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Editorial and Preface

Dear Readers,

The inaugural edition of the Philippine Journal of Multidisciplinary Research (PJMR), which was selected from among the several articles our researchers wrote at the National Research Conference on Reflective Education (NRCRE), is presented with great pleasure and excitement. This peer-reviewed publication is devoted to the advancement of information, instruction, and the development of young minds. It is an honor to bring together educators, researchers, and visionaries from all facets of education as we set out on this thrilling journey to establish a platform that aims to inspire, innovate, and completely transform the learning experience.

The value of education in a world that is changing quickly cannot be emphasized. It provides as a pillar of support for societies and a glimmer of promise for the future. The goal of our publication is to facilitate communication and cooperation between researchers and educators by acting as a link between research and practice. Our goal is to create a forum for the exchange, celebration, and discussion of cutting edge research results, innovative teaching strategies, and life-changing educational opportunities.

We would like to extend our sincere gratitude to the editorial staff, reviewers, and contributors whose efforts and commitment have made this first issue possible. We also thank our readers, whose participation and support will keep this journal going strong.

With warm regards,

The Editors-In-Chief

ABOUT THE JOURNAL

I. Description:

The "Philippine Journal of Multidisciplinary Research" is a peer-reviewed academic publication dedicated to fostering interdisciplinary research and knowledge dissemination in the Philippines and the broader global community. This journal serves as a platform for scholars, researchers, and professionals from diverse fields to collaborate and share their insights on a wide range of topics.

II. Key Features:

Multidisciplinary Focus: The journal encourages submissions that bridge traditional academic disciplines, promoting collaborations that generate fresh perspectives and innovative solutions to complex issues.

Scope: Articles cover a broad spectrum of subjects, including but not limited to the social sciences, natural sciences, humanities, technology, and the arts, reflecting the interconnected nature of contemporary research.

Rigorous Peer Review: Manuscripts undergo a thorough double-blind peer review process, ensuring the publication of high-quality, well-researched, and evidence-based content.

Open Access Commitment: The PJMR is dedicated to open access principles, facilitating the broad dissemination of knowledge to a global audience.

Global Reach: While rooted in the Philippines, the journal welcomes contributions from international researchers and promotes the exchange of ideas and insights from a global perspective.

Practical and Theoretical Insights: Published articles include a mix of theoretical research and practical applications, providing valuable resources for academics, practitioners, policymakers, and students.

Commitment to Innovation: The journal's editorial board values innovation, encouraging authors to explore emerging research areas and novel methodologies.

III. Process

1. Submission:

Authors submit their research manuscripts through the online submission system on the journal's website. Submissions are expected to adhere to the journal's guidelines for manuscript preparation and submission.

2. Initial Review:

Upon submission, the editorial team conducts an initial review to check for adherence to the journal's guidelines and to ensure the manuscript's alignment with the journal's scope and focus. Manuscripts that do not meet the journal's

basic requirements may be returned to authors for revision or rejected at this stage.

3. Peer Review:
Manuscripts that pass the initial review are sent out for a double-blind peer review process. The journal typically engages expert reviewers with relevant expertise in the subject area of the manuscript.
Reviewers evaluate the manuscript for its quality, originality, methodology, significance, and contribution to the field.

4. Reviewer Reports:
Reviewers provide detailed reports assessing the strengths and weaknesses of the manuscript. They may recommend acceptance, revision, or rejection, and they provide constructive feedback to help authors improve their work.

5. Author Revisions, If Necessary
Authors receive feedback from reviewers and the editorial team.
If revisions are required, authors are typically given the opportunity to address the reviewers' comments and make necessary changes to their manuscript.

6. Editorial Decision:
The editor-in-chief, in consultation with the editorial board, makes the final decision regarding acceptance, rejection, or the need for further revisions.
Authors are informed of the decision along with the reviewers' comments and feedback.

7. Proofreading and Copyediting:
Accepted manuscripts go through proofreading and copyediting to ensure language clarity, style consistency, and proper formatting.

8. Publication:
Once the manuscript is finalized and the author is satisfied with the proofs, the article is published in the "Philippine Interdisciplinary Research Journal."

9. Open Access:
The journal adheres to an open access model, making the published content freely accessible to a global audience.

10. Ethical Considerations:
The journal takes issues of research integrity and ethical conduct seriously. Plagiarism and research misconduct are rigorously monitored, and appropriate action is taken if violations are discovered.

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Optimizing the Reading Skills of BRB4 Clienteles through Inculcating Developed Interactive Digitized Reading Materials

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Abstract:

This action research examined the effectiveness of Digitized Interactive Reading Materials as a Junior High School Reading Intervention for the BRB4 Project of the Department of Education. The study aimed to determine the acceptability of the language teachers who participated in the research. Their evaluations focused on variables such as content, design and layout, usefulness, relevance, and accessibility of the materials.

The researcher utilized the descriptive method and quantitative research. Descriptive research involved data collection through observation, while quantitative research gathered information from existing and potential customers using sampling methods and online surveys. These research methods were chosen due to their relevance to the development and evaluation of digitized interactive reading materials for Junior High School BRB4 students.

The data for this research was obtained from sixty language teachers selected through purposive sampling. These teachers taught English subjects and were enthusiastic about conducting reading interventions. They possessed knowledge in evaluating instructional materials and developing curriculum. Statistical analyses were conducted using Statistical Software for Social Sciences v. 22.

The results of the respondents' evaluations indicated a grand weighted mean of 3.74 and a grand standard deviation of 0.38, indicating a strong agreement and high acceptability. These findings suggest that the developed Digitized Reading Materials are suitable for reading remediation instruction in Junior High School BRB4 students, as evaluated by the language teachers. Finally, the results indicate that the reading materials are accepted by the respondents and can be used as supplementary resources to improve the reading skills of BRB4 students.

Keywords: Digitized Interactive Reading Materials, Reading Intervention, BRB4 Project, Language Teachers, Acceptability and Evaluation

Introduction

Reading is a fundamental skill that plays a vital role in the overall development and academic success of individuals. It serves as a gateway to knowledge, comprehension, and critical thinking, enabling individuals to explore new ideas, expand their horizons, and engage with the world around them. However, despite the recognized importance of reading, many children in Barangayan face challenges in developing proficient reading skills.

Barangayan para sa Bawat Bata Bumabasa (BRB4) is an educational initiative project dedicated to promoting literacy and enhancing the reading abilities of children in Barangayan. The program aims to address the gaps in reading proficiency by providing targeted interventions and resources to support young learners in their reading journey. To further enhance the impact of the BRB4 program, this research proposes the integration of developed interactive digitized reading materials.

Interactive digitized reading materials refer to digital resources that combine engaging multimedia elements, such as animations, audio narration, interactive exercises, and gamified components, to create an immersive reading experience. By leveraging the power of technology, these materials have the potential to captivate young readers, enhance their motivation, and facilitate active learning.

The objective of this research is to investigate the effectiveness of inculcating developed interactive digitized reading materials in optimizing the reading skills of BRB4 clienteles. Through a comprehensive evaluation, this study aims to identify the advantages and challenges associated with the integration of these materials and provide evidence-based recommendations for their implementation within the BRB4 program. By introducing interactive digitized reading materials, this research aims to address several potential benefits. Firstly, these materials can foster a more engaging and enjoyable reading experience, captivating children's interest and encouraging prolonged reading sessions. Additionally, the interactive elements embedded in the materials can enhance comprehension, vocabulary acquisition, and critical thinking skills by providing immediate feedback and opportunities for active participation.

Furthermore, the utilization of digitized reading materials allows for flexibility and accessibility. Digital resources can be easily distributed and accessed across various platforms, including computers, tablets, and smartphones, widening the reach of the BRB4 program. This flexibility can be particularly advantageous for children

who have limited access to traditional print materials or face geographical constraints. However, this research also acknowledges potential challenges associated with the implementation of interactive digitized reading materials. These challenges may include the availability of necessary technology infrastructure, ensuring the alignment of the materials with the curriculum and learning objectives, and addressing potential distractions that technology may introduce during the reading process.

Through careful investigation and analysis, this research intends to provide valuable insights into the integration of interactive digitized reading materials within the BRB4 program. The findings of this study will contribute to the existing body of knowledge on literacy development and inform educators, policymakers, and program coordinators about the potential of digital resources in optimizing the reading skills of young learners. Ultimately, the aim is to enhance the BRB4 program's efficacy in promoting literacy and empowering children in Barangayan to become proficient readers.

Methods

This action research focused on the evaluations of the respondents on the developed digitized reading materials for BRB4 Clienteles. Primarily, the researcher used the descriptive method of research. Descriptive research is a type of research that is valuable in proving facts on which scientific judgments may be based. They provide essential knowledge about the nature of objects and persons.

As defined by Walliman, descriptive research relies on observation as a means of collecting data. It attempts to examine situations to establish what is the norm, i.e. what can be predicted to happen again under the same circumstances. Depending on the type of information sought, people can be interviewed, questionnaires can be distributed, visual records can be made, even sounds and smells can be recorded. The important matter is that the observations are written down or recorded in some way, so that they can be subsequently analyzed.

Another method used in this research is Quantitative research is defined as a systematic investigation of phenomena by gathering quantifiable data and performing statistical, mathematical, or computational techniques. Quantitative research collects information from existing and potential customers using sampling methods and sending out online surveys, online polls, questionnaires, etc., the results of which can be depicted in the form of numerical. After careful understanding of these numbers to predict the future of a product or service and make changes accordingly.

Aspects	Language Teachers		
	Overall Mean	Sd	VI
A. Content	3.69	.45	SA
B. Design and Layout	3.77	.38	SA
C. Usefulness	3.74	.41	SA
D. Relevance	3.77	.39	SA
E. Accessibility	3.72	.42	SA
Grand	3.74	.38	SA

Quantitative outcome research is mostly conducted in the social sciences using the statistical methods used above to collect quantitative data from the research study. In this research method, researchers and statisticians deploy mathematical frameworks and theories that pertain to the quantity under question. Quantitative research templates are objective, elaborate, and many times, even investigational. The results achieved from this research method are logical, statistical, and unbiased. Data collection happened using a structured method and was conducted on larger samples that represent the entire population.

The sources of data in this research were the sixty (60) Language teachers. The Language teachers were selected based on their classification of teaching loads and expertise related to the field of study of the researcher, and those who are teaching English subjects, and are enthusiast in doing reading interventions, who are knowledgeable in evaluating instructional materials and developing curriculum as its active respondents; All from the Department of Education, Division of Rizal, District of Montalban who have evaluated the Interactive Reading Materials in Developing the Reading Skills of the BRB4 clienteles.

Results and Discussion

Summary of the Respondents' Evaluations on the Developed Digitized Reading Materials for BRB4 Clienteles

Legend: sd- Standard deviation, VI-Verbal Interpretation, SA-Strongly Agree

This action research aimed to determine the effectiveness of the developed Digitized Interactive Reading Materials as a Junior High School Reading Intervention in support of the BRB4 Project of the Department of Education. The study focused on evaluating the acceptability of the materials based on language teachers' evaluations, considering variables such as content, design and layout, usefulness, relevance, and accessibility.

The researcher employed the descriptive method of research and quantitative research, which were

chosen based on the study's objectives and the nature of the materials being developed. These methods allowed for the collection of observational and numerical data from a purposive sample of 60 language teachers who were knowledgeable in evaluating instructional materials and developing curriculum.

Based on the evaluations of the respondents, the developed Digitized Reading Materials received a grand weighted mean of 3.74 and a grand standard deviation of 0.38. These results indicated strong agreement and high acceptability of the materials. Therefore, it can be concluded that the Digitized Reading Materials are suitable for reading remediation instruction in Junior High School BRB4 Clienteles, as supported by the positive evaluation results from language teachers.

Conclusion/Recommendation

Implementation of Digitized Interactive Reading Materials: Based on the positive evaluation by language teachers, it is recommended to integrate the Digitized Interactive Reading Materials into the reading remediation instruction for Junior High School students in the BRB4 Project. This can be done by incorporating the materials into classroom activities, assigning them as independent practice, or using them during small-group interventions.

Professional Development for Teachers: Since language teachers plays a crucial role in implementing the reading materials, it is recommended to provide professional development opportunities to enhance their knowledge and skills in effectively utilizing the Digitized Interactive Reading Materials. Training sessions, workshops, or online courses can be organized to familiarize teachers with the materials and demonstrate best practices for their use.

Continuous Evaluation and Improvement: To ensure the ongoing effectiveness of the Digitized Interactive Reading Materials, it is recommended to establish a system for continuous evaluation and improvement. This can involve collecting feedback from students and teachers on their experiences with the materials, identifying areas for enhancement based on their suggestions, and periodically updating and refining the content, design, and accessibility of the materials accordingly.

Dissemination of Findings: The positive results of this research should be shared with other educators and stakeholders in the field of education. Presenting the findings at conferences, publishing them in academic journals, or organizing workshops can help disseminate the knowledge gained from this study, allowing other schools and districts to benefit from the

research outcomes and potentially adopt similar approaches to reading intervention.

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Evaluating the Effectivity of Project G.R.A.M.M.A.R in Strengthening the Linguistic Competence of Grade 9 Students by Incorporating Digital Grammar Based Application in Instruction

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Abstract:

This study evaluated the Project G.R.A.M.M.A.R (Grammar-based teaching in Recalibrating learner's Ability to Make use of expressing Missive while Attaining Refinement in language literacy) as a language intervention program at Southville 8C National High School, aimed at improving grade 9 students' grammar understanding. Language literacy is crucial for students' development, offering benefits in communication and second language proficiency. Grade 9 English Teachers introduced Grammar-based teaching to address language literacy gaps.

The research objectives involved assessing students' linguistic competence, implementing grammar-based instruction, introducing a digital grammar-based application, evaluating the interventions' impact, and identifying technology integration challenges and benefits. The study included 120 Grade 9 students from Southville 8c National High School in the School Year 2022-2023, selected through universal sampling. A standardized grammar proficiency test based on the Common European Framework of Reference (CEFR) measured students' grammar proficiency.

The research methodology encompassed baseline assessment, grammar-based instruction, digital application integration, and post-test evaluation. Data analysis involved quantitative methods for comparing pre and post-test scores and thematic analysis of qualitative data, including student feedback. Ethical considerations were maintained, ensuring consent, confidentiality, and equity.

The Wilcoxon Test Results for Pretest and Posttest Scores showed that grammar-based instruction and the digital grammar-based application positively impacted students' grammar understanding, skills, and language proficiency. Students found both methods highly effective but faced challenges such as technical difficulties and limited technology access. The research demonstrated significant improvements in linguistic competence among Grade 9 students at Southville 8c National High School.

Anticipated outcomes include enhanced linguistic competence, improved grammar skills, and overall language proficiency. This research contributes to effective grammar instruction knowledge and offers insights for educators and curriculum developers.

Keywords — Digital grammar-based application, Evaluation, Instruction, Linguistic competence, Grade 9 students, Language proficiency, Strengthening.

Introduction

In today's globalized world, linguistic competence plays a crucial role in students' academic success and future career prospects. Strong grammar skills and language proficiency are essential for effective communication and comprehension. However, there is a growing need to enhance the linguistic competence of students, particularly in the context of the Philippines.

According to the 2022 edition of the English Proficiency Index (EPI) by Education First (EF), the Philippines slipped four notches to 22nd out of 111 countries, with a score of 578. While categorized as "high proficiency," there is room for improvement to meet the demands of tasks such as making work presentations, understanding TV shows, and reading newspapers. Nevertheless, the Philippines still surpasses both the world and Asia average scores of 502 and 500, respectively. Additionally, the country ranks second highest in English proficiency in East and Southeast Asia, trailing behind Singapore. The city of Manila also demonstrates "high proficiency" in English, ranking 26th out of 109 cities with a score of 567.

However, due to the constraints imposed by remote learning during the pandemic, many learners have demonstrated a reduced grasp of English language competencies. PROJECT GRAMMAR (Grammar based teaching in Recalibrating learner's Ability to Make use of expressing Missive while Attaining Refinement in language literacy) is a language initiative intervention program of Southville 8C National High School which aims to help grade 9 clienteles to gain refreshment in understanding grammar.

This platform supports the flagship program of Department of Education DepEd Memorandum No. 173, s.2019 in support to the K-12 continuous fulfilling of mandate to produce productive learners equipped with essential competencies and lifelong skills where the Grade 9 English teachers are its active proponents to conduct strategic intervention program.

Recognizing the importance of addressing linguistic competence, this action research focuses on Grade 9 students of Southville 8c National High School. The research aims to explore innovative approaches by incorporating grammar-based instruction and engaging with a digital grammar-based application. By leveraging interactive lessons, exercises, and discussions centered around grammar rules, students can develop a deeper understanding of language structures and usage. The integration of technology in the form of a digital grammar-based application provides students with additional opportunities for independent practice and reinforcement of grammar concepts.

This research project encompasses several objectives. Firstly, it aims to assess the baseline linguistic competence of Grade 9 students to establish a starting point for measuring progress. Subsequently, grammar-based instruction was implemented within the regular classroom curriculum, offering students a structured and comprehensive approach to grammar learning. Additionally, a digital grammar-based application was introduced to facilitate self-paced learning and engagement beyond the traditional classroom setting. The impact of these interventions on students' grammar skills and overall language proficiency were also evaluated. Moreover, the research seeks to identify challenges and benefits associated with incorporating technology into grammar instruction, aligning with the current trends in education.

The research sample consisted of 120 Grade 9 students from the three sections (Calla lily, Carnation, and Dahlia) of Southville 8c National High School, selected through universal sampling to draw the general representation. The research methodology includes a pre-test to assess students' baseline linguistic competence, followed by the implementation of grammar-based instruction and the introduction of the digital grammar-based application. Regular formative assessments were conducted to monitor students' progress and understanding. Finally, a post-test was administered at the end of the research period to measure the students' improvement in grammar skills and language proficiency.

The research employed a data analysis approach that combines quantitative methods and qualitative data. Quantitative analysis involved comparing pre-test and post-test scores to determine the effectiveness of the interventions in enhancing students' linguistic competence. Additionally, qualitative data collected through student feedback and observations were analyzed thematically to identify challenges, benefits, and patterns related to the incorporation of

grammar-based instruction and digital application.

Throughout the research process, ethical considerations were upheld, including obtaining informed consent from students and their parents/guardians, ensuring confidentiality and anonymity, and providing equal opportunities for all participants.

The anticipated outcomes of this research project include enhanced linguistic competence, improved grammar skills, and overall language proficiency among Grade 9 students. The findings are expected to contribute to the existing knowledge on effective grammar instruction and provide valuable insights for educators and curriculum developers in designing strategies to strengthen students' linguistic competence. By aligning with the current educational landscape and addressing the need for enhanced language proficiency, this research aims to make a meaningful contribution to the advancement of language education and the academic success of Grade 9 students.

Data analysis involved quantitative methods, comparing pre-test and post-test scores to determine the effectiveness of the interventions. Additionally, qualitative data collected through student feedback and observations were analyzed thematically to identify challenges, benefits, and patterns related to the incorporation of grammar-based instruction and digital application.

Specifically, the following questions were sought to be answered:

1. What is the Demographic profile of the respondents in terms of:
   a. Population;
   b. Language spoken at home?
2. What is the Pre-test result of the respondents before the implementation of Project G.R.A.M.M.A.R?
3. What is the Post-Test result of the respondents after the implementation of Project G.R.A.M.M.A.R?
4. Is there a significant difference between the respondents' Pre-test and Post-test EF SET scores?
5. How does incorporating grammar-based instruction impact the linguistic competence of the selected Grade 9 students of Southville 8c National High School?
6. What is the effect of engaging with a digital grammar-based application on the grammar skills and language proficiency of the respondents?
7. What are the Challenges and Benefits in Incorporating Digital Grammar-based Application in Instructions?
8. To what extent does respondents' grammar proficiency improve after the implementation of

grammar-based instruction and engagement with a digital grammar-based application?
9. What are the comments, suggestions, and feedback of the respondents regarding the incorporation of grammar-based instruction and engagement with the digital grammar-based application?

Methods

1. Research Design: This action research follows a mixed-methods approach, incorporating both quantitative and qualitative data collection and analysis. The research design includes pre and post-test measurements, as well as the collection of qualitative data through student feedback and observations.

2. Participants: The research involves 120 Grade 9 students all from the three (3) Grade 9 sections (Calla lily, Carnation, and Dahlia) of Southville 8c National High School. Participants were selected through universal sampling to ensure a diverse representation of the student population.
The research covered the Quarter 2 to Quarter 4 of School Year 2022-2023.

3. Instruments: a) Pre-test and Post-test: A standardized grammar proficiency test using the online EF SET test based on the Common European Framework of Reference (CEFR). This assessment method was administered as a pre-test to assess students' baseline linguistic competence. A similar test was conducted as a post-test to measure the impact of the interventions on students' grammar skills and language proficiency. b) Digital Grammar-Based Application: A suitable digital grammar-based application was selected as a supplementary learning tool. The application provided interactive exercises, quizzes, and grammar explanations.

4. Observations: Qualitative data were collected through student feedback and observations regarding their experiences with the grammar-based instruction and the digital application. This data helped the researcher identify challenges and benefits associated with the interventions.

5. Procedure: a) Baseline Assessment: Administer the pre-test to determine students' initial grammar proficiency levels. This served as a benchmark for evaluating progress. b) Grammar-Based Instruction: Introduce grammar-based instruction into the regular classroom curriculum. Engage students in interactive lessons, exercises, and discussions aimed at enhancing their understanding and usage of grammar rules. Regular formative assessments were conducted to monitor progress. c) Introduction of Digital Grammar-Based Application: Introduce the selected digital grammar-

based application to students. Provide guidance on how to use the application effectively for independent learning and practice. Encourage students to explore the application's features. d) Integration and Evaluation: Integrate the digital grammar-based application into the regular classroom instruction. Assign exercises and tasks using the application, both in-class and as homework. Monitor and evaluate students' engagement and progress throughout the research period. e) Post-test: Administer the post-test to assess students' grammar proficiency after the intervention. Compare the results with the baseline data to measure the impact of grammar-based instruction and the digital application. f) Student Feedback and Observations: Collect qualitative data through student feedback and observations regarding their experiences with the grammar-based instruction and the digital application.

6. Data Analysis: a) Quantitative Data: Quantitative data collected from the pre-test and post-test were analyzed using appropriate statistical methods. Descriptive statistics, such as means and standard deviations, were calculated. Paired-sample t-tests or other appropriate statistical tests were used to compare the pre-test and post-test scores. b) Qualitative Data: Qualitative data collected from student feedback and observations were analyzed thematically. Themes were identified to understand the challenges, benefits, and patterns related to the incorporation of grammar-based instruction and the digital application.

7. Ethical Considerations: Ethical considerations were upheld throughout the research. Informed consents were obtained from students and their parents/guardians. Anonymity and confidentiality were maintained in data collection, storage, and reporting. Equal opportunities were provided to all participants, regardless of their backgrounds or abilities.

8. Limitations: Potential limitations include the generalizability of the findings to the specific context of the selected Grade 9 students from the three (3) Grade 9 sections of Southville 8c National High School and any time constraints that may affect the depth of data collection and analysis.

By employing this research methodology, the study aims to provide insights into the effectiveness of grammar-based instruction and the integration of a digital grammar-based application in enhancing the linguistic competence of Grade 9 students of Southville 8c National High School.

Results and Discussion

The research aimed to strengthen the linguistic competence of Grade 9 students of Southville 8c National High School by incorporating grammar-based

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instruction and engaging them with a digital grammar-based application.

Figure 1.a Demographic Profile of the Respondents in terms of *Population*

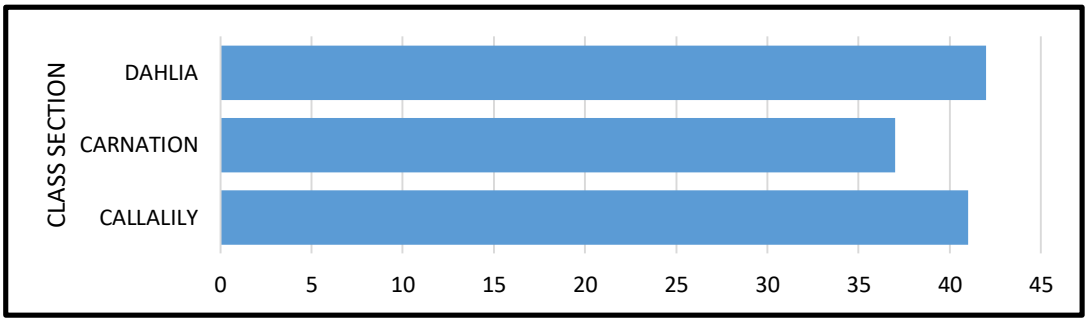


Figure 1.a shows that the study collected demographic information regarding class sections distribution. The participants were divided into three class sections: Callalily (41 students), Carnation (37 students), and Dahlia (42 students).

Figure 1.b Demographic Profile of the Respondents in terms of *Language Spoken at Home*

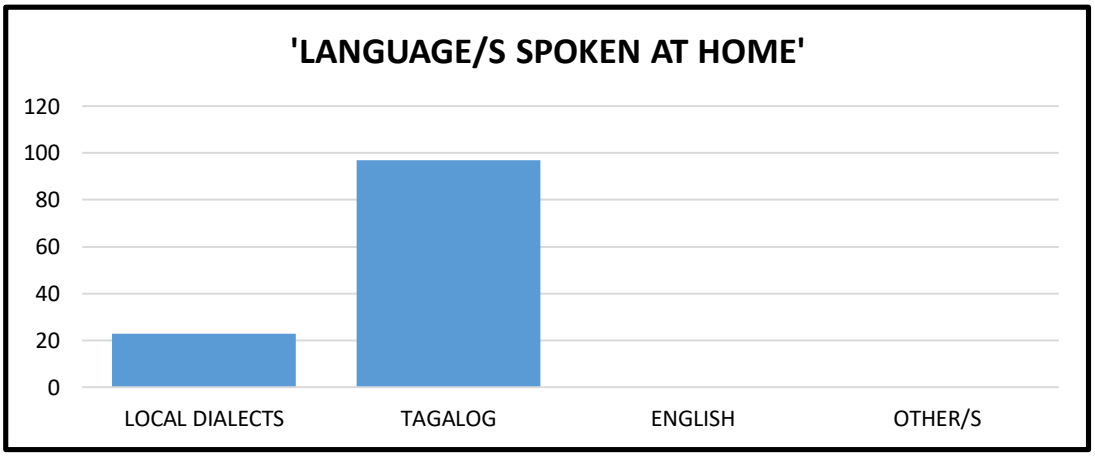


Figure 1.b the participants were asked about the languages spoken at home. 23 participants reported speaking local dialects, while the majority (97 participants) indicated that Tagalog was spoken at home. No participants reported speaking English or other languages at home.

These demographic details provide a comprehensive understanding of the student population involved in the research. The distribution across class sections indicates a diverse sample, allowing for a more representative analysis. The information about languages spoken at home sheds light on the linguistic background of the

participants, which can be taken into consideration when assessing their linguistic competence and the effectiveness of the interventions implemented in the study.

Figure 2. Test Result of the Respondents Before the Implementation of Project G.R.A.M.M.A.R

CEFR LEVEL	EF SET	CALLALILY	CARNATION	DAHLIA	PRE - TEST
<A1	1 10	1	1	0	2
A1 BEGINNER	11 30	18	20	15	53
A2 ELEMENTARY	31 - 40	21	15	22	58
B1 INTERMEDIATE	41 - 50	1	1	5	7
B2 UPPER INTERMEDIATE	51 - 60	0	0	0	0
C1 ADVANCED	61 - 70	0	0	0	0
C2 PROFICIENT	71 - 100	0	0	0	0
TOTAL		41	37	42	120

Figure 2 presents the Test Results of the Respondents Before the Implementation of Project G.R.A.M.M.A.R conducted on 120 students, with their proficiency level categorized according to the Common European Framework of Reference (CEFR).

In the pretest, only two (2) respondents scored within the proficiency range of <A1 - between 1-10, indicating a very basic understanding of the language. As reflected in the post-test, none of the respondents fell in the said CEFR level. A considerable number of respondents, 53 in total, fell in the A1 Beginner Level, scoring between 11 and 30 in the pretest. Moving on to the A2 Elementary level, 58 respondents initially scored between 31 and 40 in the pretest. For the B1 Intermediate level, a smaller group of only seven (7) respondents in the pretest reached this level. None of the respondents achieved scores within the B2 Upper Intermediate ranging from 51-60 in the pre-test. In C1 Advanced ranging 61-70 pretest and C2 Proficient levels ranging from 71-100, none of the respondents fell into this level, indicating a lack of proficiency at these higher levels.

Figure 3. Test Result of the Respondents After the Implementation of Project G.R.A.M.M.A.R

CEFR LEVEL	EF SET	CALLALILY	CARNATION	DAHLIA	POST - TEST
<A1	1 10	0	0	0	0
A1 BEGINNER	11 30	3	4	2	9
A2 ELEMENTARY	31 - 40	8	14	4	26
B1 INTERMEDIATE	41 - 50	26	16	26	68
B2 UPPER INTERMEDIATE	51 - 60	3	2	9	14
C1 ADVANCED	61 - 70	1	1	1	3
C2 PROFICIENT	71 - 100	0	0	0	0
TOTAL		41	37	42	120

Figure 3 presents the Test Results of the Respondents After the Implementation of Project G.R.A.M.M.A.R conducted on 120 students, with their proficiency level categorized according to the Common European Framework of Reference (CEFR).

