist without some form of language, describing that it is difficult to explain old or construct new science discovery without language.

In the United Kingdom, Afitska and Heaton (2019) studied the performance in science of both English native speakers and English language learners. The result reveals that the English language learners performed poorly than their native English-speaking peers because they lack the required vocabulary and language skills. The same result was observed in the United States; although the National Center for Education Statistics has reported remarkable gains in the educational performance of many US students, broad disparities in achievement among some segments of the population still exist. According to the National Center for Education Statistics as cited by Reilly (2018) in reading and writing, even in math and science, English language learners frequently have poor academic performance. In a study by Nasirudeen and Xiao (2020) about the English language skills and academic performance, including math and science, between international and domestic nursing students in Singapore, they concluded that for students to succeed academically, institutions must provide English language courses for them to improve their English language proficiency. In Hong Kong, where there are inconsistencies in the language of instruction, some studies have shown concerns for English language learners in learning science. These studies asserted that low English proficiency has a negative impact on students' achievement scores in science (Williams, Tang, and Won, 2019).

In the Philippines, the key educational reform of K to 12 stresses the need for a trained workforce of the 21st century, which aims to learn the material of students and acquire transferable thinking skills. According to the National Research Council, personal decisions on issues concerning society as well as the reporting of scientific discovery and understanding can be made using the scientific processes in understanding science and applying scientific skills. This comprehension of science for Filipino language learners has often proved to be quite elusive (Ybañez, Jr, Sagayap & Camacho, 2016). For Filipino students, studying science is also considered a daunting feat. Their success was well below that of other participating countries in international scientific studies (Atillo-Daplan as cited by Racca and Lasaten, 2016). According to the international comparative assessments of student achievements in Mathematics and Science (2019) in more than 60 countries of the Lynch School of Education and Human Development of Boston College, the International Association for the Evaluation of Educational Achievement (IEA), 13% of Filipino students were also on the low benchmark for science, indicating that they had limited understanding of scientific concepts and limited knowledge of foundational science facts, while 87% did not even reach this level.

In evaluating, generating, and redoing theories or hypotheses, scientific reasoning includes reasoning and problem-solving techniques. The inferior reasoning abilities of students in the context of scientific problems are increasingly becoming more apparent and have now become an issue in science education (Feist as cited by Ragma et al., 2016). It is the formal reasoning that prerequisite for most high school courses (Lawson, 2002). According to Flavell, Miller, and Miller (2013), it is commonly understood that the pattern of formal reasoning is necessary for better acquisition of new concepts and ideas. Krell, Redman, Mathesius, Krüger & van Driel (2018) suggested that scientific reasoning skills are also a complex construction, encompassing the skills needed to solve scientific problems, as well as the capacity to reflect on problem-solving at a meta-level. Lawson (as cited by Khoirina, Cari & Sukarmin 2018) stated that students need reasoning skills in all disciplines as a key to the efficient ability to learn. Colleta, Phillips & Steinert (2008) states in their research that scientific reasoning is one of the factors affecting students'

accomplishment in science. Scientific reasoning contributes to academic achievement, cognitive ability, decision making, and problem-solving (Han, 2013). Knowledge is also intertwined with reasoning, as it is important to recognize key features of the problem at hand, including content knowledge, procedural knowledge, and epistemological knowledge (Kind & Osborne, 2017).

As highlighted in science education policy papers in various countries, science education is important to "promote a culture of scientific thinking and inspire citizens to use evidence-based reasoning for decision-making" (European Commission, 2015). Being familiar with the natural existence of the world, understanding key concepts and principles of science, having the capacity for scientific reasoning, and being able to use scientific knowledge is the characteristic of scientific ability (American Association for the Advancement of Science Project, 1995). Evaluating the uncertainty in a particular measurement and minimizing it is an ability. Science is also considered to be of great significance because of its ties to technology and industry, which may be areas of high priority for growth from a national perspective. Consequently, science is considered a fundamental element in elementary and secondary preparations despite conceptual complexity. Another reason for the inclusion of science in school curricula is that a degree of scientific literacy must be attained by all people to enable them to engage effectively as citizens in modern societies (Batomalaque as cited by Abdulrachman 2018). In the study of Javier (2001), he asserted that science is not learned thoroughly by the students in all areas. These range from the interpretation and analysis of scientific evidence, to the explanation and proofing of scientific theories or laws, to the ability to solve scientific problems or to contradict or justify a hypothesis.

Based on the results of the Programme for International Students Assessment in 2018, the scientific literacy skills of Filipino students rank second to the last among participating countries (OECD, 2019). The low achievements are presumably caused by the learning process that is still oriented to low order thinking skills and lack of scientific reasoning activities. It makes the students from high school graduates who are now in higher education level still possess low thinking ability.

According to a 2018 report by Education First's English Proficiency Index, the Philippines ranks at No. 14 among the non-native English-speaking countries around the world. No wonder that Filipinos leverage their ability to read, write, and speak English with their language ability(The Manila Times, 2019). As stated in Philstar Global (2020), the Philippines maintains 'high' proficiency in the English language. The "Proficiency Band" of the country, which is based on the score rather than rank, has remained consistently at "high" from 2016 to 2020. The proficiency bands vary from very low to very high proficiency. Cabigon (2015) stressed that the Philippines is known globally as one of the biggest English-speaking people having at least some degree of fluency in the English language. Racca and Lasaten (2016) described students with high English language proficiency tend to perform well in Science, Mathematics, and English subjects.

