ENHANCING GRADE 11 STUDENT'S RESEARCH WRITING SKILLS THROUGH INTEGRATING SERIES OF SEMINARS

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ABSTRACT

This descriptive quantitative study aimed to improve the research writing skills of Grade 11 students at Asuncion National High School through a seminar-based intervention. Fifteen students, were identified to have difficulties in their research writing skill and participated in a one-week intervention. The intervention, titled Seminar Series, included discussions and workshops focused on enhancing research writing skills of the students. The study followed three phases: a pre-test using a 50-item questionnaire to assess prior knowledge in quantitative research, implementation of the seminar series through series of discussion and workshops, and a post-test to evaluate the intervention's effectiveness. Data were analyzed were analyzed using the descriptive statistics and paired sample t-tests to measure the effectiveness of the intervention. Moreover, the results from the pre-test and post-test results showed a significant difference: the pre-test had a M = 46.53 (SD = 2.49), while the post-test showed M = 89.07 (SD = 1.30). The statistical analysis revealed t (49) = 30.4, p<.001, indicating a significant enhancement in students' research writing skills particular in quantitative. These findings showed that the intervention effectively improved students research writing skills and also increased their confidence in writing research. To provide a comprehensive understanding of their insights during and after the intervention, the researchers conducted interviews with selected 10 individuals. From the responses gathered, four themes emerged regarding the insights of students. It is recommended the longer duration for the implementation of seminar series; with the use of varied tools and resources, these innovations could offer more interactive and individualized support for developing research competencies.

KEYWORDS: *Quantitative Research, Senior High School, Students, Seminar, Intervention.*

INTRODUCTION

Research skills are crucial across a wide range of disciplines. As noted by (Pokhrel, 2024), having knowledge of research and its practical applications is highly regarded in academic institutions, as it enhances undergraduates' critical thinking and problem-solving abilities through information analysis. Engaging in research writing also promotes by equipping individuals with the ability to gather credible data and consider multiple perspectives. However, according to Cutillas, et al., (2023) it was found that majority of students found difficulties or challenges in writing the research, students were lack of greater emphasis on research skills, especially to those students facing research work for the first time. In congruence, a study emphasized that without explicit instruction in research and academic writing, students risk producing substandard work, slowing their academic progress, and placing additional burdens on educational institutions highlighting the critical need for integrated writing and research curricula (Bastida & Saysi, 2023).

Moreover, according to (Bakhou & Bouhou, 2022) research writing is a challenging task for many students across Africa, including Algeria, where it demands complex skills like planning, critical thinking, and precise language use. For many,

it's their first time facing such an academic task, making the entire process academically challenging. Similarly in Libya at Benghazi University, according to (Aldabbus & Almansouri, 2020) graduates and undergraduates experience struggles and difficulties in research using academic language, organizing ideas, and achieving coherence due to limited resources, knowledge and proficiency. Even at the master's level in Indonesia, despite having prior experience, students face difficulties from selecting research topics to designing methods and analyzing data to create meaningful conclusions (Sitompul & Anditasari, 2022).

In the Philippines, particular in Iloilo at University of San Agustin according to (Campilan, 2021) many students face significant challenges in research writing. Students struggled with understanding the research process, from formulating problems to creating tools, while also dealing with issues like poor coordination, plagiarism, and personal conflicts that made the experience even more difficult. On top of that, according to (Jimenez, 2024) at Sorsogon State University, students found difficulties included in the topic selection, time management, method justification, data analysis, and APA formatting, all of which affect academic readiness. Similarly, at Laguna State University, the Methodology section was the most challenging

due to factors like language skills, research knowledge, teamwork, and advisor guidance played a key role. The study implied the need for better support tailored to students' backgrounds and research skills (Benavente et al., 2022).

In a specific locale particularly at Asuncion National High School in Davao del Norte, recent observations revealed that many Grade 12 students lack essential knowledge and skills in research writing. Instead of building their own competence, some depend on peers with a basic understanding of research. This stems from their limited prior experience of research's relevance to their academic goals, leading to low interest and engagement. Simply providing research formats or discussing topics generally has proven inadequate for developing real competence. Additionally, pre-test results confirmed low scores in quantitative research concepts, and interviews showed that most students had minimal prior knowledge of research writing. This lack of foundational understanding underscores the need for more targeted instruction and meaningful engagement in research writing. Hence, developing research skills is a crucial part of the learning process as it equips students with critical thinking, enhances their motivation, and fosters a deeper connection to their academic work.

This action research contributes to the broader social needs on addressing problems and issues regarding with the research skills in writing the research. Additionally, this action research is timely and essential in addressing the existing prevalence of lack of student's research skills. Consequently, this study holds significant social relevance as it addresses the evolving learning needs of the students especially when it comes to their research skills. By yielding insightful results, it enriches our understanding of how to address this specific problem using certain strategy and identify if the proposed intervention is effective or otherwise. This knowledge not only enhances our understanding about the research skill for the students but also how to provide solutions on the problem needs.