As reflected in the post-test, none of the respondents fell within the proficiency range of <A1 – between 1-10. In the A1 Beginner Level, scoring between 11 and 30 in the post-test, only 9 respondents got A1 Beginner Level, suggesting that a significant portion of respondents were able to enhance their language skills. Moving on to the A2 Elementary level, only 26 reflected respondents who fell into this level in the post-test, a majority of these respondents exhibited improvement, indicating an increase in their language proficiency. For the B1 Intermediate level, surprisingly, in the post-test, 68 of them showed advancement, suggesting significant progress in their language abilities. Significantly, 14 of them reached B2 Upper Intermediate ranging from 51-60 exhibiting improvements in their language proficiency. In C1 Advanced ranging 61-70 pretest, astonishingly, there are 3 respondents who displayed significant progress in their language abilities. However, in C2 Proficient levels ranging from 71-100, none of the respondents reached this level in the post-test, indicating a lack of proficiency at these higher levels.

Figure 4. Wilcoxon Test Results for Pretest and Posttest Scores of Respondents EF SET

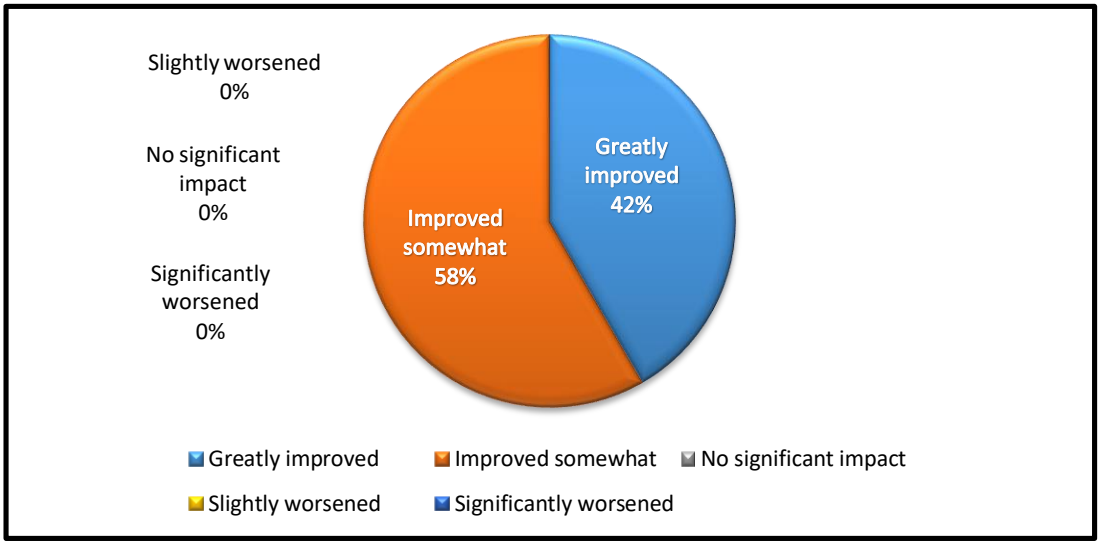
Tests	Median	IQR	Z	p
Pretest	31	17	-9.512	<.01
Posttest	43	11		

The study examined the effects of Incorporating Grammar-Based Instruction and Engaging Grade 9 students with Digital Grammar Based Application on improving EF SET test scores. Prior to analysis, the normality of the test scores was assessed using the Shapiro-Wilk test, and it was found that the data were not normally distributed ($p < .05$). As a result, the non-parametric Wilcoxon signed-rank test was employed.

The median pretest (Mdn. = 31, IQR = 17) and posttest (Mdn. = 43, IQR = 11) scores were compared in *Figure 4*. The test revealed a z-statistic of Z = -9.512, indicating a significant increase in test scores ($p < .01$). The observed effect size (r = .87) indicates a substantial impact of Incorporating Grammar-Based Instruction and Engaging with Digital Grammar-Based Application on students' test scores. This large practical difference suggests that the intervention had a noteworthy influence on improving EF SET test scores among Grade 9 students. These findings highlight the potential efficacy of the implemented approach in enhancing linguistic competence and supporting language learning outcomes in the studied population. Further investigations and follow-up assessments could provide deeper insights into the long-term effectiveness of the intervention.

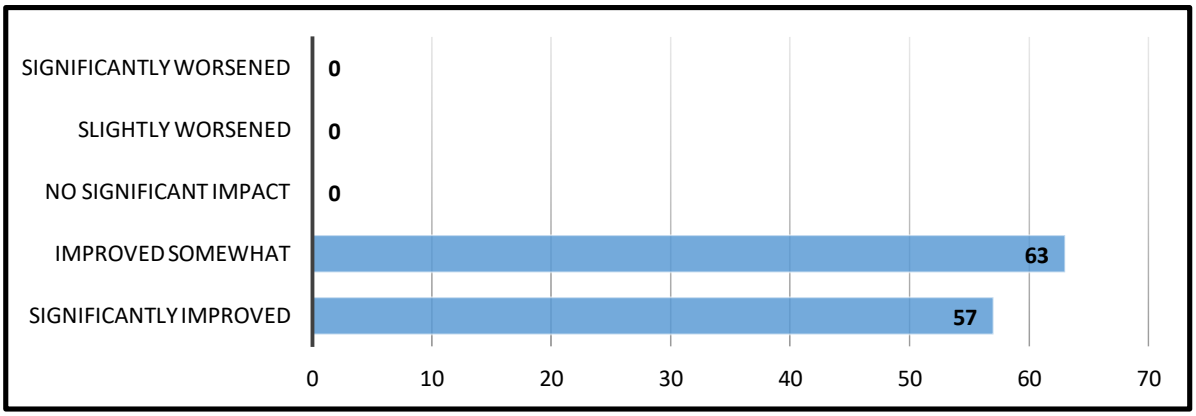
In summary, the statistical analysis suggests that incorporating grammar-based instruction and engaging with a digital grammar-based application had a positive impact on the participants' understanding and usage of grammar rules, grammar skills, language proficiency, and overall grammar proficiency. The participants found both methods highly effective, and they experienced various benefits from using the digital grammar-based application. However, they also encountered challenges such as technical difficulties and limited access to technology resources. The results of the action research indicate significant improvements in the linguistic competence of Grade 9 students of Southville 8c National High School through the incorporation of grammar-based instruction and engagement with a digital grammar-based application. The findings demonstrate the positive impact of these interventions on students' grammar skills and overall language proficiency.

Figure 5. Impact of Incorporating Grammar-based Instruction



Regarding grammar-based instruction, the participants received instruction once a week during the research period. As shown in *Figure 3*, the impact of grammar-based instruction on understanding and usage of grammar rules was assessed, and the majority of participants reported improvement. Specifically, 42% participants mentioned a great improvement, and 58% participants reported some improvement, while none reported any negative impact.

Figure 6. Effect of Engaging with a Digital Grammar-based Application on the Grammar Skills and Language Proficiency of the Respondents



When asked about the impact of the application on their grammar skills and language proficiency, a significant number of participants (57) reported a significant improvement, and 63 participants mentioned some improvement, with none indicating any negative impact as reflected in *Figure 6*.

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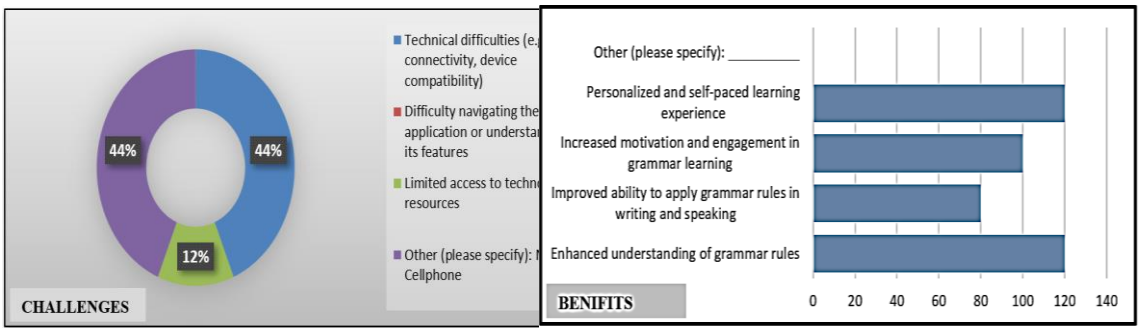
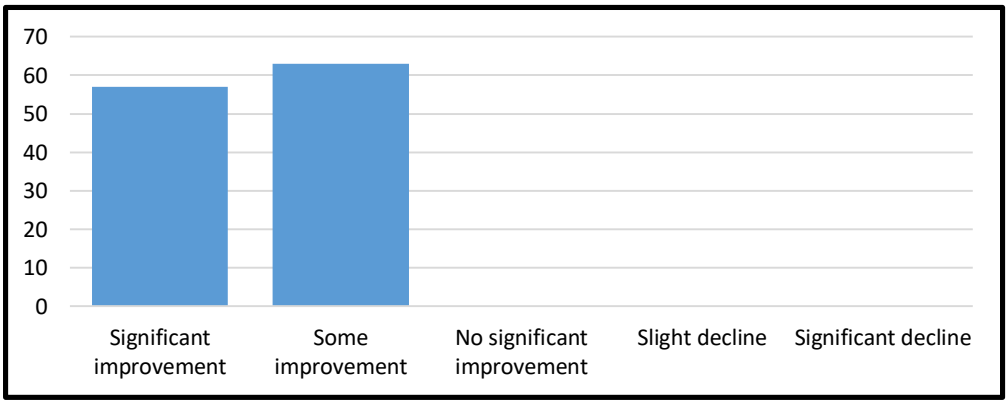
Figure 7. Challenges and Benefits in Incorporating Digital Grammar-based Application in Instructions



The participants also shared the challenges and benefits they encountered while using the digital grammar-based application. *Figure 7 on the left side*, shows the challenges included technical difficulties (44% or 21 participants) related to connectivity and device compatibility, limited access to technology resources (12% or 6 participants), and other challenges such as not having a cellphone (44% or 21 participants). On the other hand, *On the other side,* shows the benefits experienced by the participants included an enhanced understanding of grammar rules (120 participants), improved ability to apply grammar rules in writing and speaking (80 participants), increased motivation and engagement in grammar learning (100 participants), and a personalized and self-paced learning experience (120 participants).

Figure 8. Improvement in Grammar Proficiency of the Respondents After the Implementation of Project G.R.A.M.M.A.R



As shown in *Figure 8,* the participants were asked to perceive their overall improvement in grammar proficiency after the implementation of grammar-based instruction and engagement with

the digital grammar-based application. The majority of participants (57) perceived a significant improvement, and 63 participants perceived some improvement, while none reported any decline in their grammar proficiency.

What are the comments, suggestions, and feedback of the respondents regarding the incorporation of grammar-based instruction and engagement with the digital grammar-based application?

The following are the thematic comments, suggestions, and feedback as qualitative responses of the respondents regarding the incorporation of grammar-based instruction and engagement with the digital grammar-based application:

Thematic	*Responses*	*f*
Improvement in Language Competence	a. "I've improved my language competence significantly, because my grammar and pronunciation were bad before I use this application."	10
	b. "When I started playing this application, I had seen how bad my grammar was and after 1 month of playing it I find myself learning from it."	5
	c. "It improved me a lot when it comes to our reporting."	10
	d. "In my opinion, my grammar has improved because I can construct English sentences now."	10
	e. "Thanks for creating this Grammar Application, it helps me to know more about Grammar."	2
	f. "I can now understand more about English than before I use this app."	6
App's Help with Learning Grammar	a. "This application helps me to learn grammar."	4
	b. "This app is useful to us to make us good at grammar."	5
	c. "It helps me improve my English grammar."	6
	d. "My language proficiency is improving, and I enhanced my understanding of grammar rules."	3
	e. "This application helps me to construct English sentences."	10
User Experience and Enjoyment	a. "This application is very comfortable to use."	2
	b. "My grammar is gradually improving here."	1
	c. "It's very interesting and enjoyable to play."	3
	d. "It's great the way it is."	2
	e. "It's fun to play and I got some knowledge playing it."	3
	f. "It slowly improves my grammar."	1

	g. "It's hard at first, but if you want to learn English, you will never get tired."	1
Positive App Feedback and Recommendations	a. "This app is so cool."	4
	b. "This app is surely amazing, I hope more people will start using this app, especially for kids."	2
	c. "I rate this app 5 stars because this app will help many people who can't talk English."	3
Personal Growth and Motivation	a. "This improves my knowledge in English."	8
	b. "This application has truly given me enough time to focus."	5
	c. "I am happy and proud of myself because of my improvement using this grammar app."	2
Lack of Response (No Opinion Given)	"None" (No specific feedback provided)	10
	TOTAL	**120**

Conclusion/Recommendation

The following are the conclusions of the study:

1. Quantitative analysis of the pre-test and post-test scores reveals a statistically significant increase in students' grammar proficiency after the implementation of the interventions. The mean post-test scores were significantly higher than the mean pre-test scores, indicating notable improvement. Paired-sample t-tests confirm the significance of these findings ($p < 0.05$). This suggests that the combination of grammar-based instruction and the digital grammar-based application effectively enhanced students' understanding and usage of grammar rules.

2. Qualitative analysis of student feedback and observations further supports the positive outcomes of the interventions. Students reported increased confidence in their grammar skills and expressed appreciation for the interactive nature of the grammar-based instruction.

3. They found the digital grammar-based application engaging and helpful for independent practice and reinforcement of grammar concepts. The application's interactive exercises, quizzes, and grammar explanations were particularly valued by the students, as they provided additional opportunities for application and self-assessment.
4. The integration of technology, specifically the digital grammar-based application, presented several benefits:
    a. it allowed for personalized and self-paced learning

experiences, catering to the diverse learning needs of the respondents.

b. The application provided immediate feedback on exercises, enabling students to identify and correct their mistakes promptly.
c. This aspect enhanced their understanding of grammar concepts and improved their ability to apply them in real-world contexts.
d. The digital aspect of the application appealed to the tech-savvy nature of today's students, promoting their engagement and motivation in the learning process.

5. Ensuring equitable access to technology resources emerged as an important consideration for future implementation. Furthermore, time management and the need for comprehensive training in utilizing the application were noted as areas that require attention for successful implementation.

RECOMMENDATIONS:

The findings of this action research have implications for educators and curriculum developers. The study highlights the effectiveness of incorporating grammar-based instruction and engaging with a digital grammar-based application in strengthening the linguistic competence of the students.

1. The integration of technology provides a valuable avenue for enhancing grammar instruction and meeting the evolving needs of 21st-century learners.
2. Educators can leverage the benefits of technology to create engaging and interactive learning experiences, promoting student motivation and autonomy.
3. Future research can explore the long-term impact of these interventions and address the challenges identified to further optimize the implementation process.
4. Sharing the aspects of Project G.R.A.M.M.A.R to colleagues, and to other institutions would bring significant realization of strengthening learners' linguistic competences.
5. Publication of this paper will bring authenticity and authority that highlights the success of the learners and instructions of Southville 8c National High School.

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Enhancing Vocabulary Skills among ESL Students: A Study of Best Practices Employed by ESL Teachers

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Abstract:

This action research study blended with appreciative inquiry on the English as a Second Language Teachers. Specifically, it aimed to determine the effectiveness of the best practices of the ESL Teachers as the active respondents of the study in promoting the vocabulary enrichments on the ESL learners. Their insights helped the researcher find concrete realization on the effectiveness of the best practices ESL Teachers used in their crafts.

Primarily, the researcher used the appreciative inquiry method of research as Qualitative Research. Appreciative Inquiry research relies on gathering information using interview questions to substantiate a certain hypothesis as a means of collecting information as tool for exploring and providing deeper insights from existing and potential customers using demographic profiles, descriptive insights and sending out online surveys as questionnaires, the results of which can be depicted in the form of descriptive interpretations. The definitions of the authors mentioned above were the reasons for using the appreciative inquiry method as qualitative research in the study. They are the most appropriate research methods to use since the study concentrated on the effectiveness of the best practices of the English as a Second Language (ESL) Teachers as the active respondents of the study in promoting the vocabulary enrichments of the ESL learners.

The sources of data in this research were the eight (8) ESL teachers. The respondents were chosen based on purposive sampling in consideration to their demographic profiles. These are the ESL Teachers who are teaching English as a second language, and are enthusiast in building vocabulary enrichments, and are knowledgeable in language manipulative and strategies in developing language competencies on the ESL clienteles; All from the different private ESL companies/institutions whose expertise has gained through years of teaching ESL classes to international students.

Furthermore, teachers regarded the following instructional methods as most beneficial for ESL students: cultivate relationships, be culturally aware, speak slowly and be patient, prioritize "productive language," use a variety of methods to engage learning (demonstration, example, sentence making, teaching, task-based approach, integrated approach), utilize visual aids (realia, illustration, etc.), use TPR, role-play, group discussions, using feedback, and using authentic speeches. Teachers are given the chance to view their classrooms differently by exploring the relationship between institutional goals, as teaching objectives, and the language used to achieve those goals through a

process of guided self-discovery combining conversation and inquiry. In essence, the goal of this process of consciousness-raising is to shift teachers' emphasis from motions associated with materials or methodologies to decisions based on interactional choice.

Keywords: ***ESL Teachers, appreciative inquiry method, qualitative research, vocabulary***

Introduction

In an increasingly interconnected world, the ability to communicate effectively in English has become an essential skill for individuals seeking to succeed in academic, professional, and social spheres. English as a Second Language (ESL) programs play a vital role in assisting non-native English speakers to develop their language proficiency. Among the various aspects of language learning, vocabulary acquisition is recognized as a fundamental component that significantly impacts learners' overall language competence.

The present research focuses on enhancing vocabulary skills among ESL students, with a specific emphasis on identifying the best practices employed by ESL teachers. Vocabulary, encompassing the words and phrases that individuals use to express themselves, plays a crucial role in language production and comprehension. A robust and extensive vocabulary enables learners to express their ideas accurately, understand complex texts, and communicate effectively in various contexts.

While vocabulary acquisition is a multifaceted process influenced by several factors, the role of ESL teachers cannot be understated. These teachers are at the forefront of facilitating students' vocabulary development and employ various instructional strategies and techniques to enhance their learners' word knowledge. This study aims to investigate and analyze the best practices employed by ESL teachers to optimize vocabulary instruction and promote effective language learning outcomes.

By exploring the best practices in teaching vocabulary to ESL students, this research seeks to contribute valuable insights to the field of English language education. The findings of this study can inform ESL teachers, curriculum developers, and educational policymakers about the most effective approaches and techniques to foster vocabulary growth among ESL learners. Additionally, the results may serve as a basis for professional development programs for ESL teachers, empowering them with evidence-based strategies to maximize their students' language learning potential.

To achieve the objectives of this research, a comprehensive literature review has been conducted, examining relevant studies, scholarly articles, and educational resources that discuss vocabulary instruction in ESL contexts. Additionally, interviews as virtual surveys shed light on giving emphases with experienced ESL teachers to gather firsthand insights into their teaching practices and strategies employed to enhance vocabulary skills among their students.

The outcomes of this research endeavor hold the potential to benefit both ESL teachers and students alike. By identifying and disseminating the best practices in vocabulary instruction, ESL teachers can refine their teaching methodologies and provide more effective language learning experiences.

Ultimately, this research aims to contribute to the broader objective of equipping ESL students with the language skills necessary to thrive in an increasingly globalized world.

Methods

The methodology of this action research involves a blend of appreciative inquiry and qualitative research methods. Here is a breakdown of the methodology:

Research Design: The study utilizes an action research design blended with appreciative inquiry. Action research involves a systematic process of inquiry, reflection, and action to bring about improvements in a particular context. Appreciative inquiry focuses on understanding and leveraging the strengths and positive aspects as the best practices employed by the ESL Teachers in enhancing vocabulary skills of the learners.

Research Approach: The research approach is qualitative, aiming to gather rich, descriptive insights and explore the effectiveness of the best practices of ESL teachers in promoting vocabulary enrichment.

Data Collection: The data is collected through interviews with eight ESL teachers who are considered active respondents in the study. Purposive sampling is employed, meaning the selection of participants is based on their demographic profiles and expertise in teaching ESL and developing language competencies. These teachers come from different private ESL companies/institutions and have gained expertise through years of teaching ESL classes to international students.

Data Analysis: The collected data is analyzed using qualitative analysis techniques. The researcher likely engages in a process of thematic analysis to identify recurring themes, patterns, and insights from the teachers' responses. Descriptive interpretations are derived from the analysis, providing a deeper understanding of the effectiveness of the best practices employed by ESL teachers.

Research Methods: The appreciative inquiry method is used within the qualitative research approach. Appreciative inquiry involves gathering information through interview questions to explore and gain insights from the ESL teachers. The focus is on highlighting the positive practices and strengths of ESL teachers and understanding how these practices contribute to vocabulary enrichment in ESL learners.

Research Instruments: The primary research instrument is the virtual interview questionnaire used to conduct the appreciative inquiry interviews with the ESL teachers. The questions are likely designed to elicit information about the teachers' best practices, their experiences, and the impact of these practices on vocabulary enrichment.

Findings and Realization: The insights and findings from the data analysis help the researcher gain concrete realizations about the effectiveness of the best practices used by ESL teachers in promoting vocabulary enrichment. The goal is to understand the relationship between instructional methods, institutional goals, and language use, and to shift the emphasis of teachers from materials and methodologies to interactional choice.

Overall, this research methodology blends action research, appreciative inquiry, and qualitative research techniques to explore and understand the effectiveness of ESL teachers' best practices in promoting vocabulary enrichment among ESL learners.

Results and Discussion

The action research study blended with appreciative inquiry aimed to determine the effectiveness of the best practices employed by English as a Second Language (ESL) Teachers in promoting vocabulary enrichment among ESL learners. The research method used was appreciative inquiry, which is a qualitative research approach that involves gathering information through interviews and exploring existing and potential customers' perspectives to gain deeper insights.

The data for this research was collected from eight ESL teachers who were selected using purposive sampling based on their demographic profiles. These teachers were chosen because they had expertise in teaching English as a second language, a passion for building vocabulary enrichments, and knowledge of language manipulative and strategies to develop language competencies in ESL students. All the participants were teaching ESL classes to international students in different private ESL companies/institutions.

The findings of the study revealed several instructional methods that ESL teachers considered most beneficial for ESL students' vocabulary development. These methods included:

Cultivating relationships: Teachers recognized the importance of building relationships with ESL students to create a supportive and conducive learning environment. Positive teacher-student relationships can enhance students' motivation and engagement in vocabulary learning.

Cultural awareness: ESL teachers emphasized the need to be culturally sensitive and aware of students' diverse backgrounds. Understanding students' cultural perspectives can help teachers tailor their vocabulary instruction to make it more relevant and meaningful.

Speaking slowly and being patient: Teachers acknowledged the significance of speaking at a pace that allows ESL students to comprehend and process the information effectively. Patience is essential in supporting students' language learning journey.

Prioritizing "productive language": ESL teachers focused on promoting vocabulary usage in meaningful contexts. They encouraged students to actively use newly acquired vocabulary in their spoken and written communication.

Using a variety of methods to engage learning: Teachers employed diverse instructional approaches such as demonstrations, examples, sentence construction, task-based and integrated approaches. This variety aimed to cater to different learning styles and preferences among ESL students.

Utilizing visual aids: Visual aids such as realia (real-life objects), illustrations, and other visual materials were found to be effective in enhancing vocabulary learning and retention.

Using Total Physical Response (TPR) and role-play: Incorporating physical actions and role-play activities into vocabulary lessons can facilitate experiential learning and reinforce vocabulary usage in context.

Encouraging group discussions: Teachers recognized the value of collaborative learning through group discussions. Peer interactions provided opportunities for ESL students to

practice vocabulary in authentic communicative situations.

Providing feedback: Feedback played a crucial role in guiding ESL students' vocabulary development. Teachers offered constructive feedback to students, helping them improve their language skills and expand their vocabulary knowledge.

Incorporating authentic speeches: Using authentic speeches and real-world language samples exposed ESL learners to natural language use, allowing them to develop their vocabulary in authentic contexts.

By adopting appreciative inquiry as a research method, the researcher was able to view ESL classrooms from a different perspective. This approach facilitated self-discovery and encouraged teachers to align institutional goals and teaching objectives with the language used to achieve those goals. The process of consciousness-raising prompted teachers to make instructional decisions based on interactive choices rather than relying solely on materials or methodologies.

In summary, this action research study blended with appreciative inquiry highlighted the effectiveness of various best practices employed by ESL teachers in promoting vocabulary enrichment among ESL learners. The findings underscored the importance of building relationships, cultural awareness, utilizing diverse instructional methods, incorporating visual aids and authentic materials, and providing feedback to enhance vocabulary learning. This research contributes to the existing knowledge base on effective strategies for ESL teachers and provides insights for enhancing vocabulary instruction in ESL classrooms.

REFLECTIONS AND INSIGHTS

This action research study focused on blending appreciative inquiry with the evaluation of English as a Second Language (ESL) Teachers' best practices to promote vocabulary enrichment among ESL learners. By involving the ESL teachers, themselves as active respondents, the study aimed to determine the effectiveness of their teaching methods. The insights provided by the teachers allowed the researcher to gain a concrete understanding of the effectiveness of these best practices in the ESL teachers' instructional approaches.

To conduct this qualitative research, the researcher employed the appreciative inquiry method. Appreciative Inquiry is a research approach that involves gathering information through interviews to substantiate a hypothesis and gain deeper insights. The researcher used demographic profiles, descriptive insights, and online surveys as questionnaires to collect data, which were then interpreted descriptively. This method was chosen because it was deemed most appropriate for examining the effectiveness of the ESL teachers' best practices in promoting vocabulary enrichment among ESL learners.

The data for this research came from eight ESL teachers selected through purposive sampling. The selection process considered their demographic profiles, focusing on ESL teachers who taught English as a second language, possessed enthusiasm for building vocabulary enrichment, and had expertise in language manipulation and strategies for developing language competencies among ESL students. These teachers were associated with different private ESL companies/institutions and had acquired their expertise through years of teaching ESL classes to international students.

The research findings highlighted various instructional methods that ESL teachers found most beneficial for ESL students. These included cultivating relationships, being culturally aware, speaking slowly and being patient, prioritizing "productive language," using diverse teaching methods (such as demonstrations, examples, sentence construction, task-based and integrated approaches), employing visual aids (realia, illustrations, etc.), using Total Physical Response (TPR), incorporating role-play and group discussions, providing feedback, and using authentic speeches. By exploring the relationship between institutional goals, teaching objectives, and the language used to achieve those goals, teachers were encouraged to view their classrooms from a different perspective. This process of guided self-discovery, involving conversation and inquiry, aimed to shift teachers' focus from relying solely on materials or methodologies to making decisions based on interactive choices.

In essence, this action research study blended appreciative inquiry with a focus on the best practices of ESL Teachers to assess their effectiveness in promoting vocabulary enrichment among ESL learners. The insights and perspectives shared by the ESL teachers allowed the researcher to gain a comprehensive understanding of the impact of these best practices in the ESL classroom.

Conclusion/Recommendation

This action research study blended with appreciative inquiry provided valuable insights into the effectiveness of best practices used by English as a Second Language (ESL) teachers in promoting vocabulary enrichment among ESL learners. The researcher employed the appreciative inquiry method as a qualitative research approach, utilizing interview questions to gather information and explore the experiences and perspectives of ESL teachers. The chosen research methods were appropriate given the study's focus on the effectiveness of ESL teachers' best practices in vocabulary enrichment.

The data for this research was gathered from eight ESL teachers selected through purposive sampling based on their demographic profiles. These teachers were chosen for their expertise in teaching ESL and their enthusiasm for developing vocabulary skills among ESL students. They represented different private ESL companies/institutions and had accumulated years of experience teaching ESL classes to international students.

The study revealed several instructional methods that ESL teachers found most beneficial for their students. These included cultivating relationships, being culturally aware, speaking slowly and being patient, prioritizing "productive language," using a variety of engaging methods (such as demonstrations, examples, sentence construction, task-based and integrated approaches), utilizing visual aids, incorporating Total Physical Response (TPR), employing role-play and group discussions, providing feedback, and using authentic speeches. Through the process of guided self-discovery combining conversation and inquiry, the researcher was able to view ESL classrooms from a different perspective, linking institutional goals to teaching objectives and language choices. This process aimed to shift teachers' focus from simply following prescribed materials or methodologies to making decisions based on interactive choices.

Overall, this action research study blended with appreciative inquiry shed light on the effectiveness of ESL teachers' best practices in promoting vocabulary enrichment among ESL learners. The findings contribute to the

understanding of successful instructional methods and provide valuable insights for improving ESL teaching strategies in the future.

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Interactive Ingenuity: Optimizing Learning For Exploratory Learners In Mechanical Drafting Through Digitized Instructional Materials

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Abstract:

The study aimed to develop and assess the acceptability of interactive instructional materials in Mechanical Drafting for Exploratory Learners in Rodriguez, Rizal during the 2022-2023 academic year. It transformed the least mastered topics in Mechanical Drafting into Interactive Instructional Materials, which were evaluated for acceptability by both TLE teachers and experts. The research also explored potential differences in evaluations between the two groups and gathered improvement suggestions.

Using the descriptive method and a survey questionnaire, thirty (30) TLE teachers and thirty (30) experts were selected from public schools in the Department of Education, Division of Rizal, and Marikina through purposive sampling based on their expertise.

Findings revealed successful development of Interactive Instructional Materials for least mastered topics: Orthographic Drawing, Scaling, Dimensioning, Oblique Drawing, and Isometric Drawing. Both TLE teachers and experts highly accepted the materials, appreciating their content, design, usefulness, relevance, and completeness.

However, limitations need consideration. The relatively small sample size could restrict generalizability, warranting a more extensive and diverse sample for future research. The study's exclusive focus on exploratory learners in Mechanical Drafting may limit direct application to other academic levels or subjects, cautioning against overgeneralization.