The characteristic of good science knowledge is mainly establishing a strong link to the level and quality of content knowledge that educators hold (Abell, 2007). The ability to maintain a higher science content knowledge increases the capability of learners to think critically and creatively (Boo, 2000). Similarly, the structure of science subject is more on logical structures that compromise a discipline and substantive knowledge (Borko, 2004). Kusumastuti, Rombot & Ariesta (2019) stated that the process is carried out in integrated science learning. STEM education, which is a combination of science and mathematics concepts with engineering and

technology skills, shows that learning science in technology and design is very likely a contributor to increasing scientific knowledge (Permanasari, Afriana, & Fitriani, 2016). According to Racca and Lasaten (2016) students, who are found to have higher academic performance levels in science are also found to have higher English language proficiency levels. In addition to this, Ozubuwa (2018) had also observed that students who scored higher in the English language proficiency test also scored higher in the Science test.

There are a few studies examining the effects of both English language proficiency and scientific reasoning skills on the learning of scientific knowledge of students. Both past researches and theories suggested that scientific reasoning skills and English language proficiency could affect or are prerequisites for the acquisition of science content knowledge, as reported by a study of Zeidler and Torres (2002) to Grade 10 Hispanic learners. Accordingly, the researchers will investigate further and present this presumption among Filipino students. This study assumes that the Grade 12 STEM students' scientific reasoning skills and English language proficiency affect science content knowledge.

METHODOLOGY

This study made use of the descriptive correlational design. Thirty-seven Senior high school students under STEM were the respondents identified through purposive sampling.

The research instrument used was an adapted questionnaire from the research of Manolito, J. G., Sagayap, C., & Camacho, V. M. (2016) entitled "The Effects of Scientific Reasoning Skills, English Language Proficiency and other Factors on the Acquisition of Chemistry Content Knowledge." It is composed of two parts. Part I collects the scientific reasoning skills of the respondents, which are divided into three tests: scientific ability, mathematical ability, and abstract reasoning. Part II measures the respondents' English language proficiency, which is divided into three tests: listening comprehension, structure and written expression, and reading comprehension. Each test consists of ten (10) items and is composed entirely of multiple-choice questions. The science content knowledge was measured by obtaining the students' first quarter science test results. The statistical tools used were simple percentage, coefficient of contingency, and Pearson r.

RESULTS

Table 1

Grade 12 STEM Students' Scientific Reasoning Skills in Terms of Scientific Ability

Range	Frequency	Descriptive Equivalent	Percentage of Relative Frequency
9-10	0	Excellent	0%
7-8	4	Above Average	11%
5-6	5	Average	14%
3-4	14	Below Average	38%
1-2	14	Poor	38%
Total	37		100%

Table 1 showed the Grade 12 STEM students' scientific reasoning skills in terms of scientific ability. Of the thirty-seven (37) respondents, no one gained an excellent proficiency. Four (4) had above average proficiency, five (5) had average proficiency, fourteen (14) had below average proficiency, and fourteen had poor proficiency.

Table 2

Grade 12 STEM Students' Scientific Reasoning Skills in Terms of Mathematical Ability

Range	Frequency	Descriptive Equivalent	Percentage of Relative Frequency
9-10	0	Excellent	0%
7-8	6	Above Average	16%
5-6	11	Average	30%
3-4	8	Below Average	22%
1-2	12	Poor	32%
Total	37		100%

Table 2 showed the Grade 12 STEM students' scientific reasoning skills in terms of mathematical ability. Of the thirty-seven (37) respondents, none of the respondents were categorized as having excellent proficiency. Six (6) respondents were above average, eleven (11) were average, eight (8) were below average, and twelve (12) had poor proficiency.

Table 3

Grade 12 STEM Students' Scientific Reasoning Skills in Terms of Abstract Reasoning

Range	Frequency	Descriptive Equivalent	Percentage of Relative Frequency
9-10	0	Excellent	0%
7-8	2	Above Average	5%
5-6	5	Average	14%
3-4	11	Below Average	30%
1-2	19	Poor	51%
Total	37		100%

Table 3 showed the Grade 12 STEM students' scientific reasoning skills in terms of abstract reasoning. Of the thirty-seven (37) respondents, none had an excellent abstract reasoning. Two (2) were above average, five (5) were average, eleven (11) were below average, and nineteen (19) had poor abstract reasoning.

Table 4

Grade 12 STEM Students' English Language Proficiency in Terms of Listening Comprehension

Range	Frequency	Descriptive Equivalent	Percentage of Relative Frequency
9-10	14	Excellent	38%
7-8	13	Above Average	35%
5-6	4	Average	11%
3-4	3	Below Average	8%
1-2	3	Poor	8%
Total	37		100%

Table 4 showed the Grade 12 STEM students' English language proficiency in terms of listening comprehension. Of the thirty-seven (37) respondents, fourteen had excellent listening comprehension. Thirteen (13) were above average, four (4) were average, three (3) were below average, and three (3) had poor proficiency.

Table 5

Grade 12 STEM Students' English Language Proficiency in Terms of Structure and Written Expression

Range	Frequency	Descriptive Equivalent	Percentage of Relative Frequency
9-10	5	Excellent	14%
7-8	15	Above Average	41%
5-6	7	Average	19%
3-4	10	Below Average	27%
1-2	0	Poor	0%
Total	37		100%

Table 5 showed the Grade 12 STEM students' English language proficiency in terms of structure and written expression. Of the thirty-seven (37) respondents, five (5) had excellent proficiency. Fifteen (15) were above average, seven (7) were average, and ten (10) were below average.

Table 6

Grade 12 STEM Students' English Language Proficiency in Terms of Reading Comprehension

Range	Frequency	Descriptive Equivalent	Percentage of Relative Frequency
9-10	7	Excellent	19%
7-8	5	Above Average	14%
5-6	8	Average	22%
3-4	8	Below Average	22%
1-2	9	Poor	24%
Total	37		100%

Table 6 showed the Grade 12 STEM students' English language proficiency in terms of reading comprehension. Of the thirty-seven (37) respondents, seven (7) had excellent proficiency. Five (5) were above average, eight (8) were average, eight (8) were below average, and nine (9) had poor proficiency.