Further, with the thorough search for relevant literature addressing student's research skills, the researchers have found the study of Carberry., et al (2021) entitled "Curriculum initiatives to enhance research skills acquisition by medical students" their study relied on with opportunities to engage in research writing and how this research activity beneficial. Additionally, the study of (Allayarova, 2021) entitled "The formation of research skills in students as an important indicator of higher education" the study focuses on the impact of the organization of study process on the scientific research process and the main objective is the formation and development of research skills in future specialists. Furthermore, a study of (Kholili, 2022) entitled "The Students' Perceptions towards Writing Problems in English: A Qualitative Study" in which it only focuses on the student's perceptions with regards to their difficulties in research writing propositions.

However, when referred to the scope and locale of this study, the researcher has not come across research on the descriptive quantitative method focusing on one-group pre-test post-test approach perspective in addressing students' research writing skills employing seminar intervention. This means that there has no study that specifically focused on the one-group pretest posttest addressing the needs of non-readers such as problem identification, and conceptualization skills, information and evidence seeking skills, research methodology skills, statistics/quantitative analysis and evidence evaluation skills and communication and language skills. Therefore, established the research gap of the study.

RESEARCH QUESTIONS/OBJECTIVES
The objective of this research was to determine the effectiveness of series of seminars in improving the research writing skills of Grade 11 students. The research questions/objectives that guided this study were as follows:

1. What is the level of the student's research writing skill among Grade 11 students before the series of seminar intervention has been implemented.?
2. What is the level of the student's research writing skill among Grade 11 students after the series of seminar intervention has been implemented?
3. Is there significant difference between pre-test and post-test employing the Research Seminar?
4. What insights can you share to the school administrators with regards to action/intervention taken?

HYPOTHESIS
The null hypothesis, which was tested at a 0.05 alpha level of significance, stated that there is no significant difference between the pre-test and post-test scores of Grade 11 students' research writing skills before and after the series of seminar particular in quantitative research.

PROPOSED INNOVATION, INTERVENTION AND STRATEGY
The Seminar is a multifaceted intervention program designed to enhance Grade 11 students' research writing skills through targeted instruction, collaborative activities, and interactive sessions focused on quantitative research. Implemented over a one-week period at Asuncion National High School, the intervention included pre- test and post-tests to assess student progress and the effectiveness of the program. Prior to implementation, researchers coordinated with the summer class coordinator to select participants and conducted orientations to ensure ethical participation and informed consent. Throughout the intervention, students actively engaged in various learning exercises, and a group of fifteen participants contributed to the development, planning, and evaluation phases through interviews. The researchers aim to foster deeper understanding, active participation, and long-term academic growth, anticipating a positive impact on the students' research writing capabilities and overall educational experience.

Five Categories of the Seminar Series
1. **Problem Identification and Conceptualization (Seminar No. 1)**
The seminar introduced students to quantitative research, guiding them in identifying researchable problems based on observable issues in their school or community. A rubric supported their work, helping them build foundational research, critical thinking, and collaboration skills essential for academic success.

2. Information and Evidence Seeking Skills (Seminar No. 2)

The second part of the seminar focused on teaching students how to seek reliable information to support their arguments on chosen topic. The activity aimed to enhance their research competence by strengthening their ability to locate, evaluate, and apply credible information for evidence-based arguments.

Table 1. *Research Writing Skills Seminar Series Intervention Matrix*

Days	No. of Hours	Content/ Seminars	Activities/Details
Day 1 (Morning)	1	PRE-TEST	
(Afternoon)	2	Seminar No. 1: Problem Identification and Conceptualization	• Introduction • Discussion • Workshop: "Problem Hunt • Guided Feedback
Day 2	2	Seminar No. 2: Information and Evidence Seeking Skills	• Discussion • Question & Clarification • Workshop: "Evidence Seeking Application" • Guided Feedback
Day 3	2	Seminar No. 3: Research Methodology Skills	• Discussion • Question & Clarification • Workshop: "Methodologies Art Creation" • Guided Feedback
Day 4	2	Seminar No. 4: Statistics, Quantitative Analysis, And Evidence Evaluation Skills	• Discussion • Question & Clarification • Workshop: "Statistical Analysis Quizlet" • Guided Feedback
Day 5 (Morning)	2	Seminar No. 5: Communication and Language Skills	• Discussion • Question & Clarification • Workshop: "Quantitative Research Interactive Dialogue" • Guided Feedback
(Afternoon)	1	POST-TEST	

3. Research Methodology Skills (Seminar No. 3)

The third part of the seminar focused on methods for conducting quantitative research. The activity engages students in creative, collaborative tasks enhances their understanding and application of quantitative research methods while fostering critical thinking and teamwork.