The short-term nature hindered assessing long-term effects and sustainability. Follow-up evaluations over an extended period would provide deeper insights. Relying on self-reported perceptions introduced potential subjective bias; incorporating objective measures or observations in future studies would enhance rigor.

Despite limitations, the study's valuable findings significantly contribute to advancing interactive instructional materials in Mechanical Drafting, optimizing learning experiences for exploratory learners. Addressing identified challenges and building on strengths can further harness the potential of interactive technology in education, benefiting students and educators alike.

Keywords: Interactive instructional materials, Exploratory learners, TLE teachers and experts, least mastered topics, optimization.

Introduction

In the 21st Century, rapid technological advancements have permeated various aspects of life, with computers, tablets, and Android gadgets becoming ubiquitous tools for diverse tasks. Notably, this technological revolution has extended its reach to education, leading to the emergence of e-book applications as powerful learning tools. In today's diverse educational landscape, technology-based teaching has gained prominence, offering immense potential to foster students' innovative thinking and elevate their academic achievements with appropriate support.

Engaging students through e-book learning materials has proven to be an effective interactive learning approach, positively influencing their motivation, attitudes, and academic performance. Recognizing the significance of equipping learners with essential skills and academic development for their future careers, the K-12 Education Curriculum places emphasis on Technology and Livelihood Education (TLE). Among the TLE strands, the Information and Communication Technology (ICT) specialization stands out for its modern approach, leveraging technology and drafting expertise.

In the context of teaching mechanical drafting, some schools in Rodriguez, Rizal, have already introduced this subject specialization as an exploratory course in TLE, well before the disruptions caused by the COVID-19 pandemic necessitated a shift to distance education on a global scale. The pandemic presented educators with the challenge of adapting their teaching methods to ensure effective learning in remote settings. Particularly, mastering the subject matter of Mechanical Drafting in the New Normal system of education poses difficulties due to limited interaction between learners and teachers.

Acknowledging the importance of integrating technology in education, the researcher recognizes that both teachers and students possess 21st Century skills and orientations, making technology an innovative tool in teaching. In an effort to address the challenges students face in mastering certain topics, the researcher explores the possibility of designing and programming interactive learning materials. These materials aim to enhance learning outcomes for the least mastered lessons in Mechanical Drafting.

Through the utilization of Interactive Instructional Materials, this study endeavors to bridge the learning gaps in Mechanical Drafting within the locality of Rodriguez, Rizal. By pioneering the integration of such technology in the teaching of this subject, the research aims to contribute significantly to the advancement of interactive instructional methods and optimize the learning experiences of students.

Methods

This research employed a descriptive research method, which is valuable for establishing facts on which scientific judgments can be based. Descriptive research aims to provide essential knowledge about the nature of objects and individuals. It relies on observation as a means of data collection and seeks to examine situations to determine what is considered the norm, or what can be predicted to occur under

similar circumstances. Various techniques were used to collect data, including interviews, questionnaires, visual records, and recordings of sounds and smells. The observations were carefully recorded to facilitate subsequent analysis.

Additionally, quantitative research was utilized as another approach in this study. Quantitative research involves the systematic examination of data by collecting measurable information and applying statistical, numerical, or computational methods. This method involves gathering data from existing and potential participants through testing methods and online surveys to interpret the results in numerical form. Researchers use statistical techniques and hypotheses related to the quantity under investigation in this approach. Quantitative research formats are objective, detailed, and often investigational, producing results that are logical, measurable, and impartial. Data collection was carried out using a structured approach and conducted on larger samples that represent the entire population.

The decision to use the descriptive method and quantitative research in this study was based on the definitions provided by Walliman (2011) and other authors. These methods were deemed the most appropriate for the study's focus on the development and evaluation of interactive instructional materials for Exploratory learners.

SOURCES OF DATA

The data sources for this research consisted of two groups: thirty (30) TLE teachers and thirty (30) experts. The selection of respondents followed a purposive sampling approach, which involves deliberately choosing individuals with specific characteristics relevant to the study, as explained by Leavy (2017).

The TLE teachers chosen for this study are those who teach the exploratory course in Drafting. On the other hand, the experts selected are teachers who have completed the National Certificate of Trainer’s Methodology and possess expertise in evaluating instructional materials and developing curricula. These TLE teachers and experts were actively involved in evaluating the Interactive Instructional Materials in Drafting for Exploratory Learners, and they were drawn from the Department of Education, Division of Rizal, and Marikina.

Table 1
Distribution of TLE Teachers, and Experts from DepEd Rizal as Evaluators of the Interactive Instructional Materials in Drafting for Exploratory Learners.

RIZAL	FREQUENCY		TOTAL
	TEACHERS	EXPERTS	
SCHOOL A	3	3	6
SCHOOL B	1	1	2
SCHOOL C	1	0	1
SCHOOL D	0	1	1
SCHOOL E	0	2	2
SCHOOL F	2	2	4
SCHOOL G	0	1	1
SCHOOL H	1	0	1
SCHOOL I	10	3	13
SCHOOL J	0	1	1
SCHOOL K	0	2	2
SCHOOL L	0	1	1
SCHOOL M	0	1	1
SCHOOL N	0	1	1
SCHOOL O	2	1	3
SCHOOL P	6	2	8
SCHOOL Q	1	1	2
SCHOOL R	1	1	2
TOTAL	**28**	**24**	**52**

Note: The names of the schools were not revealed as per the request of the respondents.

Table 1 presents the distribution of the TLE teachers, and the experts from the Department of Education, Division of Rizal as evaluators of the developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners. It can be gleaned that among fifty-two (52) total respondents, there were Twenty-eight (28) TLE teachers and twenty-four (24) experts who were the active evaluators of this study.

Table 2
Distribution of TLE Teachers, and Experts from DepEd Marikina as Evaluators of the Interactive Instructional Materials in Drafting for Exploratory Learners.

MARIKINA	FREQUENCY		TOTAL
	TEACHERS	EXPERTS	
SCHOOL A	0	1	1
SCHOOL B	0	1	1
SCHOOL C	1	1	2
SCHOOL D	0	1	1
SCHOOL E	1	0	1
SCHOOL F	0	1	1
SCHOOL G	0	1	1
TOTAL	**2**	**6**	**8**

Table 2 presents the distribution of the TLE teachers, and the experts from the Department of Education, Division of Marikina as evaluators of the Developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners. It can be gleaned that among eight (8) total respondents, there were only two (2) TLE teachers and six (6) experts from Marikina who were the active evaluators of this study.

DATA COLLECTION INSTRUMENTS

Two data gathering instruments were employed in this study. The first instrument used to determine the least mastered topics in Mechanical Drafting was a survey questionnaire checklist. The researcher, in consultation with the thesis adviser and critic, administered the questionnaire link to the purposively selected TLE teachers from various schools in the Division of Rizal. The goal was to identify the five (5) least mastered topics in Mechanical Drafting.

The second data gathering instrument used to assess the level of acceptability of the developed Interactive Instructional Materials was a survey questionnaire conducted through Google form. The researcher sought permission from the School Head before administering the questionnaire link to the assigned respondents in consultation with the thesis adviser and critic.

Regarding the development of the survey questionnaire, the researcher initially prepared a draft of the instrument, which was then subjected to validation by the thesis adviser and critic. Their feedback and suggestions were taken into consideration for further improvements. Subsequently, a finalized version of the survey questionnaire was created after incorporating the recommendations from the research adviser and the critic. The initialization and finalization of the questionnaire checklist and link occurred after completing all the necessary validation procedures.

STATISTICAL TREATMENT OF DATA

The following statistical treatments were used for a better appreciation of the analysis of the data gathered:

Percentage. This was used to determine the least mastered topics by the thirty (30) TLE teachers as the target lessons to be converted into Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners.

Ranking. This was used to determine the order of the least mastered topics in teaching Mechanical Drafting in Exploratory Learners.

Weighted Mean. This was utilized to determine the evaluations of the respondents on the developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners in terms of its Content, Design and Layout, Usefulness, Relevance, and Completeness.

The scale and interpretation of the four-point Likert scale used are shown in Table 3.

Table 3
Scale and Verbal Interpretation

Scale	Verbal Interpretation
4	Strongly Agree (SA) – Highly Acceptable (HA)
3	Agree (A) – Acceptable (A)
2	Disagree (D) – Unacceptable (U)
1	Strongly Disagree (SD) – Highly Unacceptable (HU)

Independent-Samples *t*-Test. This was used to determine the significant difference between the evaluations of the two groups of respondents concerning its Content, Design and Layout, Usefulness, Relevance, and Completeness.

***P*-value or calculated Probability.** This was used to estimate the probability of rejecting the null hypothesis (H_0) of a study question when that hypothesis is true. This was used to help decide whether to reject the null hypothesis or not.

Results and Discussion

This chapter presents the results and discussion of the data gathered based on the statistical results.

Least Mastered Topics in Exploratory Course on Mechanical Drafting that were Developed into Interactive Instructional Materials

Table 4 shows the rank of the least mastered topics in TLE Exploratory Course - Mechanical Drafting based on the responses of TLE teachers.

Table 4

Ranked List of the Least Mastered Topics in Grade 7 Mechanical Drafting

Specific Topics Offered in Drafting	No. of Responses	%	Rank
Orthographic Drawing	23	76.67	2
Scaling	23	76.67	2
Dimensioning	23	76.67	2
Oblique Drawing	22	73.33	4
Isometric Drawing	17	56.67	5
Alphabet of Lines	6	20.00	6

Line Sketching	5	16.67	7.5
Pictorial Drawing	5	16.67	7.5
Drafting Materials and Tools	3	10.00	9.5
Measuring Tools or Instruments	3	10.00	9.5

Table 4 presents the specific lessons or topics offered in Mechanical Drafting, along with the number of responses, percentage, and arranged rank based on the perceptions of the TLE teachers regarding their level of challenge. From this table, the researcher identified the five topics that were considered the most challenging by the TLE teachers, which were subsequently selected for crafting the Interactive Instructional Materials for Exploratory Learners in Mechanical Drafting. These topics include Orthographic Drawing, Scaling, Dimensioning, Oblique Drawing, and Isometric Drawing, with percentage scores ranging from 56.67% to 76.67%.

It is evident that the five topics, which were ranked as the most challenging by the TLE teachers, were also found to be the least mastered by students, as indicated by the respective percentage scores. Therefore, these specific challenging topics should be given the highest priority when developing instructional materials for students.

Perceived Acceptability of the Developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners among Teachers and Experts.

Summary of Respondents' Evaluation. Table 5 presents the composite table on the level of acceptability of the developed Interactive Instructional Materials.

Table 5

Summary of Respondents' Evaluation on the Developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners

Aspects	Teachers			Experts		
	Overall WMean	Sd	VI	Overall WMean	Sd	VI
Content	3.55	.48	SA	3.85	.33	SA
Design and Layout	3.70	.42	SA	3.85	.33	SA
Usefulness	3.63	.46	SA	3.85	.33	SA
Relevance	3.69	.44	SA	3.85	.32	SA
Completeness	3.63	.47	SA	3.81	.35	SA
Grand Weighted Mean	**3.64**	**.42**	**SA**	**3.84**	**.31**	**SA**

Legend: sd- Standard deviation, VI-Verbal Interpretation, SA-Strongly Agree

It is therefore completely evident that the developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners have aspects that are extensively practiced based on both TLE teachers and the experts as evidenced by the grand weighted means of 3.64 and 3.84 with grand standard deviations of .42 and .31 respectively, which both have gained a verbal interpretation of **"STRONGLY AGREE"**.

This means that the developed Interactive Instructional Materials in Mechanical Drafting has been worthy to be used in instruction for Exploratory Learners in Junior High School based on the TLE teachers' and the experts' evaluation results. Indeed, the material is **HIGHLY ACCEPTED** by the two groups of respondents for it can increase student's learning outcomes.

The result of the study corroborated with the findings of Mohammed-Issa Riad Mousa Jaradat (2021), because both classified the adaptation of technology in education. The study revealed the positive effect of Task Technology Fit (TTF) performance expectancy in the adoption process of augmented reality in educational settings.

Perhaps, the developed Interactive Instructional Materials have been worthy to be used on instruction in Junior High School based on experts' validity results. It can increase student's learning outcomes. Besides, teachers are expected to be able to make teaching materials by themselves through technology.

Test of Significant Difference between the Evaluation of the Two Groups of Respondents on the Developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners

The computed results of the difference between the evaluations of the two groups of respondents on the developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners in terms of Content, Design and Layout, Usefulness, Relevance, and Completeness are shown in Table 6.

Table 6
Summary of the Test of Significant Difference in the Evaluation of the Two Groups of Respondents on the Developed Interactive Instructional Materials in Mechanical Drafting

Aspects	R	Mean	Sd		t-value	p-value	H_0	Interpretation
Content	Teachers	3.83	.38		2.44	.018	Reject	Significant
	Experts	3.55	.48					
Design and Layout	Teachers	3.85	.33		1.50	.138	Fail to reject	Not Significant
	Experts	3.70	.42					

Usefulness	Teachers	3.85	.33		2.14	.037	Reject	Significant
	Experts	3.63	.46					
Relevance	Teachers	3.85	.32		1.68	.099	Fail to reject	Not Significant
	Experts	3.69	.44					
Completeness	Teachers	3.81	.35		1.74	.088	Fail to reject	Not Significant
	Experts	3.63	.47					
Grand Mean	Teachers	3.84	.31		2.09	.041	Reject	Significant
	Experts	3.64	.42					

Legend: sd-standard deviation, df-degree of freedom, H_0-Null Hypothesis.

In general, the probability value .041 on the grand mean is enough to warrant rejection of the null hypothesis, thus there is a significant difference between the evaluation of the teachers and the experts on the acceptability of the developed materials. This implies that the developed Interactive Instructional Materials need to be further validated.

The results of the study corroborated with the findings of Andrzej Szymkowiak and his team (2021), because it used different respondents which earned "significant difference" results in their evaluations in understanding how technological progress influenced the ways both Generation Z and Millennial Learners acquire knowledge and learn, since both studies are on the development and evaluation of the roles of technology in education for learners. However, the former used their study of how technology and the Internet affect the acquisition of knowledge by Generation Z, and Millennial Learners, and which forms of knowledge acquisition these generations prefer. While the latter used the digitized conversion of instructional materials as the mainstream of its study wherein teachers and experts are called to be its active respondents. Hence both studies interact with the use and manipulation of technology as the active part in the acquisition of knowledge.

Comments and Suggestions Offered by the Teachers and Expert Respondents on the Developed Digitized Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners

After administering the questionnaires, the respondents gave the following comments and suggestions:

A. Comments. The following are the comments being offered by the respondents on the developed Interactive

Instructional Materials in Mechanical Drafting for Exploratory Learners:

a. The instructional material was engaging and interactive, it can give our learners fun while learning. I enjoyed it so much! Thanks!

b. This is very useful. Thanks to your initiative in creating this awesome material.

c. This material is very timely and can be very useful for Distance Learning.

d. Very Interactive, Easy to Use, Fun to Interact with. Innovative! Great work for the Researcher.

e. This interactive learning material produced by the researcher is highly commendable.

f. It presents another strategy for this new normal that will meet the quality standard of the 21st century learning experience of the grade level specified.

g. It follows the pattern of IDEA, the design of the material and its content make the lesson more comprehensive.

h. The interactive learning material you made is useful for learners who are not having internet access.

i. Well done. It helps students while enjoying the lesson and is very easy to access.

j. Your developed digitized learning material is exemplary, aligned with MELCS, and innovative. Congratulations.

B. Suggestions. The following are the suggestions being offered by the respondents on the developed Interactive Instructional Materials in Mechanical Drafting for Exploratory Learners:

a. This can also be used as an Alternative Learning Material even during a Face-to-Face learning modality; its content also addresses 21st-century Learners' needs.

b. Test also the usability of the material on students' gadgets if do they experience technological glitches.

c. This should be accessible to all students; it offers a digital guide to understand the challenging lessons easily.

d. Most students are not properly inclined to formal drawing therefore very hard for them to follow instructions! But this is a big help to teachers in teaching complicated topics of the lessons specifically in this New Normal.

e. Most of the students don't know how to draw and most are not acquainted with online apps on drawing and therefore this interactive material is an excellent way to understand complicated topics.

f. Interactive learning materials should promote engaging activities for learners, and I think this will.

g. The material is good enough to sustain learning. Please develop more.

Conclusion/Recommendation

Educational Implications: The research findings have significant implications for the field of education, particularly for exploratory learners in the context of Mechanical Drafting. The use of interactive and digitized instructional materials has shown promise in optimizing learning outcomes for these learners. Educators and curriculum developers can consider incorporating similar interactive strategies and digitized materials in other technical and vocational subjects to enhance student engagement, motivation, and knowledge retention.

Pedagogical Implications: The study's focus on interactive ingenuity and digitized instructional materials underscores the importance of adopting innovative teaching methods in modern education. Teachers can draw inspiration from the successful use of animations, videos, simulations, and quizzes to create more engaging and interactive learning experiences. Pedagogical approaches that integrate technology and active learning can be explored to cater to the diverse learning styles and abilities of exploratory learners effectively.

Curriculum Development Implications: The research highlights the need for curriculum designers to prioritize the integration of interactive instructional materials in Mechanical Drafting courses for exploratory learners. By identifying the least mastered topics, educators can focus on developing targeted digitized materials to address specific learning gaps and challenges. Moreover, aligning these materials with the learning objectives and ensuring they are user-friendly and comprehensive can lead to more effective curriculum development.

Technology Integration Implications: The successful use of various software applications and online tools, such as Kotobee, Bitmoji, Kinemaster, Canva, PowerPoint, AutoCAD, and Book widgets, demonstrates the potential of technology integration in education. Schools and educational institutions may consider providing teachers and students with access to these tools and platforms to facilitate the creation and usage of digitized instructional materials across different subjects and grade levels.

Teacher Professional Development Implications: As interactive and digitized instructional materials continue to gain prominence in education, teacher professional development programs should include training on the effective use of technology in the classroom. Educators need to be familiar with these tools, platforms, and methodologies to design and deliver engaging lessons that cater to the needs of exploratory learners effectively.

Student Engagement and Motivation Implications: The research findings emphasize the positive impact of interactive instructional materials on student engagement and motivation. As such, educators should explore more innovative ways to involve students actively in the learning process. By leveraging technology and incorporating interactive elements, teachers can create a more stimulating and enjoyable learning environment that fosters a positive attitude towards the subject and encourages further exploration and learning.

Research Advancements Implications: This study contributes to the growing body of research on interactive instructional materials and their impact on exploratory learners in technical and vocational subjects. Researchers can build upon these findings to conduct further investigations on the effectiveness of different interactive strategies, explore the long-term impact of digitized materials, and delve deeper into the relationship between technology integration and student learning outcomes.

Access and Inclusivity Implications: Digitized instructional materials offer the potential to address accessibility and inclusivity issues in education. By providing interactive materials online, students can access them from various devices, promoting flexibility in learning. Moreover, interactive features can cater to different learning styles and abilities, ensuring that diverse learners can engage with the content effectively.

RECOMMENDATIONS:

In view of the findings and conclusions drawn, the researcher recommends the following:

1. The developed Interactive Instructional Materials in Drafting for Exploratory Learners should be further validated for it to be ready for future use.
2. TLE teachers, ICT coordinators, and Educators are encouraged to develop

Interactive Instructional Materials using Kotobee or other convertible online computer applications on subject matters that students find difficult and provide learning experiences easier and more enjoyable.

3. Future researchers may conduct parallel studies in other educational institutions and subject areas.

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A Study of the Safety Hazards Related to the Outsourcing of Aircraft Maintenance in the Philippines

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Abstract

Back in the days, airlines were deregulated, with the bulk of air carriers used to establish themselves at home. The act of independence from the oversight, with competitive conditions to increase and airlines dropping and, obviously, beginning at the same time, maintenance outsourcing has become more prevalent. Maintenance outsourcing has become a multinational trend. For some typical considerations involved in outsourcing servicing, the decision is made from the start-up not to have the money to establish the in-house maintenance scheme, to minimize the activities of the existing carrier, and all points in between. The paper attempts to discuss particular issues of the Philippine outsourcing of aircraft servicing. Maintenance, Repair and Overhaul (MRO) and Authorized Maintenance Organization (AMO) are used synonymously with this article. The purpose of this research is to identify the safety hazards, the underlying cause, and the effects of the outsourcing of aircraft maintenance, and to identify how and why these hazards endanger safety. For the research, questionnaires were used to gather quantitative data from technicians and engineers engaged in outsourcing processes. The researcher used a descriptive approach to identify the population under study. It is used through direct observation in the collection of data using the questionnaire provided to the participants. (Phone or in-person) to check and analyze the authenticity of the findings of the data set. Participants in this sample are 60 Aircraft Repair workers for the MRO and AMO suppliers. After the data were obtained, statistical treatment was done, such as weighted mean and Kruskal-Wallis H-Test. The findings of this study show that airlines see the outsourcing of aircraft repairs to another group as an important way to cut costs. Will the cost is the key reason for the airline to pick Servicing, Maintenance Repair and Overhaul (MRO) firms, MRO suppliers are under severe pressure to lower costs as this is a significant strategic benefit in the MRO industry and to make a proposal for an enhanced safety strategy to help all organizations reduce the possible risk of repairs as well as maintenance.

Keywords: ***Safety Hazards, Outsourcing, Aircraft maintenance, Maintenance Repair and Overhaul***

1. Introduction

Aircraft maintenance outsourcing is one of the major ones that has contributed to the fall in profitability of Philippine airline firms. In reality, this will direct airlines with high operating costs to implement new management approaches. However, contracting aircraft servicing leads to reduced costs, better efficiency and order,

expanded core competencies and comparative advantages (Ghobrial, 2005: 463-470; Quinlan et al., 2013: 284). Aircraft servicing influences the reliability of the aircraft, the major running costs, the production of the aircraft in real time and without a doubt, the aviation safety of the airlines. If aircraft maintenance is not part of any ranking agency or party, the management of the airline will neglect the safety of the aircraft or risk the safety of the aircraft as well as the maintenance itself. (Reple and Helm, 2008:281; Drury and Person, 2010:126; Ghobrial, 2005:470-473). As a result, the outsourcing of aircraft servicing is likely to raise possible risks that could have a detrimental effect on aviation safety (Quinla n et al., 2013). Aircraft servicing procedures are the source of success in all aircraft operations (Bazargan, 2015). Maintenance is heavily regulated in the aviation world by a range of internal and local bodies (i.e. the European Aviation Safety Agency (EASA), Europe; the Federal Aviation Administration (FAA), the United States; the Civil Aviation Authority of the Philippines (CAAP). The key task of the Servicing, Repair and Overhaul (MRO) and Licensed Maintenance Organizations (AMOs) is to provide the airline with a completely serviceable aircraft for the maintenance of all aircraft needed by operators at a low cost and of the highest standard (Regattieri et al., 2015).

During maintenance operations, the airline can opt to do or outsource "in-house" activities. However, the preparation and organization of MRO activities is complicated by the fact that each aircraft has various parts and different types of aircraft required to execute a role (Czepiel, 2003), which is to coordinate close contacts that can influence safety and contribute to accidents (Arminen et al., 2010). According to the strict implementation laid down by the aviation regulatory authorities and a limited range of internal services, such as those available to the staff, equipment and business sectors of the airline, they can pick a partially outsourced maintenance operation from the MRO and AMO service providers or train a new maintenance service to carry out tasks involving more equipment or specialization. Aircraft maintenance outsourcing helps airlines to stop investing in new installations, purchasing new equipment, inventory of parts and components (Tang & Elias, 2012).

The repair service of the aircraft component is normally rendered by the Original Equipment Manufacturer (OEM) who manufacturers the equipment of some part of the aircraft to qualify the maintenance service provider for a particular object. The role of the outsourced is different from that of the airline to another airline and to concentrate the aircraft available or ready to fly for the longest time and on the required fee to be paid by the air regulators of each country. According to Pettersen and Aase (2008), all airline companies have outsourced their operating maintenance roles to the lowest bidder of Maintenance Repair and Revision (MRO) and Licensed Maintenance Organizations (AMO) providers. As a result, the protection problem would most likely emerge due to cost-cutting. Danger can be referred to as something that has the ability to cause an adverse effect. This is the degree to which my adverse impact on such exposures is most significant when recognizing the risk. A wide range of risks that can exist at aircraft crash sites, some of which may not be directly related to aircraft debris. Hazards may come from individuals, freight, aircraft, ground equipment, and so on. A wide variety of hazards is provided at any section of the airport, and the categorization of common hazards can help to better monitor the location of the accident. The threat can find a significant way in which it can be seen.

There are many threats resulting from such accidents that can lead to a high risk of minimal duration that can be visually noticeable (e.g. explosions, explosives, electrical discharges, loss of oxygen and chemicals). Other threats cannot be readily obvious but pose significant health threats over time from either single or repeated exposures). These are not rare dangers that pose more urgent threats in order to prefer towers to hazards that pose a danger of delayed symptoms. At the end of the day though, threats that risk delayed symptoms will pose a considerably higher degree of danger. (OACI Circular 253-A). The safety risks that clearly interfere with me through the physical work of the workplace. According to IATA, the importance of

Maintenance Repair and Overhaul (MRO) and the Authorised Maintenance Association (AMO) can be measured by the fact that it usually accounts for 12-15% of the operational costs of the airline. The local aviation industry is no exception to this pattern (D.R. Vieira and P. L. Laures 2016)

A recent study reveals that repair outsourcing provided by international contractors has tripled over the last decade. In the Philippines alone, there are a number of Licensed Maintenance Organizations (AMOs) that could provide airline maintenance services. In fact, aircraft maintenance can be outsourced to any of the Licensed Maintenance Organizations (AMOs) in compliance with the specifications laid down by the Civil Aviation of the Philippines. There are three major MROs in the region, namely the Philippine Aviation Partnership (A+), Lufthansa Technik Philippines (LTP) and the Philippine Growth Aerospace Company (PADC). In September 2000, Philippine Airlines outsourced Lufthansa Technik to the Philippines. Cebu Pacific Air outsources Aviation Alliance Philippines with Sia Engineering Philippines Corporation. Apparently, the aviation industry has a concern with the safety risks of contracting aircraft servicing. The costing is a common problem. However, this also presents a high risk to MRO and repairs carried out in-house or outsourced maintenance. Outsourcing MRO benefits airlines as it helps them to prevent large profits by investing in infrastructure, machinery and inventories of parts and materials (Tang and Elias, 2012). Airline companies can also rely on their maintenance outsourcers to conduct a range of maintenance tasks. Outsourcing maintenance changes a wide variety of maintenance jobs. Such a job may be the repair of a single part, such as the engine overhaul, or the C and D inspection of an entire fleet of aircraft. A healthy safety culture is an operational attribute that helps airlines learn to recognize potential risks as well as safety procedures and behaviors, while at the same time offering a recognition system to assist activities related to the work atmosphere in which workers share the work environment. The maintenance of a healthy safety culture encourages workers of high-risk facilities to behave safely. In accordance with the safety culture of the aviation maintenance organization it is important to explain conceptually that the safety culture of aviation maintenance is usually appropriate during aircraft maintenance. Aviation maintenance shall ensure the safety of the aircraft and give enjoyment to all passengers while ensuring the punctuality of all airworthiness-based airport services.

The performance of aircraft maintenance staff is expected of the aircraft maintenance contractor. Aircraft maintenance workers are also made up of a complex framework since the aircraft maintenance organization requires close coordination and collaboration between work skills such as airframe, engine, electrical, electronic and instrumentation. Continuous production of aircraft repair with specialized equipment is carried out, but certain mechanical deficiencies in the mechanics are unavoidable as long as the technology is beyond the skills of the mechanic. Incidents can also be caused by human causes in the aircraft repair sector that are constantly happening. The term "security" is a general sense. One meaning is to assign importance to the welfare and health of maintenance workers. The process that moves some of the heavy parts of the aircraft, radioactive, harmful materials, and aerial work platforms around the workplace exposes these individuals to high danger. Last meaning is the tool used to notify the mechanic of the aircraft that ensures airworthiness for the safety of the aircraft. Aircraft maintenance personnel are often grouped into certain maintenance roles

according to their skills, such as line maintenance, foundation maintenance and technical assistance. Maintenance of aircraft as a procedure is rooted in safety. There is a fundamental need to ensure that the aircraft can be run safely. In other words, both of the devices are available. Since the inception of the commercial aviation industry, this need has been recognized and officially enshrined in the Chicago Convention to ensure the safety of fare-paying travelers and the general public.

1.1.Research Objectives

The aim of this study is to recognize possible hazards that are likely to harm aviation safety, how and why those hazards affect aviation safety, and also to identify hazards that have a high potential to damage aviation safety. The results can contribute to the implementation of risk reduction and safety improvement initiatives.