Table 7

Grade 12 STEM Students' Science Content Knowledge for the First Quarter

Grading Scale	Frequency	Descriptive Equivalent	Percentage of Relative Frequency
90-100	15	Outstanding	41%
85-89	16	Very Satisfactory	43%
80-84	5	Satisfactory	14%
75-79	1	Fairly Satisfactory	3%
Below 75	0	Did Not Meet Expectations	0%
Total	37		100%

Table 7 showed the Grade 12 STEM students' scientific content knowledge based on their first quarter grade. Of the thirty-seven (37) respondents, 15 were outstanding. Sixteen (16) were very satisfactory, five (5) were satisfactory, and one (1) was fairly satisfactory.

Table 8

Correlation between Scientific Reasoning Skills and Science Content Knowledge

Variables	Chi-square	c	P-value	Decision	Interpretation
Scientific Reasoning Skills and Science content knowledge	47.549	0.713	0.000	Reject the null hypothesis	The correlation is significant.

Table 8 showed the chi-square of 47.549 and the c which was 0.713 which meant that there was a linear and strong correlation between the two variables. The calculated P-value was 0.000; therefore, the null hypothesis was rejected, hence it was significant.

Table 9

Correlation between English Language Proficiency and Science Content Knowledge

Variables	Chi-square	c	P-value	Decision	Interpretation
English language proficiency and Science content knowledge	82.013	0.80	0.000	Reject the null hypothesis	The correlation is significant.

Table 9 showed the correlation between English language proficiency and science content knowledge. It was found out that c is equal to 0.80, which indicated a strong correlation between the two variables. The calculated chi-square was equal to 82.013. The P-value is 0.000; therefore, the null hypothesis was rejected, hence it was significant.

Table 10

Correlation between Scientific Reasoning Skills and English Language Proficiency

Variables	*r*	Computed t-value	Critical Value @.05	Decision	Interpretation
Scientific reasoning skills and English language proficiency	0.6974	6.25	1.994	Reject the null hypothesis	The correlation is significant

Table 10 showed the degree of correlation between the Grade 12 STEM students' scientific reasoning skills and English language proficiency. Using Pearson r, the result revealed that r was equal to 0.6974, which means there was a significant correlation between the two variables. Since the computed t value of 6.25 was greater than the critical value of 1.994, the null hypothesis was rejected.

DISCUSSION

The students' proficiency results in scientific ability, mathematical ability, and abstract reasoning reflects the Programme for International Student Assessment (PISA) in 2018, where the Philippines scored 357 in Science, which is poor in the ranking. According to Capuno et al. (2019), as reflected in the 2016-2017 Global Competitiveness Survey, Filipino students' performance in mathematics needs to be improved; in this, the Philippines ranked 79th out of 138 participating countries in terms of the quality of science and math education. This also supports the studies of Mirabueno and Boyon (2020) stating that the NAT results imply that the mathematical competency of the students is lower because students were not able to achieve optimal learning due to lack of guidance and realization on the application of mathematics in their fields of interests and practical realities. In another study by Drager as cited by Guinongco and Roman (2020), it implied that abstract reasoning is a predictor of mathematics performance of the students, and to increase their performance, they need more challenging learning tasks that require abstract reasoning. The study of Tan and Balasico (2018) reveals that high school students have poor abstract reasoning based on their National Career Assessment Examination (NCAE). Oncoy (2016) suggested that students should be exposed to higher-order thinking skills, and teachers and curriculum developers must consider the levels of cognitive development and logical reasoning abilities of students in making a new curriculum as well as when reviewing and revising the existing curriculum.

On the other hand, the students have shown far better results in the English language proficiency in the aspect of listening comprehension. The result is affirmed in the study of J. De Vera and P. De Vera (2018) which stated that senior high school students generally performed well in listening comprehension test. However, results in terms of structure and written expression and reading comprehension showed very few students who have excellent proficiency. Majority fall under average and sometimes poor proficiency. The results support the study of Mahmud (2014) which states that students find it challenging to do the TOEFL test, especially in the structure and written expression section. Furthermore, this result also coincides with the data based on the English Education Study Program of Universitas Bengkulu. The result shows that structure and written expression are the lowest among other sections in the TOEFL test. The result also coincides with the research done by Tilana, Yunita, and Zahrida (2019) which reveals that the students' competence in structure and written expression is low.

The result on the students' reading comprehension coincides with the study of Gabardo (2015) in one of the performing high schools in Davao City to determine the students' reading proficiency as the basis for the intervention program. The results revealed that majority of the students belonged to the frustration level of reading proficiency. This also aligns with the 2018 Programme for International Student Assessment (PISA) results, which reveal that the Philippines scored lowest in reading comprehension among 79 participating countries and economies. In addition to this, Zuhrah (2015) stated that students failed to answer inference questions correctly because of a lack of understanding of what is being asked and because of weaknesses in understanding the reading comprehension questions. They have also found out that students who have inadequate knowledge of vocabulary and sentence structure also scored low in reading comprehension. This implies that students who have insufficient knowledge of vocabulary and sentence structure also scored low in reading comprehension.