4. Statistics, Quantitative Analysis, And Evidence Evaluation Skills (Seminar No. 4)

The fourth part of the seminar, particularly discussed the use of statistics in quantitative research, analyze data and enhance evaluation skills based on the numerical data given. The activity equips students with practical skills in analyzing and interpreting statistical data, enhancing their understanding and application of quantitative research concepts.

5. Communication and Language Skills (Seminar No. 5)

The final part of the seminar discussed the significant parts of communication and language skills in relation to research. The activity helped students enhance their writing and expression skills while deepening their understanding of key research concepts.

METHODOLOGY

This design utilized a quantitative approach with a one-group pretest-posttest design to assess the impact of series of seminar particular on enhancing the research writing skills of Grade 11 students particular in quantitative. According to Thyer (2012), this design observes changes in a single group before and after an intervention, making it ideal for evaluating treatment effectiveness. The study, focused on improved outcomes, enhancing research writing skills among Grade 11 students. Moreover, pre- and post-tests, along with surveys, were used to measure changes in skills such as problem identification, methodology, data analysis, and communication. To complement the quantitative data, in-depth interviews were conducted to gather students' insights and experiences, providing a deeper understanding of the intervention's impact. In addition to the quantitative data, the researchers also employed a qualitative approach through in-depth interviews to gather the insights of participants. These interviews were conducted after the implementation of the intervention to explore students' perceptions after undertaking seminar series. The qualitative findings provided valuable context to the test

results, offering a deeper understanding of how seminar series enhanced students' research writing skills.

RESEARCH RESPONDENTS

This study was conducted at Asuncion National High School, a secondary public school situated in Purok. 12, Poblacion, Asuncion, Davao del Norte. In the selection of the participants, the head of the English department in Grade 11 identified the sections and students that are qualified for the study. Cohen (2007) advised that a quantitative study to be conducted with heterogeneous group would comprise at least 15 participants. In this study the researchers had chosen the Grade 11- students with the help of the principal and summer class coordinator inside the school, as they are appropriate for the study that it must be a Grade 11 students and incoming Grade 12 for the next school as they will be undertaking practical research 2 quantitative; based also on the given inquiries of having no prior knowledge with regards to quantitative research. Moreover, this study employed a purposive sampling, a type of non-probability sampling, involves 10 participants for the qualitative phase which deliberates selection of specific individuals based on their relevance to the research. This method is particularly useful when the researcher has specific knowledge about the population and can select a sample that is most representative of the population (Curtis, 2011).

The questionnaire for this variable was adapted from Lacson and Defos (2022) study. This questionnaire aims to assess the research writing skill students towards their problem identification, and conceptualization skills, information and evidence seeking skills, research methodology skills, statistics/quantitative analysis and evidence evaluation skills and communication and language skills. Then, questions are modified to suit for the goals of this study. Furthermore, before utilizing the survey questionnaire, it undergone validation from the research panels and was pilot tested to ensure validity and reliability of the results obtained from the survey questionnaire used. Moreover, the researchers provided a structured fifty (50) item test questionnaire to measure and identify the status of research writing skills of the students involved in the study. Upon utilization, the respondents will just encircle the correct letter of their choice among the four (4).

Additionally, an adapted 50-item scoring range from the study of Farillon (2022) was utilized to provide a structured and meaningful interpretation of the results, particularly in analyzing the differences between pre-test and post-test mean scores. This framework offered a reliable benchmark for evaluating students' progress in research writing proficiency and helped to quantify the impact of the intervention with greater precision.

RESEARCH INSTRUMENTS

Percentage Range	Descriptive Level	Interpretation
90% - 100%	Outstanding	This means that students' knowledge with research writing skills is outstanding.
72% - 89%	Very Satisfactory	This means that students' knowledge with research writing skills very satisfactory;
54% - 71%	Satisfactory	This means that students' knowledge with research writing skills is satisfactory.
36% - 53%	Poor	This means that students' knowledge with research writing skills is poor.
18% - 35%	Very Poor	This means that students' knowledge with research writing skills is very poor.
0% - 17%	Needs Improvement	This means that students' knowledge with research writing skill needs improvement.

DATA COLLECTION

The researchers collaboratively designed 50-item pre-test and post-test questionnaires to assess students' research writing skills, using research-based items tailored for the target group. These tools were reviewed and validated by experts to ensure content validity, reliability, and learner suitability. Approval was obtained from the school principal to administer the pre-test and implement the intervention. The pre-test established baseline data for later comparison to evaluate the impact of the intervention on students' research writing skills.