1.2.Theoretical Framework
Conceptual Framework

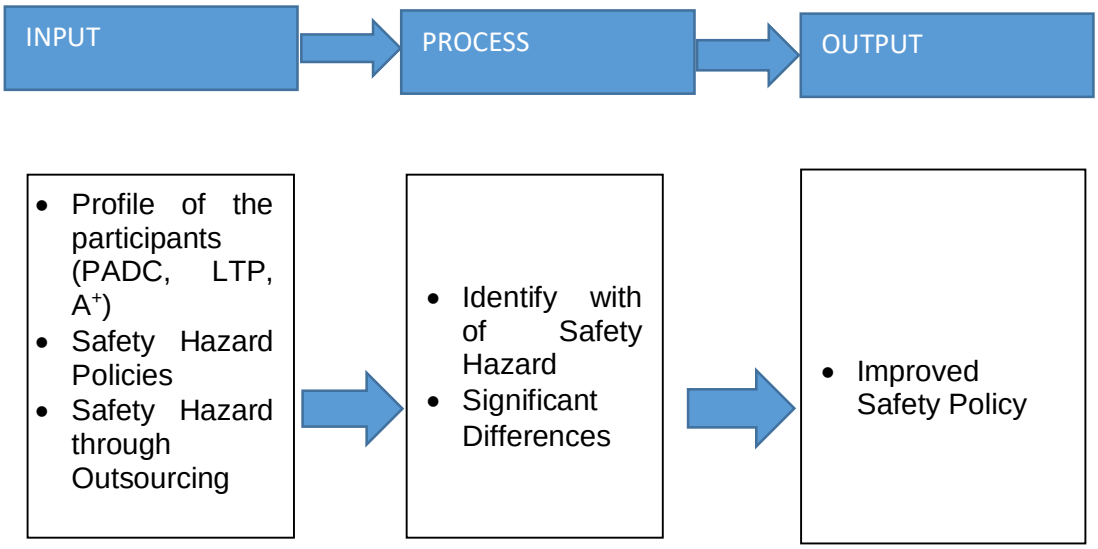

Figure 1: Research Paradigm

1.3.Scope and Limitations

This study focuses on the safety risks involved with contracting aircraft servicing in the Philippines. The researcher examined the efficacy of aircraft servicing during airline outsourcing, the safety risks and the human factor for outsourcing the airline industry in the Philippines. The research is limited to two (2) major MRO companies and one (1) AMO group, Twenty (20) staff members for each of the two (2) major MRO companies, one (1) AMO company, the Aviation Alliance Philippines (A+), Lufthansa Technik Philippines (LTP) and the Philippines Aerospace Construction Corporation (PADC), as the major contracting aircraft repair company in the Philippines. Quality Manager, Safety Manager, Chief Maintenance Officer, Director of Technical Instruction, Aircraft Mechanic A,

Aircraft Mechanic B, Aircraft Mechanic C, and Avionics.

2. Research Methodology

2.1.Research Design

This study used a descriptive method of research to identify the current situation or state. From the data collected, the researcher tabulates, analyzes and interprets all the data in a more precise formulation of the issue to be discussed.

2.2.Respondents/Participants of the Study and Sampling Technique

Respondents in the study involve twenty (20) maintenance workers from three (3) major MRO providers in the Philippines.

2.3.Instruments of the Study

The questionnaire was used as a data collection instrument. The researcher used mainly the information collected by secondary records, consisting of the published and unpublished papers of international universities, as follows: FAA publications, Embry-Riddle, Aeronautical University, and Adjust University Press.

2.4.Data Gathering and Ethical Considerations

The questionnaire used was submitted for material validation by three field experts including DENNIS MORREL M. SANDOVAL, MEAM and HERNAN I. DALISAY, MEAM, aircraft maintenance safety inspectors from the Civil Aviation Authority of the Philippines (CAAP) with MR. CORNELIO Z. ORDOEZ, Certified Aircraft Engineer I of the Emirates. Believing in their extensive experience and expertise in the area of safety risks relevant to the outsourcing of aircraft servicing, the researcher called for their assistance as a validator.

2.5.Data Analysis

After days of close analysis, the validators checked the authenticity and durability of the questionnaires made by the researcher. he researchers tabulated and interpreted the data using the following statistical methods and techniques such as, Frequency Distribution, Mean, and Kruskal Wallis H Test.

3. Results and Discussion

Table 1

The Level of agreement of the MRO in the Prevention or Mitigation in the Occurrence of the Safety Hazards that Contributes to the Following Factors:

FACTORS	LUFTHANSA	PADC	A+
TIME PRESSURE	3.53	3.74	3.72
RANK	3rd	1st	2nd
COMMUNCATION	3.67	3.85	3.70
RANK	3RD	1st	2nd
MAINTENNANCE PROCEDURE	3.53	3.63	3.70
RANK	3RD	2nd	1st

Table 1 displays the description and classification of MRO's agreement on the avoidance or reduction of safety hazards that lead to the Time Constraint, Coordination and Maintenance Process. In terms of time pressure, PADC had the highest mean of 3.74 led by A+ with a mean of 3.72, while Lufthansa had the lowest mean of 3.53. MRO should have ample

time and an appropriate trained/qualified staff.

In terms of connectivity, PADC had the highest mean of 3.80 followed by A+ with a mean of 3.70, while Lufthansa had the lowest mean of 3.67. All sides, the MRO and the airline industry should have continuous contact, effective communication and proper distribution of information in order to have good communication. In terms of repairs, A+ had the highest mean of 3.70, followed by PADC with a mean of 3.63, while Lufthansa had the lowest mean of 3.53. MRO should have highly technical maintenance staff, and ongoing training should be given to resolve global developments in the aviation industry. The extent of efficacy of the MRO business in the avoidance or reduction of incidents that lead to safety hazards as set out in the policy on Safety Personnel.

Table 2

Mean and Kruskal Wallis Result on the Level of Effectiveness that can be Implemented by the MRO Company Table 2 indicates the mean and Kruskal Wallis result in steps that can be enforced by the MRO Organization to avoid or reduce incidents that lead to safety risks, such as safety staff policies. PADC and A+ strongly agreed that the application of the Personal Protection Equipment to maintenance workers with a mean of 3.56 and 3.55 is very successful, and Lufthansa also strongly agreed with a mean of 3.40. PADC, A+ and Lufthansa have firmly accepted that Personal Protective Equipment is sufficiently manufactured by the MRO company to protect the protection of technicians with a mean of 3.61, 3.55 and 3.45, respectively.

TABLE 3

Level of Effectiveness on the Implementation by the MRO Company to Prevent or Mitigate the Occurrence that Contribute to the Safety Hazards

4.1. Safety Personnel	Lufthansa		PADC		A+	
	Mean	VI	Mean	VI	Mean	VI
4.1.1 Personal Protective Equipment						
1. The MRO Company are implementing to wear the Personal Protective Equipment to the maintenance personnel.	3.40	VE	3.56	VE	3.55	VE
2. Personal Protective Equipment is properly produced by the MRO provider to protect the safety of the maintenance.	3.45	VE	3.61	VE	3.55	VE
4.1.2 Signages						
Signages of the MRO company is in the proper designation according to the sign and meaning regarding in the safety of the maintenance personnel.	3.60	VE	3.67	F	3.10	VE
2. The maintenance personnel has a proper knowledge in the signages for their safety.	3.55	VE	3.61	F	3.35	VE
4.1.3. Rules and regulations						
The MRO company is properly implementing the rules and regulation for the safety of all the maintenance personnel.	3.60	VE	3.78	F	3.40	VE
2. The MRO provider should conduct regular training to rules and regulation regarding the safety for all of the maintenance personnel.	3.60	VE	3.78	F	3.55	VE
Average Mean	3.53	VE	3.67	VE	3.42	VE
General Weight Mean	3.54					
Interpretation	Very Effective					
H – Calculation	4.10					
H-Tabulation	5.14					
Decision	Accept Ho					

FACTORS	LUFTHANSA	PADC	A+
SAFETY PERSONNEL	3.53	3.67	3.42
RANK	2ND	1ST	3RD
SAFETY MANAGEMENT SYSTEM (SMS)	3.52	3.61	3.39
RANK	2ND	1ST	3RD

Table 3 provides the summary and ranking of the effectiveness standard of the execution of the MRO business to prevent or minimize accidents that contribute to safety threats, such as regulations for safety personnel. PADC has the highest mean of 3.67 in terms of safety workers, followed by Lufthansa with an average of 3.53, while A+ has the lowest mean of 3.43. They

should provide a comprehensive implementation of the EPP in the workplace, proper signs, proper execution of construction workers' health laws and regulations. PADC has the highest average of 3.70, followed by Lufthansa with an average of 3.52, as far as the protection management system is concerned, while A+ has the lowest average of 3.39. Maintenance employees should have voluntary notice of the hazards they encounter during their working hours, and all the hazard monitoring must also be documented by the MRO organization.

Conclusions and Future Perspectives

On the basis of the aforementioned results, the following conclusions were drawn:
1. Participants strongly agree on factors that lead to safety hazards through outsourcing in terms of time pressure, coordination and repair, but all participants oppose factors that contribute to safety hazards through outsourcing in terms of time pressure and communication. However, the reasons that lead to safety threats by outsourcing are recognized in terms of maintenance procedures.
2. Participants firmly agree on the efficacy of MROs in the prevention or mitigation of safety hazards in terms of time constraint, coordination and repair practices, but all participants oppose the effectiveness of MROs in the prevention or mitigation of safety hazards in terms of time pressure and communication. However, the reasons that lead to safety threats by outsourcing are recognized in terms of maintenance procedures.
3. Measures that can be adopted by MRO to avoid or reduce events that lead to safety risks, as the policies of the participants are more likely to be very successful and display no noticeable difference.
4. There is no substantial variation in the efficacy of MROs in the avoidance or reduction of safety risks associated with outsourcing aircraft servicing in the Philippines.

Recommendations

The following are the guidelines based on the findings:
1. Since certain mechanics have reached output efficiency when not under time constraint, less errors are often committed.
2. Miscommunication has arisen due to inadequate communication abilities, and the appropriate entity does not specifically answer communication.
3. According to certain cases, mechanics deviate from observing the normal operating procedures because the condition calls for aviation safety performance.
4. MRO should have ample time and appropriate skilled/trained manpower.
5. In order to provide good communication, continuous communication, good cooperation and proper distribution of information should be provided to all sides, the MRO and the airline industry.
6. MROs should have highly technical maintenance workers and continuing preparation should be given to comply with global developments in the aviation industry.
7. Wearing a PPE on the work site, proper signs, proper enforcement of laws and regulations for the welfare of construction workers should be properly enforced.

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PROPOSED GUIDE IN LEARNING MATHEMATICS USING CROSS-AGE PEER TUTORING

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Abstract:

The study aimed to determine the effectiveness of cross-age tutoring in teaching variations and operations on radicals and to propose guide in learning mathematics using cross-age tutoring. The research was carried out through a quasi-experimental cross-over research design using pre-test and post-test administered before and after the experiment. The study was conducted to forty students who were chosen through a stratified random sampling. The students were split up into two groups, with one group under cross-age tutoring while the other group is in independent study. Following the cross-over research design, the study was conducted in two phases. After the conduct of Phase I experiment, a washout period of four weeks was given to the participants so that the previous treatment could be worn off. In Phase II, the two groups participated in the same experiment but were switched. Using the 2 by 2 t-test analysis for cross-over design, data revealed that both independent learning and cross-age tutoring contributed to significant improvement in the academic performance of the students in both trials. However, the improvement is better in cross-age tutoring. This implies that cross-age tutoring is better to utilize in enhancing students' performance in Mathematics particularly in variations and operations on radicals. The results of the study were used to craft guide in learning Mathematics using cross-age tutoring.

Keywords: Cross-Age Tutoring, Independent Learning, Cross-over Research Design

Introduction

Mathematics is beneficial because it plays a significant role in our everyday lives. It trains our minds to think more logically and analytically, increases our mental speed, fosters creativity, and has real-world applications. The ability to think creatively and logically, both of which are necessary in the workforce, is facilitated by knowledge of mathematics, which is an essential component of any field of work. Despite the significance of performing well in mathematics, it is indisputable that mathematics students need help to grasp the fundamentals of the subject thoroughly.

Moreover, the report published in 2013 noted that Filipino students' performance in national and international surveys on mathematics and science competencies lagged behind its neighboring countries, including Singapore, South Korea, Hong Kong, Chinese Taipei, and Japan (Care et al., 2015). The Trends in International Mathematics and Science Study 2019 (TIMSS) found that Filipino children were lagging behind other countries in math and science assessments; only 1 % of students in the Philippines reached the High benchmark in mathematics, which indicates that only one percent of the students can

apply conceptual understanding in dealing with problem-solving (Bernardo, 2020). In PISA 2018, another type of international large-scale assessment, Filipino students performed poorly in different subject areas, particularly in mathematics (Mathematics Literacy), in which they scored the lowest of all ASEAN participating countries and second-to-last out of 79 countries with an average score of 353 which is significantly lower than the OECD international average of 489 points (Golla & Reyes, 2020).

Additionally, DepEd (2019), as cited by Balagtas et al. (2020), showed the results of the National Achievement Tests (NAT) given to Grades 6 and 10 covering five subjects, including Mathematics showed low proficiency in the competencies developed among the learners in School Year 2017–2018 with the overall Mean Percentage Score (MPS) below 50%. Mathematical proficiency dramatically impacts both persons and societies, and early challenges in mathematics tend to intensify as the learners advance in their education (Menzies et al., 2021).

These disheartening findings from an international large-scale assessment of the mathematical skills of Filipino learners highlighted the need for an ongoing quest for new and creative instructional approaches that may provide a means by which the situation might be improved.

With the alarming low ranking of Filipino learners in Mathematics, specific solutions have been presented, including tutoring. Studies about tutoring in the educational system in the Philippines focus on same-age tutoring, and few concentrate on cross-age tutoring. Also, the conventional way of comparing the pre-determined groups under study were utilized in comparing the treatments without considering that the participants could possibly be put in a group where their learning style is an advantage or not following to unbiased results. To fill the gap, this research focused on comparing the performance of learners who underwent cross-age tutoring to learners who are learning independently using cross-over design where all participants experienced to be on a control and experimental group. Further, this study aimed to propose a guide for learning mathematics with peers using cross-age tutoring.

Methods

The study utilized a quasi-experimental cross-over research design using pre-test and post-test in determining the effectiveness of using cross-age tutoring as an instructional technique in learning variations and operations on radical expressions using stratified random sampling to select the forty (40) students in Magsaysay National High School – Calawag Extension who participated in the study.

The skills of the respondents in variations and operations on variations and operation on radicals were measured before and after the intervention with the help of teacher-made test that served as pre and post tests for the study. To establish the reliability of the instrument utilized for the study, the researcher conducted test-retest by giving the test twice to the same set of randomly selected ten (10) non-participants at different times and was treated using Pearson Product Moment Correlation Coefficient with 0.05 as the significance level. For variations, the Pearson correlation coefficient is 0.831 with a p-value of 0.003. In operations on radicals, the Pearson correlation coefficient is 0.935 and with a p-value of 0.000. The reliability test provides a correlation coefficient greater than 0.700 that indicates reliability. Thus, the instruments are statistically reliable.

Before the study conducted at Magsaysay National High School -

Calawag Extension, the researcher secured permission from the school head. The two (2) hours intervention was set and held every Friday of the week. The first week is allotted for administration of pre-test. During the intervention, Phase I covered the topics about variations for two (2) weeks. A four-week washout period was allotted to provide enough time to wear off the previous treatments to the participants. After the washout period, another two (2) weeks was allotted for Phase II. In Phase II, the experimental and control group in Phase I switched.

The students took a post-test after the intervention. The data from both tutees and non-tutee learners was gathered and analyzed.

The statistical tools used were Descriptive Statistics: Frequency and Mean; Inferential Statistics: Independent T-Test, Dependent T-test and T-test Analysis of 2 by 2 Cross-Over Design.

The researcher manually checked each student's answer sheet after administering the pre- and post-tests to determine the students' level of performance in "variations" and "operations on radicals".

Results and Discussion

1. **Difference between the Performances of Participants on the Control and Experimental Group in the Posttest using T-Test Analysis for 2x2 Cross-Over Design**

Shown in Table 1 are the results of the t-test analysis of 2x2 cross-over design of the post-test scores of participants of the study for test of treatment effect.

For treatment effect, the calculated t-value of 3.8703 is statistically significant at the 0.05 level of significance with a p-value of 0.00041. Therefore, the null hypothesis is rejected, there is no significant difference in treatment effect. Hence, the treatment given to the participants has significant effect to their level of performance in favor to cross-age tutoring.

In both phases of the study, the cross-age tutoring strategy proved to be the more effective complementary method than the traditional classroom instruction. Students have a friend who is willing to assist them in furthering their education, which makes the students' academic pursuits more enjoyable. Also, having a study buddy to work with can really boost a student's motivation towards meaningful learning. In addition to that, the tutors themselves were properly chosen by the researcher through a test to maximize the best results.

This is in lined to the findings of Monjelat et al. (2016) that students are capable of performing scaffolds; hence, this capability needs to be taken into consideration as part of the classroom instruction. It is also anchored to the findings of Greene et. al. (2018) that states cross-age peer tutoring is one factor that led to beneficial outcomes for tutees in the field of mathematics, particularly in the area of mathematics fluency.

Table 1
T-test Analysis for Treatment Effect in the Posttest Performance of Control and Experimental Group

Group	Mean Difference	t	p-value	Interpretation
Control Experimental	2.100	3.8703	0.00041	Significant

Legend: p-value < 0.05 = Significant

Shown in Table 2 are the results of the t-test analysis of 2x2 cross-over design of the post-test scores of participants of the study for test of period effect.

The calculated t-value for period effect is 0.8293 is not significant at the 0.05 level of significance with p-value 0.41209. This suggests accepting the null hypothesis of no significant difference in period effect. This means that the effect of the same treatment even if there was a switch in the control and experimental group is statistically similar at different periods.

A teacher's consistent teaching approach results in a more precise result. Since the same researcher was the one who administered both trials, external factors that could have altered precision of results were eliminated.

According to Lim & In (2021), if there is no period effect, then there should be no significant difference which implies that the outcome of receiving the same treatment at two different periods will have same results in each period.

Table 2
T-test Analysis for Period Effect in the Posttest Performance of Control and Experimental Group

Group	t	p-value	Interpretation
Control Experimental	0.8293	0.41209	Not Significant

Legend: p-value < 0.05 = Significant

Shown in Table 3 are the results of the t-test analysis of 2x2 cross-over design of the post-test scores of participants of the study for test of carryover effect.

The table shows that the calculated t-value of 0.0000 is not statistically significant at the 0.05 level of significance with a p-value of 1.00000 for carryover effect. Therefore, we fail to reject the null hypothesis of no significant difference in carryover effects.

Based on the results of the test, it is suggested to draw inferences using data from both phases because the result in Phase II is not affected by the previous treatment received by the control and experimental group during Phase I experiment. Shen & Lu (u.d.) states that if the carryover effect is not significant, the data from both periods are analyzed in usual way and when the interaction is significant, indicating carryover, the results of the second period are usually set aside and analyzed only the first period which has no carryover effects.

Students in both groups were given a sufficient amount of time for a wash-out period, which allowed for the effects of Phase I to be wiped out and allowed their academic status to return to an initial level that was unaffected by any treatment they had previously received. Phase II also used a new concept that was quite distinct from the one used in Phase I. Similarly, Harris & Raynor (2017) states that in a crossover design, an attempt is made to mitigate carryover effects by inserting a washout interval in between the phases of the design in which during this phase of the experiment, all participants are removed from any and all manipulations in an effort to let the effects of the varying levels of the independent variable wear off which allow the dependent outcome variable to revert to its initial levels.

Table 3
T-test Analysis for Carryover Effect in the Posttest Performance of Control and Experimental Group

Group	T	p-value	Interpretation
Control Experimental	0.0000	1.00000	Not Significant

Legend: p-value < 0.05 = Significant

2. Proposed Guide in Learning Mathematics with Peers using Cross-age Tutoring

The proposed guide is divided into three parts namely: before cross-age tutoring; during cross-age tutoring; and after cross-age tutoring.

Before cross-age tutoring, potential tutors should be thoroughly identified through an assessment to ensure high-quality cross-age tutoring session. Also, students with outstanding performance should be excluded among the target tutees. Robinson & Leob (2021) emphasized that the majority of tutoring interventions are typically driven by students' needs and are aimed at those students who are struggling academically and performing below certain thresholds. Also, the remedial activity that the tutees are expected to complete with the help of their tutors should be made available to the tutors in written form.

During cross-age tutoring, the teacher needs to keep a close eye on the activity and be ready to give immediate feedback to the tutors whenever the tutors run into problems during their sessions with their tutees. This is necessary to ensure that the tutees are receiving quality instruction from their tutors. Also, according to Gauvain (2019), the teacher should pay close attention to modify the task so that the child may complete it successfully to how the child is progressing and will offer support as required.

A brief guide should be given to tutors to lead them to the learning goal. The brief guide is a three-part activity consisting of introductory activity, development activity and skill practice. The introductory activity provides learners to review pre-requisite skills necessary for the new skill to be learned. The development activity provides an avenue for the tutees to learn the skill with the help of their tutors. Skill practice as the last part of the tutoring session provides the tutees do the task without their tutors. In this part, tutees take the responsibility of solving problems by applying the learned skills from their tutors. According to Morin (2012), in Vygotsky's theory, adults interacting with children should initially guide the majority of the problem-solving process before transferring this responsibility to the child. Additionally, Cioni & Sgandurra (2013) mentioned in their paper that the child progressively develops the ability to intellectually function independently with the assistance of more experienced members of the social environment.

After cross-age tutoring, the teacher should note the issues and concerns raised by both tutees and tutors. This will help in the refinement of current practices for continuous improvement.

Before Cross-Age Tutoring • Assess the higher grade level learners to determine the qualified tutors, those with outstanding performance on the topic. • Assess the prospective tutees, exclude students with outstanding performance. • Provide tutors with a copy of remedial activity to be answered by the tutees with their assistance. • Assign two tutees for every one tutor (preferably tutees with the same academic performance).
During Cross-Age Tutoring • Supervise the session between the tutors and tutees. • Provide immediate feedback to the tutors when the need arises. • Provide tutors with a brief guide to be followed in tutoring session.
After Cross-Age Tutoring • Note the issues and concerns of both tutees and tutors for possible modification of the cross-age tutoring process.

Figure 1. Proposed Guide in Learning Mathematics using Cross-age Peer Tutoring

Conclusion/Recommendation

Based on the finding of the study, the level of performance in variations and operations on radicals can be significantly enhanced for students through the utilization of cross-age tutoring and independent learning. Nevertheless, the use of cross-age tutoring is more effective in enhancing students' level of performance in mathematics, and it is therefore better in improving students' performance in the said topics. Also, a three-part guide can facilitate cross-age tutoring to improve students' performance in mathematics. This can be used to simplify the application of the aforementioned method in the mathematics teaching-learning process.

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"Implementation of Madrasah Education Program (MEP) in the City Schools Division of Dasmariñas SY 2022-2023"

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Abstract:

Education is for all. The City Schools of Dasmariñas is responsive to this call . Muslim learners are given the Madrasah Education Program (MEP) relevant to DO 41, s. 2017. It aims to provide Muslim learners with appropriate and relevant educational opportunities while recognizing their Muslim culture, values, and education – their cultural context and uniques purposes for participating in the program offering. MEP aims to achieve Arabic Language and Islamic Values Education (ALIVE) in the regular basic education curriculum.

The study aimed to present the status of SDO Dasmariñas City in relation to MEP implementation in terms of number of schools offering Madrasah Education Program, number of ALIVE Teachers (Asatidz); and enrolment against the total population of Muslim learners in the division. Furthermore, it aimed to determine the challenges encountered by the implementing schools offering Madrasah Education Program and from the findings of the study, what are the recommendations on the improvement of MEP implementation. Descriptive data analysis was used in the conduct of this study for the School Year 2022-2023

Based on the findings of the study, there were only 10 total number of Asatidz (ALIVE Teachers) in CSDO Dasmariñas. The total enrolment in MEP in elementary is 588 out of 1556 equivalent of 37.79% and in DIHS, 37 out of 314 students equivalent to 11.78%. Based on the results, the following were the recommendations increase access of Muslim learners to MEP through the expansion of implementing schools to operate the program, improve the quality of Asatidz in teaching and learning delivery, and strengthen the engagement of stakeholders.

***Keywords*:** Madrasah Education Program (MEP); Arabic Language; Islamic Values Education; Asaditz

INTRODUCTION

The Madrasah Education Program was created to provide Muslim children with quality education that is responsive to their needs, a good foundation for their knowledge and skills, with values anchored on the Islamic faith to prepare them for further learning and challenges in society today (Solaiman, 2017).

Madrasah plays a vital instrument that serve as educational institution for Muslim learners for transmitting Islamic values and culture. It is in this program that Muslim learners has the opportunity to enroll and learn the basic knowledge and understanding not only Arabic language but the Islamic culture and values as well.

As stated in the study of (Jamaluddin and Cadir, 2017) that Madrasah School is a significant part of the Muslim community, it aimed to mold and develop the young Muslim learners and the community people as a whole and make them a loving, responsible and productive citizen.

The Madrasah or Islamic education system Salain (2023) in the Philippines provides the standard curriculum for elementary public schools and private Madaris.

According to Solaiman (2017), it is a program to guide elementary schools and private madaris in the planning, teaching and assessing of Islamic Studies (including Islamic Values Education) and Arabic language within the context of the Philippine education. Moreover, it provides for an enriched teaching curriculum for public schools as Arabic Language and Islamic Values Education (ALIVE) are taught in addition to subjects in the K to 12 Basic Education Curriculum.

Relevant to DepEd Order 41, s. 2017 which states a policy on Madrasah Education Program (MEP) in the K to 12 Basic Education Program which aims to provide learners with appropriate and relevant educational opportunities while recognizing their cultural context and unique purposes for participating in the program offerings; and integrate content and competencies are relevant and of interest to Muslim learners, SDO Dasmariñas is continuously serving the needs of Muslim learning in achieving their goal through implementing the program following the refined Elementary Madrasah Curriculum as the heart of the program.

The study was conducted in order to determine the status of the Madrasah in the City Schools Division of Dasmarinas since the major researcher is the current in-charge of the Madrasah of CSDO Dasmarinas. The researcher wanted to have an empirical data on the said status of the implementation so that appropriate action and intervention be provided.

Research Questions

The purpose of the study is to determine the implementation of Madrasah Education Program in the City Schools Division of Dasmariñas during the school year 2022-2023 as basis for upgrading.

Specifically, it aimed to answer the following questions:

1. What is the present status of SDO Dasmariñas City in relation to MEP implementation in terms of:

1.1 number of schools offering Madrasah Education Program;
1.2 number of ALIVE Teachers (Asatidz); and
1.3 enrolment against the total population of Muslim learners in the division.

2. What are the challenges encountered by the schools in the implementation of the MEP?
3. Based on the results of the study, what proposal maybe recommended to improve Madrasah Education Program in CSDO Dasmarinas ?

METHODOLOGY

This study used the descriptive research design. Complete enumeration technique was used in this study based on the data gathered from the planning unit. Furthermore, the results of periodic monitoring and personal conversation with the school heads and school MEP coordinators from the implementing schools was also utilized to establish reliable and comprehensive discussion.

This study was conducted in public schools in the City Schools Division of Dasmariñas during SY 2023 as basis for the improvement of MEP implementation in the division.

RESULTS and DISCUSSION

Status of Madrasah Education Program Implementation SY 2022-202

Table 1

Implementing Schools & Teachers Profile According to Sex

School	Male	Female	Total
Sultan Esmael ES	3	2	5
San Miguel ES	1	0	1
Salawag ES	0	1	1
Dr. Jose P. Rizal ES	1	0	1
Dasmarinas IHS	0	2	2
Total	**5**	**5**	**10**

Table 1 shows the Implementing Schools in the CSDO of Dasmarinas. Based on the table, there are five (5) implementing Madrasah Education Program schools . From Sultan ES there are there (3) male teachers and two (2) female total of five (5) teachers, from San Miguel ES, there is 1 male teacher and no female teacher, total of one (1) teacher. From Salawag ES, there is no male teacher and one (1) female teacher total of 1 teacher.

With these data, 5 Implementing schools, 4 out of 28 elementary schools and 1 out of 24 high schools. The teachers total number is 10 making it inadequate.

Table 2
Asatidz Status of Employment

	Male	Female	Total
DepEd COS	4	3	**7**
National Item	0	1	**1**
LSB/LGU COS	1	1	**2**
Total	**5**	**5**	**10**

Table 2 shows the Asatidz status of employment. Based on Table 2 , there are 7 Azatidz under the Dep Ed Contract of Service, while the National Item for Azatidz is only 1, and under the LSB/ LGU Contract of Service is 2 Azatidz.

Based on this number of azatidz, there is a need to add more Asatidz teachers under the National Item so that more Azatids teachers would be encouraged to teach in Madrasah Education Program (MEP).

Table 3
Enrollment in MEP/ALIVE

School	Male	Female	Total
Sultan Esmael ES	261	241	502
San Miguel ES	11	15	26
Salawag ES	12	6	18
Dr. Jose P. Rizal ES	20	22	42
Dasmariñas IHS	13	24	37
Total	**317**	**308**	**625**

Table 3 shows the Enrollment in Madrasah Education Program or ALIVE of the Implementing Schools. Based on the data, Sultan Esmael ES has five hundred two (502) learners , San Miguel ES has twenty six(26) , Salawag ES has a total of eighteen learners, Dr.Jose P. Rizal ES has a total of forty two(42) learners and Dasmarinas Integrated HS has thirty seven (37) Muslim learners. The total number of Muslim learners enrolled in Madrasah Education Program is six hundred twenty five(625) Muslim learners.