Majority of the Grade 12 STEM students have a very satisfactory science content knowledge. Ironically, the results in the scientific and mathematical ability as well as the abstract reasoning indicated otherwise. This validates the study of Limueco and Prudente (2018) that scientific reasoning and content learning are said to be linked to each other. As students acquire knowledge, their scientific reasoning improves as well. This also matches the result of the study by Kambeyo (2017), which states that scientific reasoning abilities are a better predictor of success in science education and that there is a positive correlation between the students' scientific reasoning abilities and measures of students' gains in learning science content. This implies that scientific reasoning is a factor in students' acquisition of science content knowledge.

The result on the relationship between English language proficiency and science content knowledge validates Cummin's Cognitive Academic Language Proficiency Theory which describes the connection between the students' cognitive and linguistic processes to their academic performance; thus, Cummins (1992) and Rosenthal (1996) stated that language proficiency is needed to avoid having difficulty in learning science, mathematics, and other academic subjects. This result coincides with the study of Racca and Lasaten (2016), which reveals that the higher the English language proficiency levels of the students, the higher their academic performance levels in Science. In addition to this, Ozubuwa (2018) had also observed that students who scored higher in the English language proficiency test also scored higher in the Science test.

CONCLUSION

Findings of the study revealed that majority of the Grade 12 STEM students scored poorly in scientific reasoning and that there was a significant relationship between scientific reasoning skills, English language proficiency, and science content knowledge. It is therefore recommended that students should be exposed to higher order thinking skills to develop their scientific reasoning and enhance their language proficiency.

Students should also be proactive in assessing their English language proficiency and scientific reasoning skills to drive necessary improvement. Teachers, especially those handling Science and English, should continuously be updated with new approaches, methods, strategies, and techniques in teaching the subjects. Constant attendance and participation in seminars, training, and workshops can bring out innovations in teaching that could greatly benefit the students. School administrators must establish standards to help develop these key areas. Resources should be allocated to improve and monitor the proficiency levels of the students. Furthermore, they should provide professional development assistance to the faculty to equip them with relevant approaches, methods, strategies, and techniques in teaching English and Science.

Parents and significant others should support the English and Science programs of the school for the enhancement of the students' English proficiency and scientific reasoning skills. Also, parents should regularly monitor the academic performance of the students to properly them accordingly.

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TESTING THE LISTENING COMPREHENSION SKILLS OF GRADE 6 PUPILS THROUGH TRADITIONAL AND DIGITAL STORYTELLING

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Abstract

Listening is one of the macro skills in English. It is the ability to receive, understand, interpret, and respond to verbal and non-verbal messages from the speaker. During the process of listening, understanding is attained through several factors. How an individual listens to a message and how it is perceived plays a crucial role in reaching understanding. Listening comprehension is a cognitive process as it works with the development of memory, attention, vocabulary, grammar and comprehension monitoring. It is the aim of the study to test the listening comprehension skills of Grade 6 pupils by employing the use of traditional storytelling and digital storytelling. It also seeks to determine if digital storytelling is an effective tool over the traditional mode of telling a story. Employing t-test, results showed that there is a significant difference in the experimental group where digital storytelling is employed.

Keywords: *Listening comprehension, traditional storytelling, digital storytelling, quasi-experimental method*

INTRODUCTION

Storytelling is the act of telling or writing stories, or narratives. Typically, stories are told for entertainment, for informational purposes, or for educational purposes. It is universal to the human experience. Indeed, although it is likely impossible to prove, it has been suggested that storytelling developed not long after the development of language itself (National Geographic, 2020).

From ancient times to the present, storytelling has been a customary education tool for passing information down through generations. The opposite of all storytelling traditions is story listening. The listener should listen in a certain way, with attentiveness to enter the plot, to construct images in her mind, to sense and feel the light and shadow cast by the contours of her landscape. Traditional storytelling involves a narrator transmitting a fixed story to an audience of one or more, employing various verbal tones, physical gestures, and facial expressions to evoke reactions and participation from the audience. This process is anchored in the reality that the story's basic structure never changes (Future Learn, 2020). Digital storytelling at its most basic core is the practice of using computer-based tools to tell stories. Most digital stories focus on a specific topic and contain a particular point of view. It usually contains some mixture of computer-based images, text, recorded audio narration, video clips, and/or music. Digital stories can vary in length, but most of the stories used in education typically last between 2 and 10 minutes. The topics used in

digital storytelling range from personal tales to the recounting of historical events, from exploring life in one's own community to the search for life in other corners of the universe, and literally, everything in between (Dogan, 2020).

Sandaran and Lim (2013) conducted a study with 9-year-old third-grade students in a Malaysian primary school that uses Chinese instruction to see how digital stories affected their listening comprehension skills. Students listened to and watched eight digital stories based on fairy tales. Learners' interest, focus, and motivation significantly increased, as did their listening comprehension skills during the listening exercises. However, they say that, before the students listened to and watched digital stories, there should be vocabulary teaching exercises to help them improve their listening comprehension skills. According to the study entitled "Use of Digital Stories to Develop Listening Comprehension Skills" by Cigerci, F.M. and Gultekin, M. (2017), watching digital stories from students rather than just listening is a vital factor in helping to develop listening skills. Listening activities accompanied by watching may be more influential. Multimedia could support listening texts in language arts course books rather than using the traditional CDs that do not include visuals in place of reading the listening texts aloud.

In a study conducted by Loniza, A.F., Saad, A., and Mustafa, M.C. (2018) entitled, "The Effectiveness of Digital Storytelling on Language Listening Comprehension of Kindergarten Pupils," it discovered that digital storytelling is an effective way to demonstrate instruction, particularly in storytelling. When using digital storytelling with kindergarten students, traditional storytelling shows no comparison to language learning innovations. Kindergarten pupils who used digital storytelling improved their language learning through listening comprehension. Language generates with digital storytelling. As a result, listening is one method of increasing ones' desire to learn a language. The study of Gunbas, N., and Gozukucuk, M. (2020) found that students in the digital listening group had significantly higher listening comprehension outcomes than those in the traditional listening group. The slightly better results in favor of the digital listening community ascribed to an increase in the number of students completing the tasks. The students appeared to be very motivated to continue with more digital listening exercises.