Table 4
Enrollment in MEP against the total population of Muslim learners

No.	SCHOOL (Elementary)	Elementary Total			Enrolled in Madrasah/ALIVE			Total Percentage Enrolled		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Delfin J. Jaranilla ES	1	1	**2**	0	0	**0**	0.00	0.00	**0.00**
2	Dasmariñas ES	28	17	**45**	0	0	**0**	0.00	0.00	**0.00**
3	FEBMS	15	4	**19**	0	0	**0**	0.00	0.00	**0.00**
4	Humayao ES	1	1	**2**	0	0	**0**	0.00	0.00	**0.00**
5	Langkaan ES	12	8	**20**	0	0	**0**	0.00	0.00	**0.00**
6	Malinta ES	2	1	**3**	0	0	**0**	0.00	0.00	**0.00**
7	New Era ES	0	0	**0**	0	0	**0**	0.00	0.00	**0.00**
8	Paliparan ES	4	3	**7**	0	0	**0**	0.00	0.00	**0.00**
9	Paliparan III ES	31	24	**55**	0	0	**0**	0.00	0.00	**0.00**
10	Piela ES	3	1	**4**	0	0	**0**	0.00	0.00	**0.00**
11	Ramona S. Tirona MS	7	10	**17**	0	0	**0**	0.00	0.00	**0.00**
12	Sabang ES	3	0	**3**	0	0	**0**	0.00	0.00	**0.00**
13	Salawag ES	21	18	**39**	12	6	**18**	57.14	33.33	**46.15**
14	V. P. Villanueva MS	6	5	**11**	0	0	**0**	0.00	0.00	**0.00**
15	Z. H. Gana MS	2	1	**3**	0	0	**0**	0.00	0.00	**0.00**
16	Bautista ES	5	3	**8**	0	0	**0**	0.00	0.00	**0.00**
17	Burol ES	4	7	**11**	0	0	**0**	0.00	0.00	**0.00**
18	Dasmariñas II CS	112	131	**243**	0	0	**0**	0.00	0.00	**0.00**
19	Sta. Cristina ES	3	5	**8**	0	0	**0**	0.00	0.00	**0.00**
20	San Nicolas ES	34	30	**64**	0	0	**0**	0.00	0.00	**0.00**
21	Sta. Cruz ES	15	9	**24**	0	0	**0**	0.00	0.00	**0.00**

22	Dr. J. P. Rizal ES	94	72	**166**	20	22	**42**	21.28	30.56	**25.30**
23	San Miguel ES	26	40	**66**	11	15	**26**	42.31	37.50	**39.39**
24	Pintong Gubat ES	19	30	**49**	0	0	**0**	0.00	0.00	**0.00**
25	Salitran ES	43	35	**78**	0	0	**0**	0.00	0.00	**0.00**
26	Sultan Esmael ES	324	276	**600**	261	241	**502**	80.56	87.32	**83.67**
27	Victoria Reyes ES	2	2	**4**	0	0	**0**	0.00	0.00	**0.00**
28	Sampaloc ES	3	2	**5**	0	0	**0**	0.00	0.00	**0.00**
Total		820	736	**1556**	304	284	**588**	37.07	38.59	**37.79**
	Secondary									
1	Dasmariñas IHS	147	167	**314**	13	24	**37**	8.84	14.37	**11.78**

Table 4 shows the enrollment of learners in Madrasah Education Program against the total number of Muslim learners in CSDO Dasmarinas. Based on the data, there are schools with high number of enrolled Muslim learners but not offering Madrasah Education Program (MEP) such as Dasmarinas Elementary School with a total of forty five (45) Muslims learners, Paliparan III Elementary School has fifty five (55) Muslim learners, Dasmarinas II CS has two hundred forty three(243) Muslim learners, San Nicolas ES has sixty four(64) Muslim learners. Based on the data, out of twenty eight elementary schools, there are only four that is implementing Madrasah Education Program (MEP) and out of the total one thousand five hundred fifty six (1556) Muslim learners only five hundred eighty eight are enrolled equivalent to thirty seven and seventy nine percent 37.79%. While Dasmarinas Integrated HS is the only HS that implements Madrasah Education Program but still offering an MEP Elementary level. It has three hundred fourteen (314) Muslim learners but only thirty-seven (37) or eleven and seventy eight percent (11.78 %) enrolled in MEP.

Challenges Encountered

Plan of Action

References:

Tungkol sa may Akda

Alejo S. Filio Jr. alejo.filio@deped.gov.ph, Pansangay na Tagamasid sa Araling Panlipunan sa *City Schools Division of Dasmarinas, Department of Education.* Kabilang sa kanyang mga interes sa riserts ay ang tungkol sa lokalisasyon sa kurikulum, estratehiya at *pedagogy* sa pagtuturo, at pagtatasa o *assessment*.

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A Lexicological Analysis of the Harmonized Gender and Development Guidelines (HGDG) Box 7a Measurement for Gender and Development Research

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Abstract:

The research aims to investigate the language and semantics within a critical document for Gender and Development (GAD). It is vital for promoting inclusive and equitable development. This analysis provides insights for enhancing the effectiveness of gender-sensitive policies and practices, contributing to the empowerment of women and marginalized groups. The research utilizes lexicological analysis, examining vocabulary, word frequencies, and semantic nuances within the Harmonized Gender Development Guideline's "Box 7A Measurement." It involves a qualitative approach, focused on text analysis, to decode the linguistic features and patterns. The process includes data collection, text selection criteria, and frequency analysis of key terms. The research design aims to uncover how language influences GAD policy and inclusivity. The study's findings revealed notable patterns in the language of the HGDG's "Box 7A Measurement." Key findings include a frequent emphasis on terms related to "gender," "women," and "men," indicating a gender-centric focus. The use of interrogative language in the criteria suggests a question-driven approach to gender and development. Frequent use of acronyms such as "GAD" and "M&E" highlights the document's specialized terminology. The linguistic features promote gender inclusivity, aligning with the broader goal of enhancing capabilities and empowerment within gender and development initiatives. The research offers insights into how linguistic features influence gender and development policies. Understanding the language within guidelines like HGDG Box 7A can enhance gender inclusivity, align strategies with goals, and improve gender-focused initiatives.

Keywords: *gender development, lexicological analysis, linguistic features, gender inclusivity, gender policy*

Introduction

The quest for gender equality and inclusive development is a global concern, guided by the Harmonized Gender and Development Guidelines (HGDG) and its enigmatic element, Box 7A Measurement. This research employs lexicological analysis to decode its language. The study seeks to unveil hidden forces shaping gender and development approaches by exposing linguistic patterns, nuances, and insights within the text.

Statement of the Problem:

1. What are the patterns, trends, and linguistic features within HGDG's Box 7A Measurement?
2. How will Box 7A Measurement be analyzed lexicologically to identify recurring themes?
3. How will Box 7A Measurement be analyzed lexicologically in terms of thorough analysis, identification of linguistic

features, discussion of patterns and trends, and interpretation?

Objectives of the Study:

1. Analyze linguistic features within HGDG's Box 7A Measurement.
2. Identify recurring themes in the tool.
3. Analyze Box 7A Measurement through a lexicological process.

Significance of the Study:

a) Policymakers can refine gender policies.
b) Development practitioners can enhance programs.
c) Researchers can contribute to academic discourse.
d) Advocates can strengthen gender equality efforts.
e) Local communities can benefit from more inclusive policies.
f) Educational institutions can use research for teaching.
g) International organizations can enhance global initiatives.

Theoretical Framework:

The Capability Approach is used to assess the impact of policies within Box 7A Measurement. It focuses on gender equality, empowerment, participation, and intersectionality to examine how language promotes or impedes the advancement of women and marginalized groups.

Conceptual Framework:

a) Input: Textual content and language in Box 7A Measurement.
b) Linguistic Features: Word choices and language patterns.
c) Lexicological Analysis: Examines vocabulary, word frequencies, and semantic nuances.
d) Findings: Unveils patterns and trends in language usage.
e) Gender Inclusivity: Measures the language's endorsement of gender inclusivity and empowerment.
f) Empowerment: Reflects the capacity of language to promote empowerment.
g) GAD Outcomes: Evaluate the linguistic aspects' impact on gender equality and development.
h) Policy Implications: Considers how findings inform stakeholders in gender and development.

Interrelationships:

a) Language influences lexicological findings.
b) Findings impact gender inclusivity, empowerment, and GAD outcomes.
c) Outcomes carry practical implications for stakeholders.

Application:

This research deciphers Box 7A Measurement's language, benefiting policymakers, development practitioners, researchers, advocates, communities, educational institutions, and international organizations. It contributes to effective gender-sensitive policies and practices.

Methods

The study, "A Lexicological Analysis of the Harmonized Gender and Development Guidelines (HGDG) Box 7A Measurement for GAD Research," utilized a qualitative research design with a focus on text analysis, particularly lexicological analysis. This approach aimed to understand the content, language, and semantics within textual documents.

Participants

The research did not involve human participants but focused on the textual document "Box 7A Measurement" within the Harmonized Gender and Development Guidelines (HGDG).

Data Collection

The primary data source was "Box 7A Measurement," a tool of the HGDG. This tool was chosen due to its relevance to Gender and Development (GAD) research, significance within the HGDG, alignment with research objectives, accessibility, and potential contributions to GAD research. It was accessed online through the National Economic and Development Authority (NEDA) and the Philippine Commission on Women, responsible for GAD initiatives. The specific version used, publication date, and document details were documented.

Data Gathering Procedure:

1. **Selection of Textual Data:** "Box 7A Measurement" from the HGDG was selected based on its alignment with the research objectives.
2. **Access and Documentation:** The document was accessed from NEDA and the Philippine Commission on Women, with publication details documented.
3. **Data Extraction:** The selected section was carefully extracted from the HGDG to ensure its accuracy and completeness.
4. **Data Recording:** No data recording was conducted.
5. **Ethical Considerations:** Ethical considerations involve faithfully following the content of the tool.
6. **Quality Assurance:** The extracted text was cross-checked for accuracy and completeness.
7. **Version Control:** The study focused on the generic version of "Box 7A Measurement" within the HGDG.

This research approach allowed for a comprehensive lexicological analysis of the chosen text to understand its linguistic features and nuances, contributing to Gender and Development research.

Results

The analysis of the Harmonized Gender and Development Guidelines (HGDG) involves studying linguistic features and patterns. The title, "Harmonized Gender and Development Guidelines (HGDG) Box 7a Measurement for GAD Research," is broken down in a lexicological analysis to explain its key terms and acronyms. This title signifies a research area in gender and development, potentially including quantitative aspects. The content analysis focuses on specific criteria and sub-criteria:

Main Criterion - 1.0 Involvement of women and men: This emphasizes the active participation of both genders in decision-making, aligning with gender equality principles.

Sub-criterion 1.1 "Participation of women and men in beneficiary groups in problem identification": Highlights gender-inclusive problem identification.

Sub-criterion 1.2 "Participation of women and men in beneficiary groups in project design": Emphasizes gender-inclusive project design.

Main Criterion 2.0: Focuses on collecting "sex-disaggregated data" and "gender-related information."

Main Criterion 3.0: Highlights "gender analysis" and "identification of gender issues."

Sub-Criterion 3.1: Emphasizes holistic gender analysis, covering "gender gaps," "inequalities," "gender roles," "perspectives," "needs," and "access to and control of resources."

Sub-Criterion 3.2: Focuses on analyzing "constraints" and "opportunities" related to the "participation" of both "women and men" in a "project."

Main Criterion 4.0: Evaluate whether "strategies" and "activities" match "gender equality goals" and "gender issues."

Main Criterion 5.0: Questions alignment of "strategies" and "activities" with "gender issues" and "gender quality goals."

Main Criterion 6.0: Focuses on conducting a "gender analysis" to assess the "likely impact of the project."

Sub-Criterion 6.1: Questions if "women and girl children" are among the "direct or indirect beneficiaries" of a project.

Sub-Criterion 6.2: Asks if the project considers its "long-term impact on women's socioeconomic status and empowerment."

Sub-Criterion 6.3 - Gender Impact: Assesses if the project includes strategies to prevent negative impacts on women's welfare and status.

Main Criterion 7.0 - Monitoring Gender Equality: Evaluate if the project has gender equality targets and indicators.

Main Criterion 8.0 - Sex-Disaggregated Data: Examines whether the project's M&E system requires collecting sex-disaggregated data.

Main Criterion 9.0 - Resources: Deals with the needed resources, including financial, human, and data-related assets.

Sub-Criterion 9.1 - Budget Allotment: Examines if the project's budget is sufficient for gender equality and if counterpart funds are utilized.

Sub-Criterion 9.2 - Expertise and Capacity Building: Questions if the project has expertise in promoting gender equality and if staff time is dedicated to building capacities.

Main Criterion 10.0 - Relationship with GAD Efforts: Assesses the relationship between the project or entity and an agency's Gender and Development (GAD) efforts.

Sub-Criterion 10.1 - Building on LGU Commitment: Examines if the project strengthens the Local Government Unit's commitment to women's empowerment.

Sub-Criterion 10.2 - Leveraging Other Organizations: Check if the project utilizes the initiatives of other organizations in the area.

Sub-Criterion 10.3 - Exit Plan and Sustainability: Evaluate if the project has an exit plan ensuring the long-term sustainability of GAD efforts and their benefits.

Discussion

The study involved a comprehensive analysis of the "HGDG Box 7A Measurement" tool, focusing on linguistic elements to ensure alignment with gender and development frameworks. This analysis proceeded in four stages.

In the first stage, the examination centered on the tool's sentences and words, analyzing meaning, word formation, and distinguishing from connotations generated by the HGDG tool, falling under stylistic considerations. This phase emphasized understanding linguistic attributes like jargon, slang, verb tenses, dialects, grammar, lexicon, and phonology. Grammatical accuracy was emphasized as anomalies were deemed non-conforming in linguistic contexts (Jobert & Vincent Arnaud, 2010).

The 21st-century context highlighted the evolving nature of languages, necessitating gender sensitivity in the HGDG tool. The study emphasized the importance of clear application instructions within HGDG Box 7A. The tool's gender-based and gender-sensitive sentences were identified as guiding its effective utilization.

Three linguistic analyses were used to scrutinize the HGDG Box 7a Tool's lexicon, identifying words embodying Gender and Development (GAD) characteristics and aligning with the Philippine Magna Carta of Women's vision, mission, goals, and objectives.

The term "guideline" was linguistically defined as offering advice, information, or instructions to guide decision-making or action. Guidelines provide a flexible framework for achieving goals while maintaining linguistic elements like patterns, trends, and features (Biber & Conrad, 2009).

The study also delved into linguistic concepts such as "register," "genre," and "style." Registers referred to language varieties associated with specific social, occupational, or situational contexts, while genres were categorized discourse types with distinct conventions. Style encompassed choices in vocabulary, tone, and rhetorical devices, contributing to a piece's personality. The HGDG Guideline effectively used formal language, grammatical structure, and rhetoric to promote women's representation in society (Halliday, 1978).

Frequency analysis revealed recurring themes in HGDG Box 7a that aligned with Gender and Development goals, emphasizing women's and children's inclusion in research.

Lexicological analysis was deemed effective in uncovering essential elements and serving as guidelines for researchers and tool users. The findings paralleled the goal of gender equality, making research proposals more likely to gain approval (Parkinson, Millard, O'Hara, and Giordano, 2018).

In conclusion, the Harmonized Gender and Development Guideline, particularly Box 7a, displayed gender-sensitive language, promoting equality among men, women, and children. Through general, frequency, and lexicological analysis, the tool proved effective for measuring and evaluating gender-related aspects in development projects, both in the private and public sectors. This aligns with the goals and objectives of Gender and Development (GAD) (Taylor & Francis Online, 2023).

Conclusion/Recommendation

In conclusion, the analysis of the "HGDG Box 7A Measurement" tool from a linguistic perspective has revealed its effectiveness in promoting gender sensitivity and equality within the context of Gender and Development (GAD). The study encompassed a comprehensive examination of linguistic elements, emphasizing meaning, word formation, and clear guidelines for proper usage.

Here are the key takeaways and recommendations:

1. **Gender Sensitivity and Inclusivity**: The linguistic analysis demonstrated that the HGDG Box 7a is committed to gender sensitivity and inclusivity, as evidenced by the choice of words, sentences, and style. The guidelines within the tool emphasize the importance of considering the role and representation of women, children, and gender-related aspects in research. This aligns with the

overarching goals and objectives of GAD.

2. **Clear Application Instructions**: The study highlighted the significance of providing clear and precise application instructions within the HGDG Box 7a. Researchers and users of the tool must be able to easily understand and implement the guidelines to ensure that gender-related considerations are integrated into their work effectively.
3. **Linguistic Diversity**: The linguistic analysis recognized the importance of linguistic diversity, including factors such as jargon, slang, verb tenses, dialects, grammar, lexicon, and phonology. The study emphasized the necessity of accommodating this diversity while maintaining grammatical accuracy to cater to a wide range of users and contexts.
4. **Evolution of Language**: The study acknowledged the evolving nature of languages in the 21st century. The HGDG Box 7a needs to adapt to these changes while retaining its gender sensitivity. It should remain a dynamic and relevant tool that reflects current linguistic trends and patterns.
5. **Role of Registers, Genres, and Styles**: The analysis delved into the significance of registers, genres, and styles in linguistic communication. The tool effectively employed a formal register and genre to promote its goals, reflecting professionalism and formality. This style also encompassed a persuasive tone, encouraging users to align their research with gender equality objectives. It is recommended that the tool continues to employ a well-defined linguistic style that aligns with its mission.
6. **Frequency and Lexicological Analysis**: The use of frequency and lexicological analysis proved effective in identifying recurring themes within the HGDG Box 7a. This method can serve as a valuable tool for researchers and users to understand the essential elements and guidelines within the tool. It is recommended that future users consider incorporating such analyses to gain deeper insights into the content.
7. **Recommendation for Continuous Improvement**: To ensure that the HGDG Box 7a remains an effective and relevant tool, it is recommended that regular updates and revisions be carried out to reflect changes in language and evolving gender and development goals. Feedback from users should be actively sought and incorporated to improve the tool's effectiveness.

In summary, the linguistic analysis of the HGDG Box 7a has revealed a comprehensive and effective tool for promoting gender sensitivity and equality within the realm of Gender and Development. The tool's commitment to clear instructions, linguistic diversity, and alignment with gender goals is commendable. To further enhance its impact, it is recommended that the tool remains adaptable to evolving language patterns, maintains its persuasive style, and incorporates feedback for continuous improvement. The HGDG Box 7a stands as a valuable resource in the pursuit of gender equality and inclusive development practices.

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21st CENTURY SKILLS, DIMENSIONS OF LEARNING AND MATHEMATICAL COMPETENCE OF SELECTED GRADE 11 PUBLIC SENIOR HIGH SCHOOL STUDENTS: BASIS FOR MATHEMATICAL INTERVENTION PLAN

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Abstract

Mathematics is one of the key components of Education in the Philippines, but it is also considered as one of the hardest subjects among its line. The K to 12 curricula in the Philippines were designed to assure that students will learn holistically in all learning areas. The 21st century skills are one of its key priorities. Students must attain these skills to compete in international standards of education. However, the National Achievement Test showed that Mathematics is one of the subjects that got the lowest mean percentage score (MPS). Even the PISA assessment tells that Philippines got the second lowest score. It was also proven in the recent periodical test assessment of different schools in Mansalay district. There are still questions if the goal of K to 12 curriculum was attained.

Thus, researcher aimed to determine if there is a relationship between 21st century skills along with the different dimensions of learning affecting Mathematics competencies. It was found out that all indicators of Mathematics competencies are directly related to to 4c's of 21st century skills. Same results were obtained in the dimensions of learning versus Mathematics competence except assessment of student learning versus applying and understanding. This generally means that there is really an existing relationship between 21st century skills, dimensions of learning and Mathematics Competence.

Keywords: *21st century skills, Dimensions of Learning, Mathematics Competence*

Introduction

One of the foundational disciplines of the Filipino educational system is mathematics. It is in fact one of the most difficult subjects on the curriculum. Throughout the past few decades, researchers have been effective in pinpointing the various factors that significantly influenced pupils' achievement, particularly in mathematics.

Information is used in mathematics to represent and solve problems across all disciplines. It is a vast interdisciplinary field with a potent arsenal of tools for comprehending the universe. Given its relevance in education and many occupations, it is believed to be the foundation in practically all parts of academics. Given this, it is essential to possess sufficient mathematical proficiency to improve the world.

However, according to Duque and Tan (2018), there are concerns about how competence in mathematics would be attained, how this mathematical perception would endure after the students encounter several lessons, and how the students grasp all the mathematical ideas and methodologies over the course of several years. Since there are numerous factors that

can influence a student's performance, a few examples include environmental considerations (Andamon, 2018), sociological factors (Cordova, 2018), students' motivations and self-efficacy (Saligumba 2018), teaching processes and strategies. The need to stress these factors is necessary to reduce the rate of the students' aptitude for mathematics.

On the National Achievement Test (NAT), the outcome is extremely low, especially in the discipline of mathematics where it scored 28.7%, the lowest of all subjects for the academic year 2014–2015. Given that it fell short of the passing standard specified by the National Educational Testing and Research Center, this demonstrated that pupils genuinely do not acquire a mastery level of comprehension in mathematics (NETRC).

Another piece of evidence according to Lucas (2019) is the fact that the Philippines has never participated in an international assessment of basic education since the new K–12 curriculum was established. The Programme for International Student Assessment, or PISA, is a triennial test that evaluates the reading, math, and science skills of 15-year-old students from across the world. The outcomes in the Philippines are dismal. The lowest reading scores and second-lowest math and science scores were achieved by pupils from the Philippines. Children in the Philippines are nearly through with junior high school at the age of 15, demonstrating unequivocally that the country's basic education has serious problems in the early years.

Locally, the mean percentage score of the First Quarterly Examinations conducted at Mansalay District in School Year 2022-2023 resulted 59.91% which did not reach the standard level of Mean Percentage Score which is 75%. The following data shown reflects that the students of Mansalay District have difficulty in understanding math concepts particularly the Grade 11 Students. Thus, teachers were instructed to identify all the issues that affects Mathematics learning and prepare an intervention plan to mitigate the learning circumstances. The result of this study would be a great help to teachers particularly in strategies appropriate for their learners while attaining the goal of the K to 12 curriculum.

Methods

The study utilized a descriptive-comparative-correlational design. The respondents of the study were 265 randomly selected from 784 total population of Public Senior High school student in Mansalay disctrict. They are composed of 58 SHS students from Balugo National High School, 33 from Don Pedro High School, 134 students from Fe del Mundo National High School ad 40 from Manaul National High School. 265 pupils were chosen using Cochran's formula with precision level + -5, confidence level of 95% and estimated proportion of 0.5.

The study used a self-made instrument and skill test with three parts: (1) Manifestation of 21st Century Skills (2) Dimensions of Learning and (3) Level of Mathematical Competence. It was validated by three Master Teachers in Mansalay District. Upon validation, the reliability was tested using Cronbach's Alpha from the responses of the 20 non-respondent pupils from Manaul National High School. The computed reliability was: 0.817, critical thinking skills; 0.738, creativity; 0.866, collaboration; 0.877, communication; 0.827, student engagement; 0.738,

assessment of student learning; 0.822, classroom management; and 0.825, methods/ pedagogy.

In data gathering, approval from the Schools Division Superintendent of Oriental Mindoro was sought through a letter. Upon approval, coordination with the principals of the students as well the teacher-advisers were made.

The statistical tools used were Descriptive Statistics: Frequency, Percentage and Weighted Mean; Inferential Statistics: Spearman Rank Coefficient and Friedman's Test.

Data on the extent of manifestation of 21st century skills and dimensions of learning were measured using a four-point likert scale with its numerical scale, statistical limits and verbal description: 3.50 – 4.00: very high; 2.50 – 3.49: high; 1.50 – 2.49: low; and 1.00-1.49: very low extent. On the other hand, data on the level of mathematical competence were also measured using four-point likert scale with its numerical scale, statistical limits and verbal description: 3.50 – 4.00: exemplary; 2.50 – 3.49: proficient; 1.50 – 2.49: developing; and 1.00-1.49: emerging.

Results and Discussion

Extent of the 21st century skills manifested by Grade 11 Public Senior High School Students at Mansalay District

Critical Thinking Skills

Results show that students know how to manifest and use critical thinking skills to solve mathematical problems with the overall mean of 3.15, described as high. Furthermore, it implied that students could analyze and process data and information through critical thinking to arrive at conclusions and exact answers.

The result was in parallel to study of Alsaleh (2016) which stated that students who use critical thinking to arithmetic not only understand how to solve a problem, but also why it works. Students also employ critical thinking when choosing the most effective approach to a problem. Critical thinking is important and one of the key factors to understand Math Problems. It also revealed on his study that students with great critical thinking skills can easily work on Mathematics problems.

Creativity

All items under creativity were consistently described as high. Thus, it reflected that students were able to think of the best and unique way to comprehend and understand lesson related to probability distribution. Furthermore, the overall computed mean of 2.98 was described as high. This clearly manifested that learners were able to be more critical and creative in addressing Mathematics problems. They were able to use existing knowledge and turn it into a meaningful information that help them understand and comprehend Mathematics problems. In addition, students manifest creativity by thinking of best strategies fitted to their abilities, look at different angles and perspectives, identify and search for relevant information and create own solutions and formula. This way students were able to easily answer Mathematics problems as easy and creative as possible.

Collaboration

Results showed that almost all the indicators in collaboration are consistently high. This result clearly manifested that students were able to work as team or

groups to produce best outputs and to learn probability distribution the easiest way. The overall all mean of 2.98 described as high implied that students manifested high collaborative skills because they were able to work in teams and groups while achieving one goal, set team goals and objectives and encourage full involvement of members in all group activities and reports.

The study of Selwyn (2019) asserted that effective collaboration requires the ability to listen. For students to work well in groups, they must improve their listening abilities. Students learn active listening skills through focused instruction, practice, and observation of teachers and staff members modeling these skills for them in the classroom. Curiosity is put to the test while cooperating. This suggested that in addition to honing their listening abilities, students should also learn the skill of asking questions that invite thoughtful reflection and active participation and engagement.

Communication

The responses of the students consistently described as High. This implied that student respondents manifested high communication skill for they can comprehend Mathematics problems easily if they communicate with peers and teachers. This is reflected in its overall computed mean of 3.12 described as high. This result implied that students could communicate with other learners and peers to share their existing knowledge and insights about the topic. High capacity to exchange of conversation related to the topic enable them to concretize their knowledge related to the topic. Other indicators were also described as high and obtained mean between 2.97 to 3.21. This result clearly indicated that students manifested communication skills that enable them to express their thoughts, report findings in class and present information in clear and precise way.

Extent of the dimensions of learning manifested by Grade 11 student

Student Engagement

Means were almost consistently high in all indicators for student engagement. This is reflected in the overall computed mean of 3.25 described as high. This result implied that Grade 11 learners are well-engaged and hooked in their Mathematics class. This further means that the students were able to participate in class discussions, share relevant learnings to class, join different class discussions and activities, pay attention to facilitators and more.

This result has something to do with Willms et al.'s (2009) study that fostering student engagement and involvement in class makes is a better way to enhance Mathematics learning as easy as possible. It asserted that high school students receive the majority of focus regarding student engagement as they are the demographic where disengagement is most prevalent. Student involvement was primarily designed to address or reengage/reclaim a minority of mostly socioeconomically disadvantaged children who were in danger of dropping out of high school.

Assessment of Student Learning

As reflected in the results, the students affirmed that their respective teachers do their best to assess the needs in learning of their students. This is evident to the computed mean score of 3.32 described as high. All responses for assessment of

student learning were almost consistently high. The results manifested that teachers are greatly doing their job particularly in giving assessments and feedback to the performance of their learners. Teachers' jobs in assessing student learning includes reflections, student motivation and student enrichment. Furthermore, the result showed that the teachers highly observed proper assessment in Mathematics subject as evidenced by its obtained mean score.

The result is in consonance to Albert Bandura's Social Learning Theory. It is asserted that students tend to study more if they were rewarded with high grades and if teachers continuously monitor student's performance through assessment. Students seems to refrain from learning when not properly assessed. Furthermore, math exams that are truly assessed focus more attention on a student's analytical abilities, their capacity to integrate what they have learned, their creativity, and their writing and spoken communication skills. There are six ways to include a realistic evaluation of math in the classroom: performance assessments, fast investigations, open-ended questions, portfolios, self-assessment, and multiple-choice questions.

Classroom Management

All items had high extent means. This further implied that the school manifested a conducive learning environment and classroom to foster effective learning. This is evident to the overall computed mean of 3.39 described as high. This implied that the learning environment where the students were exposed were able to provide healthy relationship between other members of the school. This finding is in lined to the definition of classroom management of Hernandez (2018), stating that classroom management is not only about the classroom structure itself but it is also about classroom climate like healthy intrapersonal relationship of one classroom community to others.

Methods/ Pedagogy

As shown on the results, the indicator, "My teacher makes connections between mathematics and other disciplines." ranked first and obtained the highest mean score of 3.48 described as high. This implied that teachers are doing a great job to make sure that there is an integration of subject within and across the curriculum areas. This result affirmed that the teachers are consistently aligning their teacher methods to what the Philippine Professional Standards for Teachers want them to do. The PPST dictates the different objectives and standards that teachers should possess and that includes teaching strategies and methodologies.

Level of Mathematical Competence of Selected Grade 11 Public Senior High School Students at Mansalay District in terms of:

Understanding

The results indicated that 176 out of 265 or 66.42% of students demonstrated an exemplary performance in understanding the problem. This is being followed by 75 or 28.3% who are proficient. Next, is the group who are still developing which is composed of 13 students or 4.91%. The remaining students, or 0.38% are still emerging.

The result showed that the majority or more than half of the students can exemplarily understand the given skills test

related to probability distribution. This further implied that most of the learners can comprehend the problem. This is evident to the computed mean of 3.60 described as exemplary.

Computing

As can be gleaned on the results, 117 out of 265 or 44.15% of the respondents perform exemplarily in skills test in terms of computation. This is followed by 99 students or 37.36% who performed proficiently. Next are 47 students or 17.74% who are developing. Only 2 students or 0.75% are still emerging in computational skills.

The data revealed that less than majority can perform exemplarily and proficiently in computation. This is evident to the weighted mean of 3.25 described as proficient. This result is in lined to the findings of Nayan (2018) that most of the students can compute properly if they know what process is of doing so and if they were able to conceptualize computational process. In his study among STEM students, it was revealed that almost half of the students are good in computational skills.

Applying

As shown on the results, 86 out of 265 or 32.55% of the respondents performed proficiently in skills test. This is followed by 73 or 27.55% of the respondents who performed exemplarily.69 or 26.04% are still developing. Lastly, there 13.96% of the students who are still emerging. The overall mean is 2.72 described as proficient. The table clearly showed that although the mean was described as proficient, students should still enhance application skills of the lesson for many of the respondents are still under developing and emerging. Though students were able to successfully compute mathematical problems, it is revealed that most of them are struggling on how to apply these lessons in real-life situations.

The result was anchored on the study of Santillan (2019) stating that learning is not learning if the students were not able to identify the lesson's use in daily life. Students should be able to perform both in computation and application.

Reasoning

As reflected on the results, 153 out of 265 respondents or 57.74% were able to reason out exemplarily. 66 or 24.91% of the entire respondents were proficient in reasoning skills. There are still 25 or 9.43% who are still developing in this skill. Finally, only 21 respondents or 7.92% are still emerging. The overall weighted mean is 3.32 described as proficient. This result implied that almost all of the respondents were able to reason out and explain their answers because almost all of them fall under proficient and exemplary.

Relationship between the level of 21st Century Skills and Mathematical Competence of Grade 11 students

As can be gleaned on the table, critical p value for critical thinking, creativity, collaboration and communication versus understanding (.000), computing (.001), reasoning (.000) and applying (.000) failed to exceed the .05 level of significance. This, therefore mean that there is significant relationship between the 21st century skills in terms of critical thinking and the indicators for the

mathematics competence. Thus, the null hypothesis is rejected.

Generally, the data revealed that there is significant relationship between the extent to which the students manifest the 21st century skills and their level of Mathematical Competence through skills test. This signified further that the students' Mathematics competence is directly related to their manifestation of 21st century skills. The 21st century skills that they manifested give an assurance that they would perform best in Mathematics skills test as a measure for Mathematical competence.

Table 1

Correlation Results Between 21st Century Skills and Mathematics Competence of Grade 11 Students

Variable		Understanding	Computing	Reasoning	Applying
Critical Thinking Skills	Correlation Coefficient	.277**	.206**	.214**	.263**
	p value	.000	.001	.000	.000
	N	265	265	265	265
Creativity	Correlation Coefficient	.258**	.175**	.157*	.238**
	p value	.000	.004	.011	.000
	N	265	265	265	265
Collaboration	Correlation Coefficient	.285**	.256**	.232**	.209**
	p value	.000	.000	.000	.001
	N	265	265	265	265
Communication	Correlation Coefficient	.191**	.173**	.164**	.146*
	p value	.002	.005	.007	.018
	N	265	265	265	265

Relationship between the level of Dimensions of Learning and Mathematical Competence of Grade 11 students

Table 2 shows the computed correlation between Dimensions of Learning and Mathematical Competence of Grade 11 students.

As shown on the table below, the p value for student engagement, classroom management, methods and pedagogy versus understanding (.000), computing (.000), reasoning (.000) and applying (.000) failed to exceed 0.05 level of significance. This indicated that there is a significant relationship between the dimensions of learning in terms of student engagement and the indicators of Mathematics competence.

Generally, the results implied that only assessment of student learning is not directly related to dimensions of learning in terms of computing and reasoning. This further means that as teachers continuously and effectively assess and monitor students' progress, it could not directly affect students' computational and reasoning skills. Other manifestation of student engagement, assessment of learning, classroom management and methods/

pedagogy have anything to do with Mathematical competence. This also means that generally, dimensions of learning are factor that influence Mathematics competence through skills test.

Table 2

Correlation results between Dimensions of Learning and Mathematics Competence

Variable		Understanding	Computing	Reasoning	Applying
Student Engagement	Correlation Coefficient	.330**	.214**	.189**	.356**
	p value	.000	.000	.002	.000
	N	265	265	265	265
Assessment of Student Learning	Correlation Coefficient	.189**	.091	.078	.155*
	p value	.002	.139	.204	.012
	N	265	265	265	265
Classroom Management	Correlation Coefficient	.269**	.194**	.299**	.284**
	p value	.000	.002	.000	.000
	N	265	265	265	265
Methods/ Pedagogy	Correlation Coefficient	.210**	.160**	.270**	.269**
	p value	.001	.009	.000	.000
	N	265	265	265	265

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Difference on level of 21st Century Skills of Grade 11 Students

Table 3 shows the significant difference on level of 21st Century Skills Using Friedman's Test. As can be gleaned on the table, the computed p value of .000 does not exceed the significance level of 0.05 with a degree of freedom 3. This further implied that the result is statistically significant which means that there is a significant difference on the level of 21st century skills of the student respondents. Thus, reject the null hypothesis.

The result further indicated that every respondents have different extent of manifestation on the different indicators of 21st century skills. This could be due to fact that every students have differences and they have different coping mechanisms in the different 21st century skills.

Table 3

Significant difference on level of 21st Century Skills Using Friedman's Test

Test Statistics[a]		Interpretation
N	265	Significant
Chi-Square	177.982	
Df	3	
P value	.000	

Difference on the Dimensions of Learning of Grade 11 Students

Table 4 shows the computed difference on the extent manifestation on the dimensions of learning of grade 11 students using chi-square test.

The computed p value of .000 failed to exceed the 0.05 level of significance at degrees of freedom 3. This further implies that the results is statistically significant. This means that there is a significant difference on the extent of manifestation of the different dimensions of learning as assessed by the student respondents. Thus, the null hypothesis is rejected.

Considering the result, it clearly implied that the responses of the students differ. This could be because they are being taught by different teachers, they have different learning styles, they are from different learning areas and their teachers have different ways on assessing their students' progress.

Table 4

Significant Difference on the Dimensions of Learning of Grade 11 Students

Test Statistics[a]		Interpretation
N	265	**Significant**
Chi-Square	31.931	
Df	3	
p value	.000	

Significant Difference on the Mathematical Competence of Grade 11 Students

Table 5 shows the significant difference on the Mathematical Competence Using Friedman's Test.

Based on the results, the computed p value of .000 failed to exceed the significant level of 0.05 making it significant. This further implied that there is a significant difference on the Mathematical competence of the student respondents. Thus, the null hypothesis is rejected.

Considering the results, the student respondents differ on how they perform in Mathematics competence through skills test. This could be based on the fact that every students have different level of capacity and understanding on how to deal with the Mathematics problem and how they put meaning on it.

Table 5

Significant difference on the Mathematical Competence Using Friedman'sTest

Test Statistics		Interpretation
N	265	Significant
Chi-Square	160.521	
Df	3	
p value	.000	

The Proposed Project

The proposed project is a Mathematics Intervention Plan that aimed

to intensify students' ability to solve mathematical problems. This project was conceptualized upon knowing that there are students who are still developing and emerging in their Mathematics competence. This Mathematics intervention plan features a strategy of adding 30 minutes a day to focus on vital procedures in problem solving.

Conclusion/Recommendation

Based on the findings of the study, it is concluded that the Grade 11 students manifest proficient 21st century skills particularly in communication, collaboration, critical thinking and creativity. Mathematics teachers of Grade 11 students were able to assess student's learning, provide conducive learning environment and utilize appropriate teaching methodologies to all learners encountering difficulties. In addition, Grade 11 learners exhibit exemplary skills in Mathematics competence particularly in understanding and proficient skills in computing, applying and reasoning. Furthermore, the 21st century skills affect the performance of Grade 11 students in the Mathematics competence through skills test. Manifestation of 21st century skills would give an assurance of good Mathematical competence. Also, the different areas of dimension of learning has something to do with the mathematics competence results of the students. The respondents have different extent of manifestation of 21st century skills. Also, different extent on the manifestations in different dimensions of learning was also revealed. The respondents have different capabilities performing Mathematics Competence. Lastly, intervention plan like project ELEVATE is proposed as reflected on the results of the study.

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SENIOR HIGH SCHOOL STUDENTS' PROFILE, ATTITUDE AND PERFORMANCE TOWARDS STATISTICS AND PROBABILITY: BASIS FOR INTERVENTION PROGRAM

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Abstract:

In comparison to other subjects in the curriculum, student performance in mathematics is mostly poor among the learners. This study determined the attitudinal level and performance of the senior high school students in Mansalay District when teaching statistics and probability. Findings showed that Grade 12 students frequently have a favorable attitude toward statistics and probability in terms of behavioral, cognitive, emotional, interest, and value. The fair level of performance in Statistics and Probability for SY 2022-2023 among the Grade 12 students in Mansalay District can be attributed to the implementation of blended learning modality during the course of study in the subject. There is a statistically significant relationship between the students' profile and their performance. Students' attitudes toward statistics and probability depend on whether they like numbers. Their attitude toward the subject drives their behavior and shapes it. To enhance the students' performance in statistics and probability, It is crucial to incorporate interactive activities such as quizzes and assignments alongside the discussion. Teachers may be provided with professional development opportunities focused on improving instruction in statistics and probability. This training may also cover tactics for engaging students, promoting active learning, and evaluating student comprehension utilizing videos. Intervention activities may be utilized, applied and implemented by teachers to eliminate difficulties experienced by the students in statistics.

Keywords: statistics and probability, performance, attitude

Introduction

Statistics and probability are only included in the curriculum of higher education institutions in the Philippines during the previous iteration of the country's educational system, where they are taught in conjunction with other math-related classes. However, the K–12 curriculum that was implemented in accordance

with Republic Act 10533 ensures that education is improved all the way through the Philippine basic education system. This is accomplished by enhancing the curriculum in place, as well as increasing the number of years that students spend in primary school. In addition, funds are now made available as the K–12 curriculum has been part of secondary education. As a result, mathematics teachers in senior high schools are required to have knowledge of the subject, as stated by Bulagtas et al. (2019). In addition to that, the issue will assist the students in the utilization of statistical techniques within their individual research projects.

The students need much expert assistance in mathematics and other allied subjects like statistics. According to Robas (2020), the most significant barrier to efficient learning is a pessimistic outlook in life, which is also the most common cause of these problems. Even though there has been a lot of focus placed on the key aspects in students' performance in statistics, there is still a need to build on new knowledge surrounding attitudes toward statistics.

Statistics and probability is a part of the SHS curriculum and is taught for five months. Recent observations in the previous years made by Oliveira et al. (2019) show that student's attitude towards the subject manifests difficulty and lack of interest, and their performance is below average. There have been few studies on the attitudes of senior high school students toward mathematics and its performance which has gotten a lot of attention. According to research, elements like motivation, computational skills, discipline, attitude and behavior have an impact on student accomplishment. Despite these efforts, developing a conceptual understanding of probability seems to be a tough endeavor riddled with ambiguity and deception.

The study's findings could shed some light on other areas, aside from students' attitude and perspective that help enhance the teaching and learning of statistics and probability concepts, as well as the achievement of secondary school students. Though, this presents an opportunity to assess how students regard the subject Statistics and Probability at the beginning of the semester and toward the end. Hence, this study determined the attitudinal level and performance of the senior high school students in Mansalay District when it comes to teaching statistics and probability. This study provided baseline data in the student-based instructional plan. The study suggested that attitude has an impact and influences statistical literacy, based on Eccles et al.'s (1983) Expectancy-Value Theory, theory of constructivism built from the work of Paper and Piaget, and Bandura's (1977) Social Learning Theory).

Methods

The descriptive – correlational method of research was employed in the study conducted in public secondary schools in Mansalay District

with four (4) public secondary schools offering Senior High School Program.

The respondents of this study were the selected 480 Grade 12 students of Mansalay District through Proportional Stratified Random Sampling Technique and Raosoft sample calculator was used. With a 5% margin of error, at a 95% significance level, the recommended or computed sample size is 480. The grade 12 Students were selected since they already finished the subject Statistics and Probability in Grade 11.

The main instrument used in this study was a researcher-made questionnaire. The questionnaire was composed of the profile of students in terms of age, gender, socio-economic status and strand taken. Part 2 was focused on the students' attitude in learning Statistics and Probability. Part 3 of the questionnaire measures the students' performance in Statistics and Probability which is a 50-item test to be administered to the respondents.

Upon validation, the reliability was tested using Cronbach's Alpha from the responses of the 10 non-respondent pupils from Balugo National High School. Based on the reliability test conducted, the research instrument is valid and reliable as evident by the r-values of 0.8600,0.7322,0.8292,0.7377,0.8081 and 0.8458 indicates that the instrument is acceptable and reliable. In data gathering, approval from the Schools Division Superintendent of Oriental Mindoro was sought. Upon approval, coordination with the principals, teacher-advisers and students was made.

To assess the respondents' response on the attitude of students towards statisiccs and probability, a Likert scaling technique was used composed of statistical limits and verbal descriptions such as: 3.50-4.00: Always; 2.50-3.49: Often; 1.50-2.49: Sometimes; and 1.00-1.49: Rarely. The scale used in quantifying the Level of Students Performance in Statistics and Probability are: 80-100%: Outstanding; 60-79%: Very Satisfactory; 40-59%: Satisfactory; 20-39%: Fair and 0-19%: Needs Improvement. The statistical tools used were Descriptive Statistics: Weighted Mean, Frequency Percentage and Chi-Square.

Results and Discussion

1. Profile of SHS Students

The profile of SHS Students in terms of age showed that the mean age of the students is 18 and that mostly are female. Additionally, the profile of the students in their socio-economic status, 52.92% of the students has a gross family income of P5,500 to P11,000.

2. Students' attitude towards Statistics and Probability

Behavioral

Results shows the highest mean (m=3.42) in item 1 where the students agree and are often present in the subject statistics. Students are often present in the class and avoids making unexcused absences. The lowest mean (m=2.55) in item 7 indicates that the students often agree that they have their own way of doing statistics. This

implies that they perform their own way of learning in statistics. An overall mean of 2.97 shows that the students agree that their attitude towards the subject is generally positive. Relative to these results are the study by Calma et al (2022) that students agree that positive attitude statements and students have anxious and varying feelings when studying Statistics and Probability. The students' attitude in terms of their behavior to learning Statistics and Probability includes a range of consistent learning behaviors which demonstrate the aspiration to achieve their best. Hence, providing a supportive and inclusive learning environment, along with clear explanations and hands-on activities, can help foster positive attitudes and engagement among students in statistics.

Cognitive

The highest mean of 3.13 indicates the students agree that they often understand statistics equations. Whereas the lowest mean of 2.49 in item 4 shows that the students often agree in not facing problems in statistics because of their thinking style. An overall mean of 2.85 showed that the students often agree on their attitude towards the subject in terms of cognitive. According to research done by Melad (2022), the cognitive attitude of the learner toward the topic plays a significant part in the student's overall learning performance as well as their level of achievement.

Students' cognitive processes and approaches towards statistics can vary depending on their prior knowledge, learning styles, and problem-solving strategies. As a result, students will be driven to learn, practice, and master Statistics and Probability if they understand its importance in their life. This also shows that, despite having varying views toward mathematics, the majority of pupils displayed favourable cognition regarding the topic.

Emotional

Results showed the highest mean (m=3.05) showed where students often agree that they found the computations and other tasks in the subject exciting. While the lowest mean of (m=2.25) indicates the students often agree that they don't feel stressed during the subject. An overall mean (m=2.77) showed that the students often agree on their emotions towards the subject. Students attitude in terms of emotion towards the subject often reflects a student's self-confidence, enjoyment, motivation and anxiety levels when it comes. This suggests that students' emotions towards statistics can vary widely depending on their individual experiences, prior knowledge, and personal dispositions. As students delve deeper into statistics, they may encounter challenging problems or struggle to grasp certain concepts. Students may find statistical analyses and interpretations difficult, leading to a sense of frustration with the subject.

According to Buckley (2019), emotions in the classroom have two fundamental components: how much a student values what they are doing and the extent to how much control the

student believes he or she has over a task.

Interest

It was indicated (m=3.09) the highest mean as the students often agree in wanting to develop their rational thinking in the subject statistics and probability, whereas the lowest mean (m=2.68) indicates that the students often agree in spending more time in studying the subject at home and school.

An overall mean (m=3.04) indicates that students often agree on their interest in the subject. This implies that the students' positive interest in the subject reflected the attitudes due to personal interest levels for statistics. This supports the findings by Singh (2022) that interest is one of the attitudinal and influential variables that are predictors of students' achievement in learning Statistics and Probability.

It can be observed in a common classroom setting that some students tend to lose focus or shift their attention when the teacher discusses probability concepts. Hence, students manifesting interest can lead to academic engagement, typically with positive effect which in turn can lead to learning gains and improve achievement.

Value

Results show that the highest mean of 3.12) shows that students often agree that statistics is required in their SHS training. This means that the students value the subject because they need to understand and will be able to apply it during their immersion and training. While the lowest mean of 2.87 in item 5 indicates that the students often find statistics as a useful tool in their field of study. An overall mean of 2.94 showed that the students' attitude often values the subject probability and statistics. Relative to this is the study by Nolan et al. (2022), that boosting students' values may also enhance their confidence in their abilities to interpret statistical data and solve problems utilizing statistics outside of the classroom.

This suggests that teachers ought to emphasize the value of statistics in order to cultivate more favorable attitudes toward statistics and ought to seek to lessen the fear of statistics as an initial step in the instructional process. It is essential to highlight the value and practical significance of statistics in students' lives and future careers.

3. Level of performance in Statistics and Probability for SY 2022-2023

There is a fair level of students' performance in Statistics and Probability with an attained mean of 76.86. The subject Statistics and Probability is offered and taken by students in Grade 12 and these shows that after the school year, at present the students' performance level is fair and needing further intervention or enhancement based on their previous learning experiences.

Table 1
Relationship between the profile of SHS Students to their attitude towards Statistics and Probability

IV. Profile of SHS Students	IV. Attitude towards Statistics and Probability														
	Behavior			Emotional			Cognitive			Value			Interest		
	Chi-square value	p-value	result	Chi-square value	p-value	result	Chi-square value	p-value	result	Chi-square value	p-value	result	Chi-square value	p-value	result
Age	.284	.001	S	.732	.000	S	.224	.650	NS	.232	.973	NS	.000	.472	NS
Gender	.000	.031	S	.002	.002	S	.000	.000	S	.076	.006	NS	.003	.035	S
Strand	.003	.006	S	.001	.155	NS	.001	.000	S	.017	.011	S	.003	.112	NS
Socio-Economic	.037	.016	S	.185	.001	S	.000	.000	S	.172	.000	S	.003	.004	S

Level of Significance: 0.05
Significant: S
Not Significant: NS

As to the students age, the chi-square values of .284 in behavior, .732 in emotional, .224 in cognitive and .232 in value attitude shows that there is no significant relationship to their attitude while the p=value of .000 shows that there is a significant relationship between the age and the students interests. On the other hand, the students Gender shows a significant relationship to their attitudes in terms of behavior, emotional, cognitive and interests as shown by the chi-square values of .000, .002, .000 and .003 which does not exceed the p=value of .05. While a p-value of .076 shows that the students' Gender is not significantly related to their value attitude. Moreover, the students strand in SHS as shown by the p-values of 0.003, 0.001, 0.001, 0.017 and 0.003 respectively indicates that there is a significant relationship to their attitude. Additionally, the socio-economic status of the students indicates a p-value of 0.037, 0.000, and 0.003 in their behavior, cognitive and interests.

Table 2
Relationship between the profile of SHS Students to their performance

IV. Profile of SHS Students	DV. Students' Performance		
	Chi-square value	p-value	Results
Age	1818.878	.000	Significant
Gender	456.743	.000	Significant
Strand	849.947	.000	Significant

Socio-Economic	1164.478	.000	Significant

Level of Significance: 0.05

Statistics showed that the p-value of 0.000 is less than the significance level of 0.05, the null hypothesis is rejected. Relevant to this, the students' profile in age, gender, strand and socio-economic factors and performance provides the general background of how a student is progressing.

It is essential to recognize that while these factors can have an influence, they do not determine a student's math performance. Each student is unique, and individual variation within these factors is significant. Effective teaching strategies, differentiated instruction, personalized support, and interventions targeted to address specific needs can help students optimize their math performance, regardless of their profile.

Table 3
Relationship between the students' attitude towards in Statistics and Probability and their level of performance

IV	DV	Chi-square Value	P-value	Result
Behavior	Performance of Students	638.321	.036	Significant
Cognitive		628.326	.000	Significant
Emotional		619.614	.002	Significant
Value		1139.571	.000	Significant
Interest		616.373	.000	Significant

The p-values of 0.036, 0.000, 0.002, 0.000, and 0.000 correspondingly are less than the significance level of 0.05, and the choice is made to reject the null hypothesis. Students' perception of the relevance of statistics to their goals and interests can influence their motivation and performance. When students understand how statistics can be applied in real-life situations or in their chosen field of study, they are more likely to see the value in learning the subject and be motivated to perform well. Conversely, students with a fixed mindset believe that their abilities are fixed traits and cannot be significantly developed. They may perceive statistics and probability as inherently difficult or outside their capabilities. This fixed mindset can limit their motivation, effort, and willingness to take risks, negatively impacting their performance. Thus, Educators play a crucial role in shaping students' attitudes towards statistics and probability. By fostering a positive and supportive learning environment, providing engaging and relevant instruction, and addressing students' concerns and challenges, educators can help cultivate a more positive and motivated attitude, leading to improved learning outcomes in statistics and probability.

Conclusion/Recommendation

Based on the results of the study, the conclusions are drawn accordingly. Students frequently have a favorable attitude toward probability and statistics in terms of their behavioral, cognitive, emotional, interest, and value. Moreover, the students' performance shows that there is a low retention skills. The fair level of performance in Statistics and Probability for SY 2022-2023 among the Grade 12 students in Mansalay District can be attributed to the implementation of blended learning modality during the course of study in the subject. The students age, gender, strand and socio-economic status is significantly related to their attitude towards statistics and probability subject. There is a statistically significant relationship between the students' profile and their performance in the subject. Students' attitudes toward statistics and probability depend on whether they like numbers. Their attitude toward the subject drives their behavior and shapes it. Those with fair behavior and cognitive talents may get low grades, while those with positive attitudes may get great grades. Their emotional state and interest in the subject may also affect their performance. These attitudes vary in behavior, cognitive ability, emotional, values, and interest in how valuable the subject is to them. The proposed intervention program will focus on developing the students' attitude towards Statistics and Probability. With the goal of addressing students' needs, this proposed intervention program is made to pinpoint students identified learning gaps, close achievement disparities caused by grade-level transitions, and close those gaps.

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Exploring Plagiarism: A Phenomenological Investigation among College Students at a State University

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Abstract:

Plagiarism is a pervasive issue in higher education, warranting in-depth investigation to understand its nuances and develop effective interventions. This study, titled "Exploring Plagiarism: A Phenomenological Investigation Among College Students at a State University," aims to comprehensively examine plagiarism among students in a state university context. The research conducted a thorough analysis of participant demographics, encompassing age, gender, ethnicity, academic discipline, academic level, socioeconomic status, geographic location, English language proficiency, educational background, and personal values. It rigorously investigated the prevalence and types of plagiarism, delving into underlying factors contributing to academic dishonesty. Additionally, it explored the impact of plagiarism on academic performance and ethical values. Findings revealed a diverse student population, highlighting the complexity of plagiarism's manifestations. The study identified prevalent types of plagiarism, including direct copying, inadequate citation, and unauthorized collaboration. Factors such as time constraints, knowledge gaps in citation practices, academic pressures, and cultural differences were recognized as key contributors. Plagiarism emerged as a detriment to both learning quality and ethical development. Building upon these results, the study proposed a set of actionable recommendations to prevent plagiarism and promote academic integrity. These strategies encompass tailored awareness campaigns, ethics workshops, faculty mentoring, technology integration, peer review processes, clear guidelines, academic honor codes, and mental health support. In conclusion, this research contributes to a nuanced understanding of plagiarism in higher education and offers practical guidance for creating an environment that upholds originality, honesty, and responsible scholarship.

Keywords: *plagiarism, academic integrity, college students, phenomenological investigation, State University*

Introduction

Plagiarism, as defined by the Oxford English Dictionary Online (2023), is the act of presenting someone else's work as your own, with or without permission, without giving proper credit. This encompasses all forms of content, including those generated by artificial intelligence (AI). It also includes reusing one's own

work without appropriate citation, which violates academic integrity. During the pandemic, there was a notable increase in student plagiarism, particularly among high school students. Gullifer and Tyson (2010) highlight growing concerns associated with the internet and distance learning. This research focuses on understanding plagiarism among college students, using surveys and interviews to explore motivations, consequences, and prevention strategies, with the ultimate goal of promoting academic integrity.

This study delves into plagiarism among college students in Cavite, Philippines, utilizing qualitative methods to investigate its prevalence, types, causes, and impact. While the findings may not be universally applicable due to sampling constraints and a narrow focus, they contribute valuable insights to the existing body of literature on plagiarism. Educators can benefit from this research by gaining a deeper understanding of how to foster academic integrity, and it addresses broader societal concerns related to research ethics. Additionally, this study offers students insights to help safeguard their academic and professional futures.

Albert Bandura's Social Learning Theory (1963) serves as the theoretical foundation for this study, offering a framework for exploring how students acquire and adopt plagiarism behaviors through observation, reinforcement, and habit formation. Personal factors such as attitudes, risk perception, and self-efficacy, combined with environmental factors like peer pressure and institutional culture, influence decisions related to plagiarism. These factors are interconnected, resulting in the complex behavior of plagiarism. Addressing this issue necessitates a holistic approach that emphasizes academic integrity, proper citation practices, and ethical behavior. An interpretivist paradigm aligns with the study's qualitative research methods, emphasizing the socially constructed nature of reality and seeking to understand individual experiences within their social and cultural contexts. This approach also recognizes the subjectivity of researchers and emphasizes transparency and reflexivity in the research process.

The research was conducted during the second semester of 2022-2023 at Cavite State University – General Trias City Campus, situated in General Trias City, Cavite, Philippines. The study centers specifically on plagiarism among college students in this locality, employing qualitative methods to examine its prevalence, types, causes, and consequences. It is worth noting that the research's scope is limited, with a sole focus on plagiarism, and does not encompass other aspects of academic integrity. Additionally, constraints, such as resource limitations, affected the depth of the study's findings.

Methods

This study employs a phenomenological approach to investigate plagiarism among college students at a state university. Phenomenology, a qualitative research method, aims to comprehend the lived experiences of individuals within a specific context. The researchers focused on understanding college students' experiences, perceptions, and attitudes related to plagiarism.

The researchers selected 25 college students through purposeful sampling, ensuring diversity in academic discipline, academic level, and demographic

backgrounds. Ethical precautions were taken to protect participant identities.

In-depth interviews were conducted with participants, involving written questionnaires delivered via email. Participants were encouraged to respond honestly and clearly at their convenience. This method allowed participants to prepare emotionally and privately for their responses.

The researchers systematically organized, interpreted, and extracted meaning from the collected data. They identified patterns and themes, gaining a deep understanding of participants' experiences. This process involved reading and categorizing responses, attributing codes to themes, and grouping similar codes. Broader patterns and connections among these categories were examined, forming a coherent narrative. Validation procedures, including member checking, ensured the accuracy of interpretations.

The researchers adhered to ethical guidelines throughout the study. Informed consent was obtained, ensuring participants' awareness of the study's purpose, procedures, and potential risks and benefits. Confidentiality and privacy were maintained, and measures were taken to minimize harm or discomfort. Cultural sensitivity was observed, and ethical approval was obtained from the relevant institutional review board or ethics committee before commencing the study.

Results and Discussion

The study investigated plagiarism among 25 diverse college students from a state university, examining demographics, types of plagiarism, contributing factors, and the impact of plagiarism. The prevalence of plagiarism was notably high, with participants reporting various types such as "Paraphrasing," "Verbatim" (word-for-word copying), "Copy-Paste," and "Collusion" across different academic contexts.

Participants' demographic information indicated a predominantly 21 to 31-year-old cohort pursuing a Bachelor of Science in Education. They came from various ethnic backgrounds, were in their 4th year, exhibited varying socioeconomic statuses, and hailed from urban and rural areas. Common traits included English proficiency, direct entry into the university, and pragmatic values.

Contributing factors to plagiarism were categorized into internal elements (e.g., laziness, poor time management, self-doubt) and external pressures (e.g., lenient teachers, online classes, negative peer influence). Situations that encouraged plagiarism included factors like bad influence, negative asynchronous classes, online learning environments, and time constraints.

The impact of plagiarism on students was multifaceted, affecting academic performance, self-esteem, communication, ethical values, and long-term skill development. It also led to legal and admission consequences, dependency on external sources, and a lack of effort.

To address plagiarism and promote academic integrity, various recommendations and interventions were identified:

For Educators (Teachers and Professors):

1. **Guidance and Education:** Educators should educate students about academic integrity and plagiarism consequences.

2. **Effective Assessment:** Design assignments that encourage critical thinking and originality.

3. **Promote Open Communication:** Create an environment where students can seek help and discuss difficulties.

4. **Use of Plagiarism Detection Tools:** Employ plagiarism detection tools to identify and address plagiarism.

5. **Offer Resources:** Provide students with guides and workshops on proper citation techniques.

6. **Encourage Self-Reflection:** Assign tasks that require personal reflection and analysis.

For Institutions (Campus):

1. **Clear Policies:** Establish and communicate clear plagiarism policies and consequences.

2. **Educational Programs:** Organize workshops, seminars, and orientations on plagiarism awareness.

3. **Technology Integration:** Implement plagiarism detection software to identify potential cases.

4. **Support for Faculty:** Provide training and resources to faculty members to address and prevent plagiarism.

5. **Cultivate Ethical Environment:** Promote academic honesty across the institution.

6. **Promote Reporting:** Encourage students and faculty to report suspected plagiarism cases.

For Students:

1. **Personal Responsibility:** Understand and adhere to academic integrity rules.

2. **Proper Citation:** Learn and practice proper citation techniques.

3. **Effective Time Management:** Plan and manage time effectively to avoid last-minute plagiarism.