Smeda, Dakich, and Sharda (2013) stated that digital storytelling can provide a realistic environment for students to activate their three senses: hands, eyes, and ears. It helps teachers to involve their students in learning in a range of potentials and interests. Gregori-Signs (2014) contend that digital storytelling allows students to evaluate the reality that surrounds them and produce their interpretation of it. It certainly contributes to the accession of knowledge-based skills and interaction with the physical world, social and citizen skills, and cultural skills.

Educational technologies can enrich teaching-learning processes by assisting digital literacy, media, and technology skills. Even though digital storytelling in educational settings has been secured for more than two decades, little research has been worked on it (Robin, B.R., & McNeil, S.G., 2012). As a result, more exploration is fundamental to determine the feasibility of using digital storytelling among Grade six learners and compare its efficacy to traditional storytelling in terms of listening comprehension skills. This study aims to discover the effectiveness of digital storytelling on the listening comprehension skills of the Grade six pupils of USPF over traditional storytelling. This research assumes that digital storytelling can help improve the learners listening comprehension skills.

METHODOLOGY

This study made use of the quasi-experimental design. Through random sampling, twenty pupils were identified as respondents. Divided equally, the first ten pupils were designated as the experimental group and the last ten pupils were the controlled group.

The researchers used the Listening Comprehension Test from ELLO.org. The resources on the websites are creative commons. Teachers and students can use audio, video, lessons, games, and quizzes for free. Todd Beukens designed it in 2003, and he is an English teacher in Japan.

The statistical tools used were weighted mean and t-test.

RESULTS

Table 1

Pretest Scores of Grade 6 Pupils in Listening Comprehension Test

Score Range	Description	Control group		Experimental group	
		F	%	F	%
21-25	Excellent	0	0	0	0
16-20	Very Good	0	0	4	40
11-15	Good	6	60	2	20
6-10	Fair	4	40	3	30
0-5	Poor	0	0	1	10
Total		10	100	10	100
Mean		10.80	Fair	12.00	Good

Table 1 revealed the pretest scores of the controlled and experimental group. The result showed that the experimental group gained a total mean score of 12.00 which was good while the controlled group had a mean score of 10.80 which was fair.

Table 2

Post-test Scores of Grade 6 Pupils in Listening Comprehension Test

Score Range	Description	Control group		Experimental group	
		F	%	F	%
21-25	Excellent	0	0	7	70
16-20	Very Good	5	50	3	30
11-15	Good	4	40	0	0
6-10	Fair	0	0	0	0
0-5	Poor	1	10	0	0
Total		10	100	10	100
Mean		14.20	Good	21.10	Excellent

Table 2 showed the post-test scores of the controlled and experimental group. The result indicated that the mean score of the experimental group which was 21.10 was higher than the controlled group which was 14.20. The experimental group was excellent while the controlled group was good.

Table 3

Pretest Scores of Grade 6 Pupils in the Controlled and Experimental Group

Group	Computed t-Test	Critical value of t	Decision	Interpretation
Control vs. Experimental	0.666	2.093	Accept $H_0 1$	Not significant

Level of Significance α 0.05

Table 3 presented the significant difference in the pretest scores of the two variables. The data revealed that the computed value of 0.666 was less than the critical value of 2.093 at 0.05 level of significance. Therefore, the null hypothesis was accepted. There was no significant difference in the pretest scores of the two groups.

Table 4

Post-test Scores of Grade 6 Pupils in the Controlled and Experimental Group

Group	Computed t-Test	Critical value of t	Decision	Interpretation
Control vs. Experimental	5.335	2.093	Reject $H_0 2$	Significant

Level of Significance α 0.05

Table 4 revealed the significant difference in post-test scores between the controlled and experimental group. The data showed that the computed value of 5.335 was greater than the critical value of 2.093 at 0.05 level of significance. Therefore, the null hypothesis was rejected. There was a significant difference in the post-test scores of the grade six pupils.

Table 5

Pretest and Post-test Scores of Grade 6 Pupils in the Controlled Group

Group	Computed t-Test	Critical value of t	Decision	Interpretation
Control	2.285	2.093	Reject H03	Significant

Level of Significance α 0.05

Table 5 revealed the pretest and post-test scores of Grade 6 pupils in the controlled group. The data showed the t test value of 2.285 which was greater than the critical value of 2.093 at 0.05 level of significance; hence, the null hypothesis was rejected. There was a significant difference in the pretest and post-test scores of the control group.

Table 6

Pretest and Post-test Scores of Grade Six Pupils in the Experimental Group

Group	Computed t-Test	Critical value of t	Decision	Interpretation
Experimental	5.539	2.093	Reject H03	Significant

Level of Significance α 0.05

Table 6 revealed the pretest and post-test scores of Grade 6 pupils in the experimental group. The data showed the t-test value of 5.539 which was greater than the critical value of 2.093 at 0.05 level of significance; hence, the null hypothesis was rejected. There was a significant difference in the pretest and post-test scores of the experimental group.

DISCUSSION

The pre-test results in the listening comprehension test of pupils indicated a fair result in the controlled group and a good result for the experimental group. It implies that even before the application of digital storytelling, the experimental group's listening comprehension skill is good. It is reflective of the study of Skin (2006) which states that young children have a short attention span and a lot of physical energy, making it difficult to hold their attention without visuals and keeping them engaged in activities.