4. **Seek Help:** Reach out to educators, peers, or academic support services when facing challenges.

5. **Critical Thinking:** Develop critical thinking skills to encourage independent thought.

6. **Ethical Mindset:** Prioritize integrity in all academic pursuits.

Detailed recommendations encompassed cultural sensitivity, gender-neutral campaigns, ethics of collaboration, English language support, interactive workshops, academic integrity courses, faculty mentoring, socioeconomic support, technology integration, promoting critical thinking, engaging personal values, peer review, continuous assessment, consequences, faculty development, and ongoing evaluation.

Implementing these strategies can help colleges combat plagiarism and foster a culture of academic honesty, benefiting both students and the academic community.

The presented results offer insights into various aspects of the participants' profiles. Participants' ages range from 21 to 31 years, with the majority falling within the 22 to 23 age group, indicating a relatively homogeneous age distribution. This could positively influence group cohesion.

Gender distribution is skewed towards females (F), potentially impacting group dynamics and discussions due to gender-related perspectives.

Participants come from diverse ethnic backgrounds, adding richness to the study by allowing exploration of different cultural perspectives.

All participants pursue a Bachelor of Science in Education (BSE) degree in their 4th academic year, facilitating a common understanding of education-related concepts.

Socioeconomic status varies among participants, with some middle-class (MC) and others poor (P), and they come from urban (Urb) and rural (Rur) areas, highlighting potential disparities in experiences.

English language proficiency varies, potentially affecting communication during discussions.

Participants are direct university entrants, holding diverse personal values, primarily pragmatic (Pra), with some adhering to strict-obedience (SO) values, contributing to multifaceted discussions.

The mix of shared academic characteristics and diverse demographic backgrounds offers a rich context for exploring the research topic. However, researchers should consider how these factors may impact study findings and interpretations.

The relatively small sample size and specific academic discipline (BSE) may limit generalizability to other populations or disciplines. Acknowledging these limitations is crucial when interpreting the results.

In conclusion, participants exhibit a combination of shared academic characteristics and diverse demographic backgrounds. These characteristics enrich the context for exploring the research topic but introduce complexities that researchers should consider.

The results also reveal the widespread prevalence of plagiarism among college students. Various types, such as paraphrasing, verbatim copying, and collusion, suggest different strategies for academic dishonesty.

Plagiarism occurs in assignments, writing activities, research, lesson plans, and tests/exams, highlighting the need for anti-plagiarism measures and educational interventions. Unintentional plagiarism underscores the importance of educating students about citation practices.

These findings stress the significance of promoting academic integrity, teaching proper citation, employing plagiarism detection tools, and creating awareness campaigns to deter plagiarism.

In conclusion to the second findings, participants consistently perceive a high prevalence of plagiarism among college students. Identifying types and instances offers valuable insights for addressing this issue and fostering an ethical learning environment.

For the third problem of the study, data comprehensively outlines factors contributing to plagiarism. Internal motivations like laziness, insecurity, and procrastination, along with external pressures such as peer influence and competitive environments, create a multifaceted picture.

Educational institutions should employ a multifaceted approach, addressing both academic integrity and external stressors. Clear assignment guidelines, time management strategies, and a supportive learning environment can mitigate plagiarism.

Understanding these factors can help educators design interventions that build student confidence, competence, and motivation, reducing instances of plagiarism.

In conclusion to problem no. 3, factors contributing to plagiarism among college students are multi-dimensional. This data guides educators, institutions, and policymakers in developing effective strategies.

Problem number 4 data illustrates the multifaceted impact of plagiarism on college students, including academic consequences, ethical implications, and long-term effects on skills development, self-esteem, and reputation.

Sub-themes provide a detailed exploration of plagiarism's impact on various aspects of students' academic and personal development. Addressing these implications requires a multifaceted approach, fostering a culture of academic integrity, improving communication skills, and offering support for students facing challenges.

In conclusion to problem no. 4, plagiarism's impact on self-esteem and communication requires a multifaceted approach, instilling pride in original work and enhancing communication skills.

Finally, proposed recommendations and interventions offer a holistic approach to prevent plagiarism and promote academic integrity. They address diverse factors and challenges associated with plagiarism.

In conclusion, this research provides comprehensive insights into participant profiles, plagiarism prevalence, contributing factors, and implications. Proposed interventions offer avenues for positive change in the academic community.

Conclusion/Recommendation

The study successfully achieved its objectives, revealing crucial insights into plagiarism's complex dynamics and its impact on academic integrity among college students. Key findings include a diverse demographic background of participants, a significant prevalence of plagiarism encompassing various types, contributing factors such as time constraints and inadequate knowledge, adverse impacts on academic performance and ethical values, and a comprehensive set of actionable recommendations. These findings emphasize the importance of addressing plagiarism and fostering academic honesty through collaborative efforts among students, faculty, and administrators.

The study offers five comprehensive recommendations to prevent plagiarism and promote academic integrity:

1. **Demographic-Specific Awareness Campaigns:** Design tailored awareness campaigns and workshops addressing the unique challenges and needs of specific demographic groups. Include cultural sensitivity and English language proficiency workshops to support students from diverse backgrounds.
2. **In-Depth Plagiarism Workshops:** Develop workshops that provide detailed insights into various types of plagiarism with real-world examples and consequences. Create online modules for self-assessment of plagiarism understanding.
3. **Time Management and Collaboration Seminars:** Offer workshops on time management and ethical collaboration to help students handle their workload

effectively and reduce plagiarism due to time constraints.

4. **Personalized Feedback and Reflection:** Implement personalized feedback systems on assignments emphasizing originality and proper citation. Assignments should encourage students to reflect on the ethical implications of plagiarism.
5. **Mentorship Programs and Technological Support:** Establish mentorship programs for faculty guidance, leverage technology for citation resources, integrate peer review processes, and communicate clear academic honor codes. Provide counseling services and stress management resources while continually assessing the effectiveness of interventions to adapt to evolving student needs.

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Outer Circle Teachers and Emergent Bilinguals' Perspectives on Form-Focused Instructions: Integrated, Incidental and/or Isolated Grammar Teaching

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Abstract

Within the realm of instructing English as a Foreign Language (EFL), the significance of grammar instruction and acquisition cannot be overstated, since it does not only enhance students' preexisting knowledge but also facilitates the acquisition of the target language. Despite the presence of ideological disputes, certain scholars argue in favor of the exclusion and ***isolation of grammar*** *training, while others emphasize the importance of* ***integrating*** *it into* ***English for Specific Purposes (ESP)*** *for both online and in-person instruction. The* ***inclusion of grammar*** *education in L2 instruction is of utmost importance, as it serves to activate grammatical schemata, hence facilitating the process of learning English. The incorporation of technology in the field of education has emerged as a crucial element in the contemporary day. However, it is important to note that teaching without the inclusion of grammar is not adequately effective. This study explores the viewpoints of Filipino educators teaching English as a foreign or second language (EFL/ESL) both online and offline, as well as the opinions of* ***emergent bilingual or EFL learners*** *from other countries, regarding the incorporation or separation of grammar instruction in online and face-to-face English language classes.*

Keywords: ***Form-Focused Instructions, Incidental Grammar, Integrated Grammar, Isolated Grammar, Emergent Bilinguals***

Introduction

The transition from conventional grammar instruction to a focus on communicative competence in language education has resulted in significant transformations in the processes of language acquisition and instruction. This paradigm shift leads to the creation of Communicative Language Teaching (CLT). Nevertheless, form-focused instruction (FFI) emerged as a viable alternative to communicative language teaching (CLT) in response to empirical evidence indicating that CLT is associated with a decline in learners' accuracy (Doughty & Williams, 1998). He claims that FFI has achieved a balance between syntactic and semantic competence and oral communication competency to allow students to improve both their accuracy and fluency simultaneously.

Both students and teachers of language are interested in exploring the importance of prioritizing form in language learning, a subject that is currently garnering considerable attention. The literature on Second Language Acquisition (SLA) encompasses a diverse

range of categories and perspectives about the incorporation of grammar training within the context of L2 communicative pedagogy (Spada & Lightbown, 2008).

According to Hashim et al. (2019), thirty Malaysian secondary school students with low English proficiency participated in three online grammar game sessions. The study used Kahoot! and Socrative to see if online games may assist students learn English grammar (Hashim et al., 2019, p. 45). The post-test scores were higher than the pre-test scores, indicating that "learners are able to obtain better results when they learn grammar using online language games" (Hashim et al., 2019, p. 46). The above research suggest that extracurricular activities and internet learning can enhance English grammar.

In contrast to the assertion made by Figueroa (2015) on the growing technicality in the approach to second language learning and teaching, it is noteworthy that the acquisition of English language proficiency continues to prioritize the imparting of grammatical knowledge. The significance of grammar in language learning has been well recognized by scholars, since it offers numerous benefits to language learners in improving their linguistic skills (Fotos, 2011; Ellis, 2006). One of the primary goals is to provide instruction to students in English for General Purposes (EGP) and English for Specific Purposes (ESP), with a particular focus on enhancing their understanding of grammatical structures within the ESP context.

Review of Related Literature

Formed-Focused Instruction (FFI) improves learner competence. Bulut and Algül (2017) analyze how skill levels, gender, and education affect isolated through integrated FFI selection in local adult students. Students evaluated the integrated and isolated FFI simultaneously, according to their results. In conclusion, studies show that teaching grammar without integration or use is unsuccessful (Nassaji & Fotos, 2011).

In an FFI framework, the terms isolated and integrated refer to two distinct approaches concerning the planning and execution of grammatical instruction, as defined by Valeo and Spada (2016). Two FFI tactics emphasize meaning, but they differ in how quickly to teach key language forms. However, these two types of FFI are not mutually exclusive, and whether one or both are used depends on teachers' instructional practices, which are motivated by personal, social, pedagogical, and contextual factors, as well as teachers' and learners' beliefs (Borg& Burns, 2008).

However, Nartiningrum et al. (2020) believe that Covid-19 affects Indonesia's school system. Online homeschooling is replacing in-person instruction. Little student opinion research has been done since the sudden transition. It highlights the challenges, suggestions, and resources 45 EFL students face in online classes. Unreliable networks and less face-to-face opportunities are the major problems for EFL students in online ESP programs, according to qualitative data from written responses and semi-structured interviews. Zoom or Google Meet, while others prefer homework. Online students demand grammar-related content. Data on Indonesian EFL online learning during Covid-19 are comprehensive.

Similarly, Halim et al. (2021) investigate teachers and students' perspectives of online grammar training. This research

examines the challenges students face when learning grammar online. The report includes feedback from professors who taught online grammar. Participants are male and female instructors and 80 undergraduate women from a Saudi institution. Teachers and students are surveyed across two academic terms to determine the benefits of switching from in-person to online programs. Their report offers guidelines to help teachers and students with online grammar education and study. Study findings inform these recommendations.

Graus and Coppen (2015) reveal that teachers' preferences for and attitudes on teaching grammar may alter depending on their educational attainment, with teachers being more inclined to adopting meaning or content-based instruction as education levels grow. To explain, Behzad et al. (2019) conduct research on learners' and teachers' attitudes about isolated and integrated FFI in order to distinguish between two types of grammatical form-focused instruction (FFI). 120 teachers and 280 students from college-wide Intensive English Programs in Iran and the United States are separated into two groups (ESL and EFL). Data show that each group's selections may be related to distinct background variables that influenced their attitudes in each group's specific situation.

In contrast, Halim et al. (2021) investigate teachers and students' perspectives of online grammar training. This research

examines the challenges students face when learning grammar online. The report includes feedback from professors who taught online grammar. Participants are male and female instructors and 80 undergraduate women from a Saudi institution. Teachers and students are surveyed across two academic terms to determine the benefits of switching from in-person to online programs. Their report offers guidelines to help teachers and students with online grammar education and study. Study findings inform these recommendations.

Using Vygotsky's Sociocultural Theory as a guiding principle, Sun and Zhang (2021) have conducted a qualitative study with the purpose of investigating EFL instructors' perceptions on form-focused teaching in the context of Chinese university settings. The purpose of the study is to determine how the mentalities of teachers changed as a result of being forced to instruct in actual classrooms, as well as the factors that contribute to these shifts in attitude. The data acquired from four teachers through semi-structured interviews, classroom observations, and follow-up stimulated recollection interviews demonstrate the participants' support for focus-on-form teaching.

Chen et al. (2022) emphasize that language learners who are learning a second language (L2) can benefit from Form-Focused Instruction (FFI), which encourages the awareness of linguistic forms. There have been two different types of FFIs proposed: focus on forms (FonFs) and focus on form (FonF). Azizpour et al. (2021) investigate

these two types in their study examining the impact of focus on form (FonF) and focus on forms (FonFs) instruction on subjunctive grammar acquisition. 40 advanced EFL students aged 16-20 are chosen from a language school in Karaj, Iran. First, the Preliminary English Test is given to ensure student language competency. Before treatment, a subjunctive pretest is given. After that, the researchers teach one group the subjunctive with FonF and the other group with FonFs. After five weeks of teaching, researchers examine the efficiency of FonF and FonFs. While FonF and FonFs instruction have beneficial impacts on Iranian advanced EFL learners' subjunctive grammar acquisition, FonFs students outperform FonF students.

The aim of this study is to investigate and evaluate the perspectives of English as a Second Language (ESL) educators and English as a Foreign Language (EFL) students (both online and in-person) about form-focused training. The study encompasses a cohort of Filipino English as a Second Language (ESL) instructors and English as a Foreign Language (EFL) learners. The present study seeks to address the following inquiries:

1. Do students of English as a Foreign Language have preference for Form-Focused Instruction (FFI)?

2. Which Form-Focused Instructions (FFI), Integrated or Isolated, do Filipino instructors/teachers prefer?

3. Does an EFL learner's level of competency with grammar or their past knowledge influence their choice of FFI?

II. Methodology

A. Procedure

This research had 23 Chinese EFL students who are presently attending English program at an online at language centers in the Philippines, 17 EFL learners who are currently attending face-to-face classes in the Philippines, and 11 Filipino English teachers who have been teaching ESL/EFL for both online and face-to-face classes. The respondents were asked to sign consent form that they voluntarily take part in the study. The information collected was taken with confidentiality. The student and teacher's questionnaires were created in Google form. Teachers and students received the surveys via their email address. Express VPN was used to transmit the survey forms to the Chinese students taking part in the study. After the participants received the questionnaire, they were responsible for answering all questions thoroughly. Once the respondent has finished the survey, he/she had to click the "submit" button.

III. Research Design

The study employs a survey research strategy by distributing and collecting completed questionnaires from the study's participants. The methods used in this study, which will be referred to as Mixed approaches,

is a combination of qualitative and quantitative techniques to provide a thorough grasp of the topic at hand and answers to the research questions. Student questionnaires are qualitative in nature, whereas teacher questionnaires are quantitative; teachers and students will also be requested to engage in a brief interview to verify their responses.

IV. Method and Procedure of Data Collection

Two questionnaires were developed in order to investigate the perspective of the emergent bilinguals (EFL learners from different countries) and Filipino EFL/ESL teachers. A student's survey (Structured questionnaire) and a Semi-Structured questionnaire respectively). The student's questionnaire is 29-item 5-point Likert-scale questions. The teacher's questionnaire is 14-item 5-point Likert-scale questions. The design of the survey questionnaire has been patterned after the work of Ellis (2001), Val Ek & Trim (1991), Rowan (2001), Valeo, A. and Spada, N. (2015), and Basturkmen (1998).

V. Result

In order to collect the necessary information for the inquiry, 23 participants from the online group (Figure 2) contributed their thoughts and observations. Eleven of these were students from China who were female, and the remaining 12 were students from China who were male. In contrast to this, the in-class or face-to-face group included 17 EFL students (Figure 1) who were originally from a range of countries but are now residing in the Philippines. These students are learning English as a foreign language. This investigation included participation from eleven teachers of English to speakers of other languages, representing a variety of language schools. According to the information that was gathered, the majority of the students in both classes are between the ages of 20 and 40 (Figures 3,4). In addition, all of the students in both groups eventually receive their college or university degree (Figures 5,6).

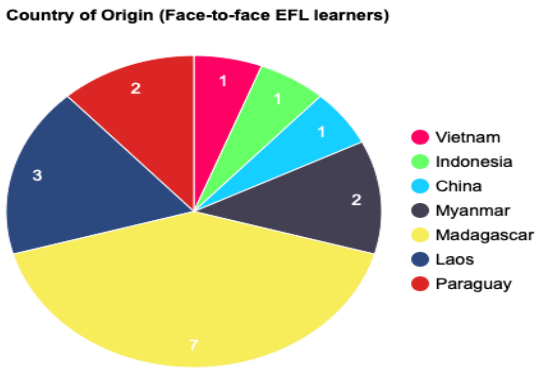

Figure 1

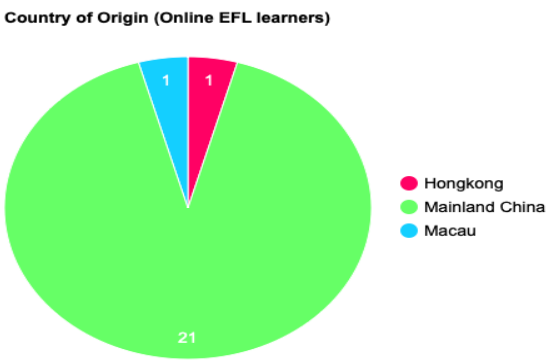

Figure 2

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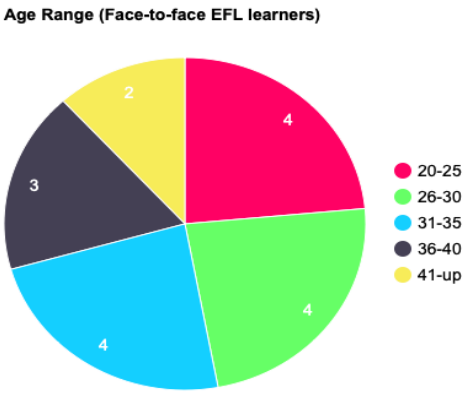

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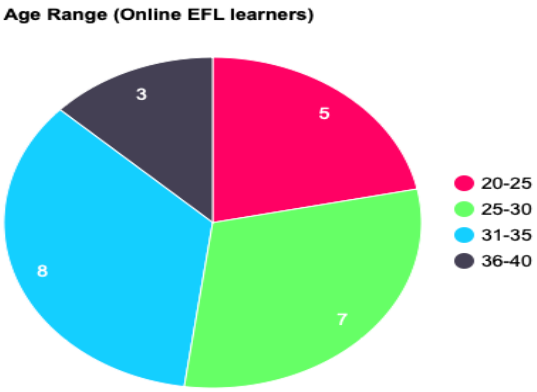

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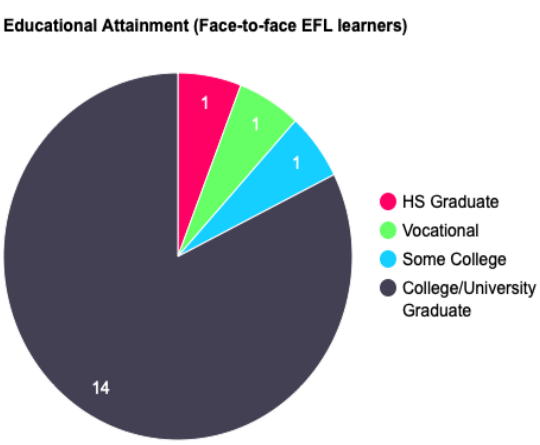

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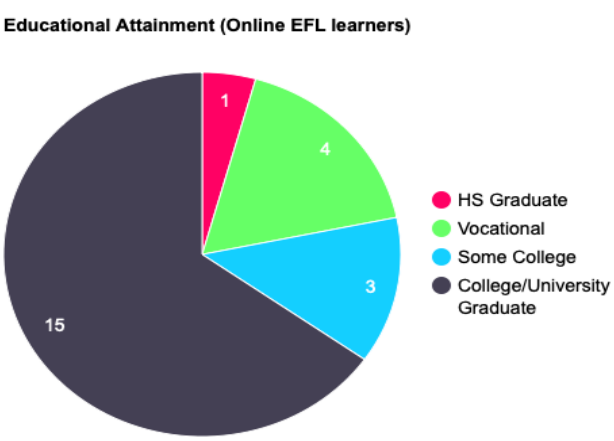

Figure 6

Table 1. Students and Teachers' perception of Grammar Teaching and Learning

Students and Teachers' Perceptions on Grammar Learning and Teaching				
	n = 17	**n = 23**	**n = 11**	
1. Is grammar important?	4.58	4.34	4.27	**mean = 4.39 sd = 0.1625**
2. Should grammar teaching be integrated?	3.19	4.34	4.18	**mean = 4.093 sd = 0.6229**
3. Should grammar teaching be isolated?	4.17	4.21	3.9	**mean = 4.093 sd = 0.1686**
4. Should grammar teaching be incidental?	4.23	4.26	4.27	**mean = 4.253 sd = 0.0208**
	mean = 4.043 sd = 0.5963	**mean = 4.287 sd = 0.639**	**mean = 4.155 sd = 0.175**	

The results of the survey, which aimed to ascertain the viewpoints of students and teachers regarding the instruction and acquisition of grammar, are presented in Table 1. A Likert scale consisting of five points is calculated for each group of participants.

As shown by the data presented in the table, there is a moderate level of agreement among face-to-face learners, online/in-class learners, and teachers about the significance of grammar learning and teaching, with average ratings of 4.58, 4.34, and 4.27, respectively.

Regarding the integration of grammar instruction, there exists a moderate level of agreement among online learners and English as a Foreign Language (EFL) instructors, with a mean rating of 4.34 and 4.18, respectively. Conversely, face-to-face learners expressed a neutral stance, with a mean rating of 3.19.

There is a general consensus among all parties about the prioritization of grammar teaching and learning in isolation. All groups expressed a general consensus regarding the effectiveness of incidental grammar teaching and learning.

The variables in Figure 1, representing online EFL, offline EFL, and EFL teachers, were subjected to a Shapiro-Wilk normality test to determine if the samples originated from a normally distributed population. The findings indicate that the p-values for EFL learners in-person (0.3104), online EFL learners (0.2547), and EFL teachers (0.08116) are all above the conventional 0.05 significance level. Presumably, it would be unable to refute the null hypothesis. The data exhibits characteristics consistent with a normal distribution when examining it at the 0.05 level of significance.

To determine whether there is a statistically significant difference between the means of two independent groups, a two-sample t-test is applied to the means of the two groups. The reported values for the degrees of freedom (df) and test statistic (t) are 1.4207 and 3.7857, respectively. If the p-values for EFL Online and EFL Face-to-Face exceed the conventional significance level of 0.05 by 0.2323, it is probable that the null hypothesis cannot be rejected. In the case of EFL face-to-face learners and EFL instructors, the test statistic is 0.36197, with 3.514 degrees of freedom (df) reported. With a p-value of 0.7381, the difference between the categories is not statistically significant. The reported degrees of freedom (df) for EFL online and EFL teachers are 3.7857, while the test statistic (t) is 1.4207. The obtained p-value of 0.2323 exceeds the conventional threshold for significance, which is 0.05. This indicates that the available evidence is insufficient to support the conclusion that there is a statistically significant difference between the means of the EFL online and EFL teachers' groups.

VI. Discussions

Grammar has long been seen as critical for language learning owing to its advantages in supporting language learners in enhancing their skills (Ellis, 2006 & Fotos, 2011). Both EGP and ESP education strive to instill an appreciation of grammar (ESP). Dudley-Evans and St. John (1998) state that ESP puts a priority on activity-appropriate grammar, lexis, register, study skills, discourse, and genre. It would be simpler for pupils to grasp new concepts if they could connect them to something they already knew. Proficiency in a foreign language is essential to activate the necessary schemata (Carrell, 1984).

Regarding Research Question 1, it was observed that both online and offline EFL learners exhibit a preference for form-focused instruction (FFI). Specifically, out of the face-to-face group, 9 learners expressed a strong inclination towards isolated grammar teaching, whereas 11 learners indicated a preference for incidental grammar teaching. However, it appears that online learners do not exhibit a clear preference for grammar instruction, since three options emerged: A total of 9 students express a strong inclination

towards the acquisition of English language skills through the utilization of isolated grammar instruction. Conversely, 10 learners exhibit a strong preference for the integration of grammar within the language learning process. Additionally, 9 students strongly advocate for incidental grammar learning and teaching methods.

The second research question explored the tendency of Filipino English as a Foreign Language/English as a Second Language educators towards form-focused instructional approaches. According to the information that has been presented, it is clear that all educators understand the relevance of teaching proper grammar. However, out of the 11 people who participated in the survey, seven of them said that they support the employment of both isolated and integrated ways to teaching grammar, while the remaining six respondents favored incidental teaching methods.

Based on the data gathered, the online EFL learners has the following educational attainments: 15 university/college graduates, 6 vocational graduates, 1 high school graduate, 1 some college. While 14 students from the face-to-face learners graduated from college or universities. It was observed in the data that learners who pursued tertiary education have acknowledged the importance of grammar in learning English. Ellis (2006) states that grammar has always been and will always be important in L2 instruction. Larsen-Freeman (2001) on the other hand emphasizes that grammar is more of a skill than a competence because it is always integrated and used when speaking and writing.

It can be observed that online English as a Foreign Language (EFL) learners exhibit a preference for integrated grammar learning. This finding is drawn from the responses of the participants, with 11 students expressing agreement and 10 students strongly agreeing with this approach. Out of the participants, 11 individuals expressed agreement while 10 individuals strongly expressed agreement with the efficacy of solo grammar instruction. Nevertheless, it is worth noting that a total of 4 students expressed agreement, while an additional 9 students exhibited high agreement with the concept of accidental grammar education. In contrast, EFL learners who engage in face-to-face interactions have preference for incidental grammar learning, as shown by 11 respondents who strongly agreed. In the context of isolated grammar education, a majority of 9 students expressed strong agreement, while an additional 4 students expressed agreement.

VII. Conclusion

The primary objective of grammar instruction is to enhance language comprehension in certain contexts (Bagherieh & Soodmand Afshar, 2014). In order to effectively instruct all learners in the

application of grammatical concepts, grammar teachers must employ a variety of pedagogical approaches. The impact of instructors' perspectives on grammar instruction and learning is evidently discernible.

The acquisition of the English language is influenced by grammar skills, as stated by Al-khresheh and Orak (2021). There has been a suggestion that learners can improve their verbal ability by receiving comprehensive training on grammar. In contrast, the authors Spada and Lightbown (2008) recommend that authorities prioritize grammatical education and intervention. The implementation of grammatical instructions can be achieved through the utilization of either the Isolated FFI, the Integrated FFI or Incidental FFI. All methodologies place importance on conveying meaning and instructing learners on specific forms and structures, in contrast to the grammatical translation approach (Spada, 2011).

In light of the fact that grammar has historically been recognized as an essential component of language acquisition due to its capacity to aid in skill development (Ellis, 2006; Fotos, 2011), Chen et al. (2022) suggested that second language (L2) learners who wish to improve their comprehension of linguistic form utilize Form-Focused Instruction (FFI).

VIII. Recommendation

It would be beneficial if further studies would be conducted in the future with the following concepts:

1. exposing emergent learners into the three different form-focused instructions and letting them choose see the difference of each FFI instructions;
2. conducting a study with more students and teachers as respondents, and
3. having another study on form-focused instructions among ESL students (Filipino students).

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PROPOSED SESSION GUIDE FOR GRADE 11 GENERAL MATHEMATICS

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Abstract

Teaching General Mathematics poses a challenge for teachers due to its numerous competencies and the need to revisit and build upon previously learned concepts in a cyclical manner. To achieve a higher mastery level of the subject, it is crucial to implement planned teaching strategies and a structured outline.

This study aimed to identify the most effective teaching strategy in teaching General Mathematics towards proposed session guide for Grade 11 General Mathematics in selected public secondary schools in Division of Oriental Mindoro. This study made use of descriptive-correlational type of research. Respondents of the study were the thirty-five (35) General Mathematics public Senior High School teachers of any strand offered by the secondary schools in Pinamalayan, Gloria, Bansud and Bongabong District in Division of Oriental Mindoro. The chi-square test was employed to determine the most effective teaching strategy implemented by General Mathematics teachers for the specified learning competencies. The results of the study demonstrated a significant difference between teaching strategies. It was concluded that a majority of the students were able to acquire the essential learning competencies related to inverse functions. Furthermore, collaborative and active learning strategies were found to be commonly used by General Mathematics teachers. As a recommendation, the study encouraged that teachers continue to take into account the individual needs, learning styles, and goals of their students when selecting effective teaching strategies. Additionally, the preparation of session guides is recommended to facilitate a well-organized learning experience.

Keywords: *competencies, effective strategies, inverse functions, mastery, session guide*

Introduction

Mathematics has always received significant attention in schools due to its relevance to various fields and disciplines. In many countries, students' achievements in mathematics are seen as a crucial global issue and a focus of concern. Prerequisite competencies are fundamental skills or knowledge areas that are essential for understanding and successfully engaging in more advanced concepts or activities. The lack of mastery of prerequisite competencies is a significant issue that can hinder an students' progress in new learning.

Relative to lack of mastery of prerequisite competencies, Acosta (2018) stated that the primary goal of Senior High School is to provide students with time to consolidate their acquired academic skills and competencies in preparation for their future. However, several issues have emerged regarding the Mathematics Curriculum in Philippine Senior High Schools. Inadequate facilities and instructional resources continue to pose significant challenges in fulfilling the requirements of the curriculum.

Another identified issue is the lack of mastery of prerequisite competencies among students before entering Senior High School Mathematics. Many students in school settings hold misconceptions about mathematics, with some intentionally avoiding the subject and anything related to it. Addressing the unmastered competencies in General Mathematics should be given significant emphasis to ensure students' progress and success in the subject.