The post-test results reveal that pupils in the controlled group have a good result; however, those in the experimental group garnered an excellent result. It implies that the implementation of

digital storytelling in the experimental group is effective in testing the listening comprehension skills of the pupils. According to Jalongo (2007), young children prefer visual and kinesthetic approaches. He also added that listening exercises should go along with pictures and activities. It had a significant positive impact on the listening abilities and attention span of children.

When testing the significant difference in the pre-test scores of the Grade 6 pupils, both in the controlled group and the experimental group, it is revealed that there is no significant difference. It implies that the listening comprehension of the two groups are of the same level. Regular printed-format stories were ought to be just as powerful as digital stories because of the engaging and technologically advanced digital tools they provide (Wang & Tzeng, 2006; Skinner & Hagood, 2008). Digital storytelling is an idea to have a positive impact on language learning.

However, when the significant difference of the post-test scores of the Grade 6 pupils was tested, it revealed a significant difference result. It implies that the latter could help pupils further enhance their listening comprehension skills. According to the study by Cigerci, F.M., and Gultekin, M. (2017), watching digital stories from students rather than just listening is a vital factor in helping to develop listening skills. Listening activities accompanied by watching may be more influential. Multimedia could support listening texts in language arts course books rather than using the traditional CDs that do not include visuals in place of reading the listening texts aloud.

Results of both the pre-test and post-test scores between the controlled group and the experimental group showed a significant difference. It implies there is a significant increase of effectiveness after the application of digital storytelling in the experimental group. It also means that digital storytelling had a substantial effect on the listening comprehension of the pupils. It supports the assertions of Nicolas (2007) and Isbel et al. (2004) that storytelling with illustrations helps in improving the listening skills of the children. Gunbas and Gozukucuk (2020) found that students had substantially higher outcomes of listening comprehension in digital listening than those in the traditional listening group. The slightly greater outcomes in favor of the digital listening community may be a result of the increase in students completing the tasks. The students seemed to be highly inspired to continue with even more exercises in the digital listening format.

CONCLUSION

It can be gleaned from the study that those in the experimental group have better listening comprehension skills than the control group based on the pretest and post-test scores. There is also an improvement of the scores in the post-test by both groups. However, scores in the experimental group are higher than those in the control group. From the results, it can be deduced that digital storytelling can help improve the listening comprehension skills of learners.

Digital storytelling is an effective instructional tool for teachers to help augment the listening skills of the learners. Teachers and curriculum planners could help create an enrichment plan to further hone this important macro skill in English. Teachers should include listening activities in crafting day-to-day lessons with the students.

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VIRTUAL REALITY IN SCIENCE CLASSES OF JUNIOR HIGH SCHOOL STUDENTS

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Abstract

Throughout the 21st century, technology plays a vital role in improving the quality of education. It is a powerful tool that can help transform education in many ways. Digital technologies, in particular virtual reality, are at the forefront of technological growth. Anchored on computer-mediated education theory and practice by Daniels and Pethel, this quasi-experimental study determined the effectiveness of virtual reality in science classes of the Grade 7 students in the University of Southern Philippines Foundation. Findings showed that there was a significant difference between the learning gain and post-test scores of the control group exposed to the traditional method of teaching and experimental group with virtual reality indicating the significantly higher performance of the experimental group over the control group. Although traditional teaching also increased the performance of the controlled group, virtual reality was more effective in increasing the performance of the students.

Keywords: *Virtual reality, technology, JHS science class, quasi-experimental design*

INTRODUCTION

Technology has dramatically changed education throughout the 21st century. It is a powerful tool that can help transform education in many ways. It has significantly improved access to education, begun to shift teachers' and learners' positions, and increased contact and collaboration opportunities. Digital technologies, in particular virtual reality, are at the forefront of technological growth.

Virtual reality as defined by Sherman, Craig & Bolas (2019) is a medium made up of interactive computer simulations that sense the participant's position and actions and replace or increase feedback to one or more senses, making one feel mentally immersed in a simulated world. VR experiences require a technological platform for support. Experiences can be implemented in different ways and not only through putting a pair of goggles or a mask on one's face. These

platforms can be grouped into three paradigms: (a) head-based, (b) stationary, and (c) hand-based. Virtual reality headsets and simulators such as sensor gloves become more versatile as hardware rapidly improves. VR technology such as flight simulators have long been used; however, gamified VR lab experiments have yet to enter mainstream education (LiDe, 2017).

Possible benefits of virtual reality in conducting educational activities have been studied over the last decade. Improved access to virtual technology would make it possible to teach in virtual worlds that are difficult to visualize in actual classrooms, such as access to virtual labs, computer simulation, manufacturing plants, or even medical scenarios (Diaz, Gutierrez, Marrero & Mora, 2017). The convincing and efficient portrayal of the fictional setting is an essential feature of the best virtual reality environments. In a collaborative project of the Neurocognition Science Laboratory and the Teacher Education Institute in the University of Buffalo, New York, an interactive classroom was created to simulate students' challenging behaviors. The training method is comparable to a flight simulator for teachers. The project was intended as a pre-service and in-service teacher training simulator to gain experience in coping with circumstances such as challenging student conduct, teaching techniques, general classroom management, and other activities as required (Anzalone, 2017). Through this student teachers are prepared and given ideas of what is to be expected inside the classroom.