This study sought to determine the following: the profile of the respondents in terms of age, educational attainment; and years in teaching General Mathematics; the mastered and least mastered competencies in General Mathematics; the different teaching strategies implemented in teaching the competencies in General Mathematics; and the most effective strategy implemented to Grade 11 students in General Mathematics.

On the other hand, the study was anchored on the following theories: Cognitive Load Theory; Activity Theory; Lifelong Learning Theory; Situated learning theory; Piaget's constructivism learning theory; and Theory of Cognitive Development.

Methods

The research employed descriptive-correlational type of research. The strata were all the General Mathematics public Senior High School teachers of any strand offered by the secondary schools in Pinamalayan, Gloria, Bansud and Bongabong District in Division of Oriental Mindoro.

The study used a researcher-made survey questionnaire. Upon validation, the reliability was tested using Cronbach's Alpha from the responses of the 10 non-respondent General Mathematics Teachers in from other Districts of Oriental Mindoro. The statistical tools used were: Frequency; Percentage; Rank; and Chi-Squared Test.

Data on the assessment results are expressed in terms of Mean Percentage Scores (MPS) and corresponding descriptive categories: 96-100%, mastered; 86-95%, closely approximating mastery; 66-85%, moving towards mastery; 35-65%, average; 15-34, low; 5-14%, very low; 0-4, absolutely no mastery.

Results and Discussion

1. Profile of the respondents in terms of:

1.1. Age

Results revealed that the majority of the respondents who handled General Mathematics were in the age group of 26 to 30 years old. Thus, it could be inferred that the profile of the respondents across age groups vary. This implied that age diversity among the respondents leads to utilization of different teaching strategies and instructional methods. It allowed the teachers for the integration of various teaching styles, experiences, and

perspectives, benefiting both teachers and students.

1.2 Educational Attainment

Results revealed that the majority of General Mathematics teachers have advanced academic qualifications in the field of education. This implied that General Mathematics teachers possess advanced academic qualifications specifically in the field of education. This is evident from the considerable number of respondents who hold a Master's Degree in Education.

1.3 Length in Teaching General Mathematics

Results showed that the majority of the respondents belong to the 6-7 years of teaching experience category. This implied that the teachers possess a higher level of experience in teaching General Mathematics. Teachers have developed a deeper understanding of teaching strategies and instructional techniques that are well-suited for effectively teaching the subject.

2. Mastered and Least Mastered Competencies in General Mathematics

2.1 Competency Number 1. The learner represents real-life situations using one-to-one functions.

Results showed that the majority of the students taught by the respondents possess a high level of understanding when it comes to representing real-life situations using one-to-one functions. Generally, the students demonstrated an average level of mastery and above in this competency, with no instances of low, very low, or complete lack of mastery reported.

2.2 Competency Number 2. The learner determines the inverse of one-to-one functions.

Results revealed that the majority of the respondents achieved above-average levels and demonstrate a positive trend in the specified competency.

This implied that their students were consistently making progress and heading towards mastery of that particular competency. However, one respondent reported a mean percentage score falling within the low category, indicating a below-average level of mastery.

2.3 Competency Number 3. The learner represents an inverse function through its: (a) table of values and (b) graph.

Results showed that the majority of the respondents attained a level of mastery that closely approximates the desired competency. This implied that the students taught by the respondents are very close to achieving mastery in that particular area. However, it is noteworthy that none of the respondents have reached the highest level of mastery, as evidenced by the absence of any frequency in the corresponding mean percentage score.

2.4 Competency Number 4. The learner finds domain and range of an inverse function.

Results showed that the majority of the respondents' students were closely approaching mastery of the competency. This implied that the students have

developed a solid understanding of the subject matter. However, it is also apparent that there are students who possess a limited understanding of the competency and may encounter difficulties in applying concepts or demonstrating competence.

3. Different teaching strategies implemented in teaching the competencies in General Mathematics

3.1 Competency Number 1. The learner represents real-life situations using one-to-one functions.

Collaborative learning and direct instruction ranked the highest as attested by the obtained frequency of 16. Furthermore, differentiated instruction ranked third as reflected by the obtained frequency of 15. Meanwhile, the teaching strategy which ranked fourth is active learning as indicated by the 14 respondents who used the strategy in teaching the first competency.

Results revealed that the majority of the respondents used collaborative learning and direct instruction teaching strategies to able the learners to represent real-life situations using one-to-one functions. Thus, it could be inferred that they thought that these strategies are suited for their learners to learn the specified competency.

3.2 Competency Number 2. The learner determines the inverse of one-to-one functions.

Collaborative learning and direct instruction teaching strategies ranked the highest as shown by the obtained frequency of 23, and differentiated instruction teaching strategy ranked the lowest.

Results revealed that the students are exposed to a collaborative learning strategy where the students work together to solve a problem or answer a question about the inverse of the one-to-one function which requires students to think individually and share ideas with classmates.

3.3 Competency Number 3. The learner represents an inverse function through its: (a) table of values and (b) graph.

The teaching strategy that ranked highest is collaborative learning with a frequency of 23. The majority of the respondents used this strategy in delivering the mentioned competency. This implied that the teachers organize group activities for the learners. Teachers provided guidelines and instructions to the groups, ensuring that students understand the collaborative process, their roles, and responsibilities.

3.4 Competency Number 4. The learner finds domain and range of an inverse function.

Majority of the respondents applied collaborative learning in facilitating the content of the last competency. This implied that there were 23 teachers who chose to organize small group work. Teachers foster open and respectful communication among group members and encourage students to express their ideas, listen actively to others, engage in meaningful discussions, and resolve conflicts constructively.

4.1 Competency Number 1. The learner represents real-life situations using one-to-one functions

Most Effective Strategy Implemented to Senior High School Students in General Mathematics in Competency Number 1

The chi-square goodness-of-fit test showed a significant difference between the observed frequencies and the expected frequencies (chi-square = 118.28, df = 9, $p < 0.001$). The post-hoc tests showed that collaborative learning was significantly more effective than Direct Instruction, but none of the other teaching strategies were significantly different from each other. Thus, the hypothesis is rejected. This implied that collaborative learning is the most effective teaching strategy based on the given data.

4.2 Competency Number 2. The learner determines the inverse of one-to-one functions.

Most Effective Strategy Implemented to Senior High School Students in General Mathematics in Competency Number 2

Based on the p-value of 0.017 and the significance level of 0.05, there is a difference between the teaching strategies in terms of their effectiveness for different levels of mastery. Thus, the hypothesis is rejected. It can be concluded that anyone teaching strategy is more effective than the others for any particular level of mastery.

Based on the adjusted p-values, it is concluded that the Collaborative teaching strategy is significantly more effective than the Active learning strategy ($p = 0.036$) and the Direct Instruction strategy ($p = 0.197$). Additionally, the Differentiated learning strategy is significantly more effective than Active Learning strategy ($p = 0.383$), but not significantly different from Direct Instruction strategy ($p = 0.061$). There is also a significant difference between the Collaborative learning and Differentiated learning strategies ($p = 0.001$).

Therefore, based on the post-hoc analysis, the most effective teaching strategy appears to be the Collaborative learning strategy, followed by the Differentiated learning strategy. However, the results revealed that differentiated instruction is identified as the most effective strategy alongside collaborative learning.

4.3 Competency Number 3. The learner represents an inverse function through its: (a) table of values and (b) graph.

Most Effective Strategy Implemented to Senior High School Students in General Mathematics in Competency Number 3

The chi-square goodness-of-fit test showed a significant difference between teaching strategies (chi-square = 19.18, df = 9, $p < 0.026$).

According to the Bonferroni-corrected pairwise chi-square tests, the collaborative learning and differentiated learning teaching strategies are significantly different from each other ($p < 0.001$). Thus, the hypothesis is rejected. All other pairwise comparisons were not significant after correcting for multiple comparisons. It can be concluded that the collaborative learning strategy was the most effective in achieving mastery across different levels.

4.4 Competency Number 4. The learner finds domain and range of an inverse function.

Most Effective Strategy Implemented to Senior High School Students in General Mathematics in Competency Number 4

The chi-square goodness-of-fit test showed a significant difference between

teaching strategies (chi-square = 19.18, df = 12, $p < 0.026$).

Based on these comparisons, that there is no significant difference between the Active learning and Collaborative learning teaching strategies, as well as between the Active Learning and Direct learning teaching strategies, with Bonferroni-adjusted p-values.

There are no significant differences between the Collaborative learning and Differentiated learning, Collaborative learning and Direct Instruction, or Differentiated learning and Direct instruction teaching strategies with Bonferroni-adjusted p-values above 0.05.

On the other hand, there is a significant difference between Active learning and Direct instruction strategies. The most effective strategy for competency number 4 is Active Learning.

5. Proposed Session Guide

The crafted session guide in General Mathematics was designed for Grade 11 students. It encompasses Week Four most essential learning competencies of the subject. There are four specified learning competencies. First, the learner represents real life situations using one-to-one functions. Second, the learner determines the inverse of one-to-one functions. Third, the learner represents an inverse function through its: (a) table of values, and (b) graph. And last, the learner finds the domain and range of an inverse function. The listed competencies serve as the basis of the structured flow of each session guide.

Conclusion/Recommendation

Based on the findings of the study, it is concluded that General Mathematics teachers across all age groups exhibit a profound level of interest and deep engagement with the subject. Also, showed commitment to professional growth and continuously strive to pursue higher levels of education, however, there are teachers who have not yet pursued an advanced degree. Meanwhile, most of the students acquired the most essential learning competencies pertaining to inverse functions, demonstrating a commendable level of mastery that surpasses the average expectations. In addition, teachers employed diverse strategies in teaching various competencies to cater the needs of the students. Furthermore, they recognized the immense value of collaboration and active participation to empower students to actively engage in the learning process.

Based on the findings and conclusions of the study it is recommended that teachers are encouraged to continue pursuing higher education and joining professional development opportunities that can foster professional growth and advancement. Also, teachers are recommended to continue implementing collaborative learning and active learning strategy in teaching the competencies in General Mathematics. In addition, teachers

are encouraged to meet the students' needs by providing intervention activities to achieve a greater level of proficiency. They should create a dynamic learning experience that sparks students' interest in General Mathematics. Moreover, teachers are encouraged to continue fostering a supportive and inclusive environment for collaboration and communicate the criteria for success in collaborative activities. Furthermore, teachers are encouraged to continue considering individuals' needs, learning styles and goal to determine the effective strategy for the students to reach high mean percentage score.

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Impact of Scholarship on Access, Persistence, and Academic Achievement Among College Students in NCR

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Abstract

The scholarship program is one of the tools the government uses to help Filipino youth continue their education, especially at the higher level of education. This study aimed to identify the impact of the scholarship program on access to education, persistence in education, and academic achievement of the grantees at the college level who are currently studying in local colleges and universities within NCR. In gathering the data, the quantitative method was used to determine the impact of scholarship on student outcomes. Moreover, college professors were interviewed to triangulate the results. Lastly, the study identified the challenges the scholarship grantees face and their coping mechanisms to overcome them through qualitative methods. The results proved that scholarships positively impact students' outcomes, mainly on access, persistence, and academic achievement. It was also found that students face different challenges as scholarship grantees but use different coping strategies.

Keywords: scholarship, access, persistence, academic, education

Introduction

Every nation has this deep regard for education. Many of us believe that education is one of the power tools to combat poverty and to be successful in the future. Education also serves as a strong tower for national development and an avenue for social and economic mobility. In the Philippine setting, the 1987 Constitution – Article XIV Sec.1 stated that "The State shall protect and promote the right of all citizens to quality education at all levels and shall take appropriate steps to make education accessible to all." Despite the legal mechanism provided for education, Philippine education is still facing many issues. These issues include high dropout rates, overcrowded classrooms, low quality of education, and teacher performance.

Many people have the option to further their education through scholarship programs. It is an excellent way to help students finish their education, mainly in higher education. Bulacan State University specified that scholarships are given to students depending on requirements. They must

meet specific criteria established by the grantee. The grantees must consistently demonstrate high academic standing for the scholarship to be maintained. It typically reflects the grantee's values, objectives, and purposes.

The Commission on Higher Education offers various scholarship programs to support the education of qualified students until they finish their studies. Under Republic Act No. 7722, the Commission on Higher Education provides scholarships to eligible students. CHED scholarship offers full or half scholarships under the State Scholarship Program (SSP) and Private Education Student Financial Assistance (PESFA). For students enrolling in a State University College, a Stipend of Php 40,000 per year for full SSP or a stipend of Php 20,000 per year for half SSP. For students who are enrolling in a Private Higher Education Institution, tuition and other school fees worth Php 20,000 per year and a stipend worth Php 40,000 per year (full PESFA) or tuition and additional school fees worth Php 10,000 per year and stipend worth Php 20,000 per year (half PESFA).

Other than CHED's scholarships, every state university has its scholarship programs. For example, the Polytechnic University of the Philippines has six different scholarship programs that students can avail and these are the following: Entrance Scholarship Program - given to upcoming First-year students with exemplary achievements in Senior High School; Resident Scholarship - a recognition given to students' outstanding academic performance every semester; Special Grant (Government Scholarship) - being implemented under SFAS is the Tertiary Education Subsidy or TES; Special Grant (Private Scholarship) - facilitates the scholarship program with private grantors by implementing the provisions of the Memorandum of Agreement; Student Assistantship Program - a term of employment applied by students for not more than 100 hours a month at a compensation rate of Php25.00/ hour; and the UCCA Artists Financial Assistance Program - applied through the endorsement of the Director of the University Center for Culture and the Arts (https://www.pup.edu.ph/students/scholarships).

Concerning this study, the different types of scholarship previously mentioned believe that scholarship grantees must pass the needed qualification, and one of the major requirements is the students' academic performance. With this, it is expected that the grantees perform best in their academics and persist in achieving the goal of scholarship programs, which is for the students to finish their education to have a better future. Through this, they can help their family and contribute to the betterment of our nation.

The study applied the Input-Process-Output model as seen in Figure 1. In this study, the Input incorporates the demographic profile of respondents which are the following: age, gender, location, school, family income, year level, and scholarship information. In the Process, the researcher administered survey questionnaire to the respondents and the data were analyzed using appropriate statistical tool for interpretation purposes. Lastly, the output of the study was a position paper that determined the impact of scholarship to the tertiary students specifically on access to education, persistence, and degree attainment. The position paper produced was intended to be presented in the Local Government Units to further expose the impacts of scholarship programs to the Filipino tertiary students. This served as valid proof to prove the importance of the said purpose.

Moreso, this could be a basis for improving and expanding our education system and the scholarship programs of the national government. The private sectors who offer scholarship programs to qualified tertiary students could also benefit from the result of the study. They will be positive that the scholarship programs they are giving will not be in vain.

The study aimed to determine the impact of scholarship on access to education, persistence, and degree attainment among tertiary students in National Capital Region.

This study answered the following research questions:

1. What is the demographic profile of the respondents in terms of:

1.1 Age;

1.2 Sex;

1.3 School;

1.4 Location;

1.5 Monthly Family income;

1.6 Year Level; and

1.7 Type of scholarship availed?

2. What is the impact of scholarship on tertiary student outcomes in terms of:

2.1 Access;

2.2 Persistence; and

2.3 Academic Achievement?

3. What are the challenges do tertiary students face as scholarship grantees and their coping mechanisms based on:

3.1 Access;

3.2 Persistence;

3.3 Academic Achievement?

4. What position paper can be formulated to strengthen the existing policies and guidelines of the scholarships in relation to access, persistence, and academic achievement?

Methods

The instrument the researcher employed to gather data was a questionnaire checklist adapted from Habuba and Liaqat's study (2022). Their study is about the impact of scholarships on students. The questionnaire comprises two (2) parts – the demographic profile of the students and the factors that will determine the impact of the scholarship program on students' outcomes.

The researcher secured permission from the Dean of the Graduate School to conduct the study. Necessary permission was secured from the concerned officials of the public universities and colleges through a letter of request to conduct the survey. The study surveyed tertiary students who are currently under a specific scholarship program. To do this, the used two methods: used of google form and/or asked for the assistance of the concerned staff or professor within the institution to distribute and assist the respondents in accomplishing the survey questionnaire. After gathering the data, the researcher collected the questionnaires and tallied the numerical data before applying the statistical treatment used in the study.

Results and Discussion

Impact of Scholarship on Tertiary Student Outcomes

This part presents the data gathered on the impact of the scholarship on tertiary student outcome.

Access to Education

The accessibility feature of the right to education is described in detail in all human rights instruments. The 1987 Philippine Constitution declares that the State shall protect and promote the rights of all Filipino Citizen to quality education at all levels and shall take appropriate steps to make education accessible to all. Government and private institutions offer scholarship programs, so students can have an excellent chance to continue their education at the tertiary level and get a degree despite of being economically challenged. According to Philippine Institute for Development Studies (2021) poverty hinders most of the Filipino citizens to pursue education. It's because many families—especially those in the most impoverished communities—cannot afford education. The Philippine Statistics Authority (2022) has recently reported that around 3.50 million families or 13.2 percent were considered poor in 2021 AND 1.04 million poor families below the food poverty line. Table 1 reveals the impact of scholarship on access to education among tertiary students.

Table 1. Impact of Scholarship on Access to Education. N=216

Access to Education	5	4	3	2	1	WM	DE
1. I was able to easily find scholarships that I was eligible for.	194	19	3	0	0	4.88	SA
2. Scholarship pursues me to continue my education	206	9	1	0	0	4.95	SA
3. Scholarship provides me honor and pride.	192	21	3	0	0	4.88	SA
4. Scholarship provides me safe and inclusive environment for achieving my educational goals.	198	16	2	0	0	4.91	SA
5. Scholarship reduces my financial issues in achieving my educational goals	200	15	1	0	0	4.92	SA
6. Scholarship provides me opportunity to get proper education.	188	27	1	0	0	4.87	SA
7. Scholarship encourages me to attain further education	205	10	1	0	0	4.94	SA
8. Scholarship encourages me to finish my chosen degree.	202	12	2	0	0	4.93	SA
9. Scholarship empowers me to achieve my academic and career goals by removing the financial barrier.	189	26	1	0	0	4.87	SA
10. Scholarship is important towards my success in graduating	194	21	1	0	0	4.89	SA
AWM						4.90	SA

Legend: 4.21-5.00 Strongly Agree (SA); 3.41-4.20 = Agree (A); 2.61 – 3.40 Neither Agree Nor Disagree (NAD); 1.81 – 2.60 = Disagree (D); 1.00 – 1.80 = Strongly Disagree (SD)

The result showed that scholarship programs were one of the reasons why tertiary students can continue their education in the tertiary level. These indicators also prove the result of B.K. Timalsana (2017) that scholarship is helpful to reduce drop-out to some extent. Accessible education plays a crucial role in

empowering students to reach their full potential, for it promotes equal opportunities. Scholarship programs act as a steppingstone towards achieving this goal.

The Commission on Higher Education offers scholarships under the State Scholarship Program (Full Scholarship and Partial Scholarship) and Private Education Student Financial Assistance (PESFA). Even private institutions offer scholarships to help students finish their education. According to E. Cagasan and B. Belonias (2020) scholarship grants provide funds for students' school and living expenses, thus encouraging them to complete their degrees on time.

To verify the said findings, focused group discussions were conducted with participating professors that expound how scholarship programs aid college students towards access to education. They said that:

College Professor A. "Scholarship programs provide not only financial assistance to all beneficiaries but also provides motivation to all the students to be academically active and competent. Meron na kasi silang chance makapagtapos kaya they are doing their best makatapos.

College Professor B. "Scholarship programs help students pursue their education by providing financial support. These programs offer money to students, which can cover things like tuition fees, textbooks, and other educational expenses. By easing the financial burden, scholarships make education more affordable and accessible. This financial help enables students to focus on their studies without worrying too much about the costs, making it easier for them to stay in school and complete their education. Essentially, scholarships open doors for students who might otherwise face challenges in affording the necessary resources for their education, allowing them to pursue their academic goals with greater ease."

Persistence in Education

The study of the effects of scholarship on students' persistence and graduation rates is particularly important given the numerous programs and scholarship grants that focus on student financial aid programs. Nguyen et al. (2019) stated that scholarships are important to students' college opportunities and success. It is well established that scholarship increases the probability of enrollment in tertiary level.

Table 2 presents that result on the impact of scholarship programs on the persistence of college students towards their education. The two highest indicators "Scholarship encourages me to study attentively" and "Scholarship develops my ability of dedication to study" both have 4.92 weighted mean. This means that respondents strongly agree that scholarship programs encourage them to spend time on studying. This is also supported by M.A Willard (2021) where she found out in her study that scholarship programs contribute to the persistence of college students specially those who belong to the marginalized group of low-income earners.

"Scholarship encourages me to follow the rules at all the time" and "Scholarships encourages me to be consistent in my education" have 4.90 weighted mean where the respondents strongly agreed to the said indicators. In the study of L. Barrow and C.E. Rouse (2018), they concluded that grantees, especially those who are under performance-based scholarship, accommodated increased time spent on educational activities by spending

(statistically) significantly less time on leisure activities, including reducing the number of nights out for fun during the past week. This shows the consistency of the grantees towards their education. Also, the results somehow relate to the study of Anderson and Moffett (2016) where the study revealed that persistence to education was found to be significantly positively related to the total number of occurrences of scholarship awarded to the students.

Table 2. Impact of Scholarship on Persistence in Education

N=216

Persistence in Education	5	4	3	2	1	WM	DE
1. Scholarship encourages me to follow the rules at all the time	195	20	1	0	0	4.90	SA
2. Scholarship encourages me to study attentively	199	16	1	0	0	4.92	SA
3. Scholarship develops my habit of time management for achieving my goals at time	193	20	3	0	0	4.88	SA
4. Scholarships encourages me to be consistent in my education.	197	17	2	0	0	4.90	SA
5. Scholarship develops my ability of dedication to study.	200	14	2	0	0	4.92	SA
6. Scholarship pushes me to exert more effort when I do difficult school task/s	190	22	4	0	0	4.86	SA
7. Scholarship makes me persevere to do my outputs in the middle of the night just to have a presentable output	192	21	3	0	0	4.88	SA
8. Scholarship encourages me to achieve a high score on quizzes, test, and exams even I am not good to the certain subjects/courses.	192	22	2	0	0	4.88	SA
9. Whenever I begin to lose interest in my study, scholarship redirects me back to the study	193	22	1	0	0	4.89	SA
AWM						4.89	SA

Legend: 4.21-5.00 Strongly Agree (SA); 3.41-4.20 = Agree (A); 2.61 – 3.40 Neither Agree Nor Disagree (NAD); 1.81 – 2.60 = Disagree (D); 1.00 – 1.80 = Strongly Disagree (SD)

The participating professors verified the result. They said that scholarship programs have a big impact on the persistence of the students towards their education. They stated that:

College Professor C. “Scholarship really contributes as a motivation for the students to do more in academics since they are expecting incentives from these scholarships.”

College Professor D. "When students receive scholarships, it eases the financial burden of education, making it more accessible. This financial support can boost a student's motivation and dedication to their studies because they don't have to worry as much about money. It allows them to focus on learning and achieving their academic goals without the stress of covering tuition and other expenses."

Based on the data given by students and the professors it is found out that college students persist towards their education despite different challenges like financial issues, time management, and academic challenges. This is also stated in the result of the study of Bovee et al. (2019) where they found out that students who receive a scholarship have a subsequent boost in motivation. Students used their scholarship as one of their motivations to overcome trials and persist concerning their school life.

Academic Achievement

Table 3 presents the result of how scholarship programs help college students towards their academic achievement.

Table 3. Impact of Scholarship on Academic Achievement

N=216

Academic Achievement	5	4	3	2	1	WM	DE
1. Scholarship helps me in achieving my academic goals	193	20	3	0	0	4.88	SA
2. Scholarship encourages me to study attentively	183	29	4	0	0	4.83	SA
3. Scholarship develops my habit of book reading and researching	188	23	5	0	0	4.85	SA
4. Scholarship develops my habit of time management for achieving my goals at time	191	23	2	0	0	4.88	SA
5. Scholarship encourages me to complete assignments on time	187	23	6	0	0	4.84	SA
6. Scholarship develops my ability of dedication to study.	187	28	1	0	0	4.86	SA
7. Scholarship encourages me to actively participate in class	189	22	5	0	0	4.85	SA
8. Scholarship motivates me to get high grades	190	24	2	0	0	4.87	SA
AWM						4.86	SA

Legend: 4.21-5.00 Strongly Agree (SA); 3.41-4.20 = Agree (A); 2.61 – 3.40 Neither Agree Nor Disagree (NAD); 1.81 – 2.60 = Disagree (D); 1.00 – 1.80 = Strongly Disagree (SD)

The indicators "Scholarship helps me in achieving my academic goals." and "Scholarship develops my habit of time management for achieving my goals at time." Got the highest weighted mean which is 4.88 where the respondents strongly agree on the said indicators. The next higher indicator is "Scholarship motivates me to get high grades." which has 4.87 weighted mean followed by 4.86 weighted mean with the indicator "Scholarship develops my ability of dedication to study." The indicators "Scholarship develops my habit of book reading and researching." and "Scholarship encourages me to actively participate in class." got 4.85 weighted mean. The indicator "Scholarship encourages me to complete assignments on time." has 4.84 weighted mean and "Scholarship encourages me to study attentively." has 4.83 weighted mean, both still has a description of strongly agree. This is also concluded in the of Moreira et al. (2019) where they stated that receiving a scholarship at the undergraduate level was associated to better student performance in the tertiary level.

In the study of Mulyaningsih et al. (2022) on the effect of the scholarship on student academic performance during university, they discovered that scholarship is positively associated with student performance in terms of grade point average. Moreover, the result above is also strengthened by the college professors where they said that:

College Professor E:"This support creates a more conducive environment for learning, allowing students to focus on their studies with fewer distractions. In essence, scholarships provide a crucial foundation for academic achievement by fostering an environment where students can fully engage in their education without the added stress of financial constraints."

College Professor F. Scholarships lead students to be active and a responsible student because as observation during grade consultations, they got disappointed whenever they receive low grades."

The result shows that scholarship programs are helpful and effective in encouraging college students to aim high in their education achievement. They are using the opportunity as motivation to study hard though their challenges along the way.

Challenges faced by Scholarship grantees and their Coping Mechanisms

The findings revealed that the respondents were of different profiles in terms of age, school, program, year level, general average, and scholarship grants. Various personal challenges were also shared by the respondents. These are problems in, pressure, grades, time management, financial problems, sickness, and lack of motivation. These problems were explained and interpreted using recurring themes.

A. Academic Rigor

Student A: "Kailangan mataas ang grades kahit working student."

Student B: “I need to maintain my grades kasi mawawala ako sa scholarship hehehe.”

Student C: “Achieving high grades is a challenge but with balance life it can be solved.”

Student D: “keeping my grades high.”

Scholarship programs come with academic responsibilities and expectations. The result is proven by Esperanza and Bulusan (2020) in their study. They said that “College scholars have the greatest extent of exposure to personal social and academic stressors, as they are obliged to maintain their good academic standing to sustain their scholarship grants.” College scholars tend to use specific coping mechanisms such as studying hard, managing their time and focusing on their goal. R. Wilson (2022) stated that time management skills is critical to the success of students towards their academic.

Student E: “Achieving high grades is a challenge but with time management it can be solved.”

Student F: “Achieving high grades is a challenge but with balance life it can be solved.”

Student G: “The best solution to keep my grade high is to focus on my goal.”

Student H: “We all know that we need to keep our grades high kaya we need to study hard.”

B. Personal Problem

Student I: “Minsan kahit may sakit need ko pumasok para hindi maka miss ng activities.”

Student J: “Sometimes I lack motivation.... I call my parents to help me be inspired.”

Student K: “Lack of support from family.”

The result shows that personal problems like lack of motivation, sickness, and lack of family support are the challenges that grantees face. Moreso, the respondents keep their persistence high in overcoming sickness and they find ways to increase their motivation. Some respondents said that they always investigate the need to doing their best towards their education.

Student I: “I am always telling myself that I need to do my very best..ALL THE TIME!.”

Student J: “balancing personal and academic life”

Student K: “Stress and depress lalo kapag daming ipapasa.... I have friends na masisipag kaya we encourage one another.”

Having a balanced life is also healthy for them, because they also have time for themselves, for their family, and friends. They also find help among their friends who have the same goal as them. Coping strategies are not mutually exclusive categories but instead operate together (Kobylińska and Kusev, 2019), such that their functionality depends on the individuals having a repertoire of strategies available that would allow them to respond specifically to the challenge they have to deal with (Siltanen et al., 2019)

Conclusion/Recommendation

Based on the findings, the researcher concluded the following:

1. The respondents strongly agreed that scholarship programs had an impact on the access to education among tertiary students who were studying in government-funded colleges and universities.

2. The respondents strongly agreed that their persistence in education was positively affected by their scholarship program.

3. The respondents strongly agreed that scholarship programs played a vital role in why they are aiming for a high academic standing that can be seen through their grades.

4. The respondents were facing different challenges that came along with their scholarship program. The number one (1) challenge being faced by the respondents was maintaining their grades and/or achieving higher grades to keep their scholarship programs.

5. The respondents were using different strategies to cope with the challenges. The most common strategy that they were using was devoting more time to studying to achieve their desired grade.

Recommendations

Based on the conclusions, the following are recommended:

1. The Commission of Higher Education should provide more scholarship programs to help Filipino youth especially those who are below the poverty line.

2. College students should be keen in looking for scholarship programs to aid them towards their educational goals.

3. Educators should be aware of the challenges being faced by the grantees, so they be a source of encouragement and motivation.

4. The government should continue providing financial assistance to college students who are below the poverty line.

5. Further study should be done to come up a scholarship policy covering all types of scholarship programs present here in the Philippines.

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