At the NUS Yong Loo Lin School of Medicine in Singapore, a computer-simulated human anatomy system intended was set in motion to help facilitate human anatomy classes. The system, called the Virtual Interactive Human Anatomy (VIHA), enables students to gain hands-on experience working with human cadavers and manipulate the finely detailed, computer-generated, three-dimensional representations of the human body and its parts. The system supplements and complements the conventional anatomy classes that are important and central to medical studies (Lung, 2018). Another company that develops virtual laboratory simulations for education, Labster, use simulations where students get access to a practical lab experience that uses 3D immersion and simulated models of state-of-the-art equipment to conduct experiments and exercise their science skills in a risk-free learning environment. It has developed more than 70 virtual laboratories for biology, chemistry, physics, engineering, and general sciences. Students have access to a practical lab experience that uses 3D immersion and simulated models of state-of-the-art equipment to conduct experiments and exercise their science skills in a risk-free learning environment (Schaffhauser, 2019).

In the country, one of the first schools to provide online 3D laboratories to students is Malayan Colleges Mindanao, A Mapua School. Their partnership with Labster allows MCM students to access 140+ virtual 3D, online laboratory simulations in various fields of science and technology (Malayan Colleges Mindanao, 2020). Labster has revolutionized how students learn and experience science. By using immersive VR and gamification, it recreates a virtual lab that saves millions of dollars for schools and universities worldwide. Teaching science will never be the same with the emergence of virtual reality (LiDe, 2017).

VR presents an abundant and untapped future for education. With the employment of virtual reality in teaching environments, real and virtual realities will amalgamate to provide high-impact experiences that immerse students in a way that no other educational resource previously has (Lynch,2017). There are three categories of interfaces in which virtual reality scenes are created and experienced. These are: smartphones mounted on headsets, standalone head-mounted

displays, and augmented reality devices (Diaz, et al., 2017). Using VR to teach educational objectives has advantages that are akin to using a computer or interactive simulation, particularly a three-dimensional computer simulation. It can get and sustain the attention of students. Walking through an environment in three dimensions, interacting, and creating three-dimensional (3D) worlds is exciting and challenging for students (Pantelidis, 2009).

Virtual reality, which includes interactive and computer-based multimedia for participants to act in a computer-oriented world, is gaining momentum—increased interest as a means of supporting education in various fields, including science. It provides opportunities for interaction and experimentation for learners, thus helping all learners, including visually oriented learners. Thanks to virtual reality, learners can observe these contexts, understand related phenomena, experiment, draw conclusions, construct knowledge, apply this new knowledge, and understand web and simulation technology (Karampelas, Karvounidis & Mantikou, 2014).

In the study of Allcoat & Muhlenen (2018), participants were assigned to one of three learning conditions: traditional, virtual reality, and video. Results showed that participants exposed to VR-based learning conditions performed well and had an improved learning experience. A study conducted by Krokos, Plaisant & Varshney (2018) at the University of Maryland (USA) reported that after testing 40 volunteers, the results showed that median recall accuracy rates with VR headsets hit 90 percent --- much higher than 78 percent for learning with desktop computers. Wang (2017) asserts that VR has a strong potential for classroom use. In his study on thirty-nine students with ages ranging between 10-12 years old in Kansas, the application VR - Explore Solar System in 3D was employed to examine the effect of virtual reality on learning motivation and academic performance. The results indicated that VR has a positive impact on student scores and a substantial effect on students' learning engagement.

In Russia, Zantua (2017) explored the learning outcomes and student reactions using Google Cardboard and Google Expeditions application with Grade 6 Middle school students as respondents. The study showed no significant difference in pre-test scores of the control and experimental group. There is, however, a substantial difference in the scores of the experimental group compared to the control group after the post-test. This difference in score performance gives light to how we can use VR to enhance the learning experience. By using VR technology that is low-cost and effective, more institutions will help students better learn.

A study conducted by Gabunilas, Adlao, Burns, Chiu, and Sanchez (2018) in Cagayan de Oro City, Philippines, utilized the MEL Chemistry mobile application and portable VR headsets in conducting the virtual reality assisted instruction. Two groups underwent pre-test and post-test, then their scores were analyzed using the appropriate statistical tools. The results have shown that the mean scores of the two groups of participants differ significantly. The group's scores under virtual reality assisted instruction are generally higher than those in the other group, suggesting that utilizing virtual reality in the science classroom may help teach Chemistry concepts.

Several studies from abroad have revealed different possibilities for virtual reality in the teaching-learning process; however, studies and implementations of virtual reality (VR) in the Philippines are limited. It is the aim of the study to determine the effectiveness of applying virtual reality in science classes. Furthermore, it seeks to assess its efficacy against the conventional

teaching methods. It is assumed that virtual reality can increase the test scores in science of the Grade 7 students.

METHODOLOGY

This paper employed the quasi-experimental method. The respondents of the study were thirty (30) Grade 7 students equally divided into two groups: a controlled group and an experimental group. The researchers used a science textbook, High School Science Today 7, and CK-12 Flexbooks (ck12.org) questionnaires. Also, a 360-degree YouTube video about animal cells was used. Weighted mean and t-test were used to compute and analyze the gathered data.

RESULTS

Table 1

Pre-test and Post-test Scores of Grade 7 Students Exposed to Traditional Teaching

Score Range	Description	Pre-test		Post-test	
		f	%	f	%
37-45	Excellent	1	6.67	7	46.67
28-36	Very Good	14	93.33	8	53.33
19-27	Good	0	0	0	0
10-18	Fair	0	0	0	0
0-9	Poor	0	0	0	0
Total		15	100	15	100
Mean		33	Very Good	37	Excellent

Table 1 showed the pre-test and post-test mean scores of the Grade 7 students exposed to traditional teaching. Fourteen (14) students in the pre-test garnered very good scores and one (1) got an excellent score. In the post-test, eight (8) students got very good scores and seven (7) students got excellent grades. Both pre-test and post-test results showed that all the students' score were higher than average.

Table 2

Pre-test and Post-test Scores of Grade 7 Students Exposed to Virtual Reality

Score Range	Description	Pre-test		Post-test	
		f	%	f	%
37-45	Excellent	1	6.67	12	80
28-36	Very Good	14	93.33	3	20
19-27	Good	0	0	0	0
10-18	Fair	0	0	0	0

0-9	Poor	0	0	0	0
Total		15	100	15	100
Mean		33	Very Good	40	Excellent

Table 2 showed the pre-test and post-test mean scores of the Grade 7 students exposed to virtual reality. Fourteen (14) students had very good scores in the pre-test and one (1) student had an excellent grade. For the post-test, twelve (12) students had excellent scores and three (3) students had very good scores.

Table 3

Mean Score Gain Using Traditional Teaching

Group	Computed t-test Value	Critical Value of t	Decision	Interpretation
Traditional Teaching	3.11174	2.045	Reject H_o1	Significant

Level of Significance α 0.05

Table 3 showed that the computed t-test value of 3.112 was greater than the critical t-value, which was 2.045 at 0.05 level of significance. Therefore, the null hypothesis was rejected. There was a significant difference in the scores after the implementation of the traditional teaching methods.

Table 4

Mean Score Gain Using Virtual Reality

Group	Computed t-test Value	Critical Value of t	Decision	Interpretation
Virtual Reality	6.26892	2.045	Reject Ho1	Significant

Level of Significance α 0.05

Table 4 showed that the computed t-test value of 6.269 was greater than the critical t-value, which was 2.045 at 0.05 level of significance. Therefore, the null hypothesis was rejected. There was a significant difference in the scores after the implementation of virtual reality in the teaching-learning process.

Table 5

Post-test Mean Scores between Traditional Teaching and Virtual Reality

Group	Computed t- test value	Critical Value of t	Decision	Interpretation
Traditional vs Virtual Reality	2.093	2.045	Reject Ho2	Significant

Table 5 showed that the computed t-test value of 2.093 was greater than the critical t-value which was 2.045 at 0.05 level of significance. Therefore, the null hypothesis was rejected. There was a significant difference in the results after the implementation of virtual reality.

DISCUSSION

Pre-test and post-test scores using either the traditional mode of teaching or virtual reality showed an improved performance of the students. The effectiveness of using traditional teaching methods is supported by the study of Gabunilas et al. (2018). The study showed an increase in the mean scores of the respondents who were taught Chemistry using traditional teaching methods. Also, the study of Arnobi et al. (2018), which aims to compare the effects of using traditional and blended teaching methods in an ESL classroom, reveals that despite receiving more inferior results when compared with modern methods of teaching, the traditional method is still useful in improving the English competencies of students. This result implies that traditional teaching is effective in enhancing the knowledge and performance of students. Schwerdt & Wuppermann (2011) concluded in their study that traditional lecture-style teaching is associated with significantly higher student achievement. This is further supported by the studies of Gabunilas et al. (2018) and Arnobit et al. (2018), whose studies show that traditional teaching methods in the teaching-learning process offer significant benefits in enhancing the knowledge and performance of learners.

However, it is significant to note that when VR was used, majority of the students during the post-test garnered excellent grades compared to the pre-test results. This result coincides with Allcoat & Muhlenen's (2018) study, where participants were assigned to one of three learning conditions: traditional, virtual reality, and video. The participants who were assigned to VR-based learning conditions performed well and had an improved learning experience. A similar result is observed in the study of Crosier et al. (2000), which compared the effectiveness of using VR in contrast with traditional teaching methods used in school to teach radioactivity. The results showed that a high proportion of participants felt that VR had helped them learn about radioactivity. This result implies that virtual reality-assisted instruction could help teach science and improve

students' performance. Knowledge retention is increased with virtual reality integration (Krokos et al., 2018, Wang 2017, & Buenaobra et al., 2018). These findings suggest that immersive environments could offer new pathways for improved outcomes in education and high-proficiency training and could serve as a valuable tool to enhance human memory (Varshney as cited in UMD Right Now, 2018).

Virtual reality systems allow the students to experience a wide range of scenarios, even those that are physically unfeasible to set up in the classroom and provide the opportunity to visualize the macroscopic and microscopic world at a human scale. These features provide the opportunity to instill an understanding that would be otherwise impossible to achieve using conventional methods (Christou, 2010). The results of the studies of Gabunilas (2018), Adlao et al. (2018), Buenaobra et al. (2018), Zantua (2017), and Wang (2017) reveal that integrating virtual reality in the teaching-learning process could help the successful approach to the goals of the class, such as the construction of scientific knowledge. In terms of student motivation, Lin, Chen & Liu (2017) assert that digital learning presents better positive effects than traditional teaching. Hu-Au & Lee (2017) noted that virtual reality leads to increased student engagement and increased interest in subject areas. Lynch (2017) agreed when he stated that VR presents an abundant and untapped future for education. With the employment of virtual reality in teaching environments, real and virtual realities will melt together to offer high-impact experiences that immerse learners in a way that no other educational resource previously has.

CONCLUSION

The result provided a glimpse that the use of either traditional teaching methods or virtual reality can improve students' performance. Usage of virtual reality helps augment performance and can effectively aid in enhancing students' knowledge. Integration of VR in the teaching-learning process could become an effective method in increasing students' test scores. VR education can change the way educational content is delivered. Virtual Reality (VR) provides both learners and educators a fantastic opportunity to bridge differences in the pedagogical context.

Thus, it is recommended that schools should invest in virtual laboratory simulations for education. This will not only ensure active participation among students but also a great opportunity for exploration on the part of the teachers. Virtual reality can be used to improve student learning and engagement. This will give the students the privilege to interact with the learning environment, construct knowledge, and participate in meaningful learning.

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