Moreover, seminar Intervention was introduced to improve students' research writing skills. The intervention aimed to foster positive attitudes towards research, critical thinking, and academic preparedness equipping students with essential competencies for future tasks. After one week of implementing the intervention, a post-test was administered to the same group to evaluate any improvements in their research writing skills.

This test provided comparative data to the pre-test. Lastly, the completed questionnaires were encoded into a Microsoft Excel spreadsheet. A statistician, working under confidentiality, analyzed the data performing computations and generating tables. The analysis provided insight into the intervention's effectiveness and informed recommendations for improving seminar practices.

STATISTICAL TOOL

The computation of data and testing of hypotheses involved the utilization of various statistical tools. These tools were employed to ensure accurate analysis and interpretation of the data.

Paired T-test. In this research, this was used to determine whether the two populations' means were different when the variances were known and the sample size was large. It also helped to determine significant differences in the control group

and experimental group's computational fluency based on the results of the pre-test and post-test.

Mean. This referred to the average and was calculated by dividing the sum of scores of the students in the pretest and post-test. This was used to determine the level of performance of the students before and after the intervention.

Standard Deviation. This was used to measure the amount of variability or dispersion in students' test scores. A low standard deviation indicated that the scores were closely clustered around the mean, while a high standard deviation suggested a wider range of performance.

Cohen's d. This was used in the study to measure significance difference between pre-test and post-test scores. It provided insight into how meaningful the observed changes were, beyond mere statistical significance.

DATA ANALYSIS
For qualitative data, (interviews and thematic analysis were used to identify recurring themes (Braun & Clarke, 2013). The process began with in-depth interviews to systematically to provide a nuanced understanding of the intervention's impact. Second is the coding of interview transcripts to identify meaningful segments related to their insights after the intervention. This was followed by data reduction, wherein

codes were grouped to form coherent categories allowing for clearer interpretation of patterns. Using, thematic analysis these categories were further refined into key themes that captured their insights after undertaking the intervention. Hence, the analysis revealed insights regarding to the effectiveness of seminar in enhancing their research writing skills and their constructive suggestions for further improvement.

RESULTS AND DISCUSSIONS
This section presents the findings of the study based on the data collected through quantitative and qualitative methods. It also provides an analysis and interpretation of the results in relation to the research objectives.

Research Objective No. 1: **What is the level of the student's research writing skill among grade 11 students before the series of seminar intervention has been implemented?**
To find the answer for the first research objective, the researchers used an adapted a questionnaire to suit the context of the study. The set of questionnaires dealt with the student research writing skills with the indicators on problem identification and conceptualization, information and evidence seeking skills, research methodology skills, statistics, quantitative analysis, and evidence evaluation skills, communication and language. As shown in Table 2 were the mean for the indicators in student's writing skills in research before the implementation of Seminar.

Table 2. *Level Of Research Writing Skills among Grade 11 students before the implementation of Seminar Series*

Pre-Test Scores	Frequency	Percentage
27	1	6.67%
26	1	6.67%
25	4	26.67%
24	2	13.33%
23	1	6.67%
22	4	26.67%
19	1	6.67%
18	1	6.67%
27	1	6.67%
26	1	6.67%
Total	**15**	**100 %**
Overall Mean		**46.53%**
Standard Deviation		**2.49**
Description		**Poor**

Table 2 presents the results of the pretest administered to 15 students in the experimental group, in assessing their research writing skills prior to the intervention. the pretest showed an overall mean score $M = 46.53$ with an $SD = 2.49$, indicating a poor level and varied research skills among students before the intervention. This means that the students' knowledge in research writing skills is poor. Additionally, the scores ranged from a minimum of 18 to a maximum of 27, reflecting varying levels of proficiency among the students in research writing. Notably, the most frequently occurring scores were 22 and 25,

each attained by 8 students indicating the students' poor knowledge in research writing skills.

The findings indicate that students demonstrated a poor level of research writing skills prior to the intervention, aligning with Vejunu and Yunus (2023) highlighted that the foundation of academic writing skills are significantly due to factors based on their prior educational experiences among the learners before targeted instruction. The participants exhibited clear differences in skill levels, indicating varying degrees of prior knowledge and experience. This variation emphasized the importance of

tailoring instruction to meet individual learning needs, in congruence with the study of Hundarenko (2019) asserted that learners bring diverse competencies that they bring based on their prior educational experiences. Also, a significant similarity in their writing skills, pointing to common areas of strength or weakness, which supports Nazzal et al., (2020) claimed that patterns in student writing often reflect shared instructional gaps. Based on the results from the pre-test, it is evident that there is a clear baseline for evaluating the impact of the Seminar particular in quantitative is needed to fuel students learning.

The table 3, showcased the summary of the level of students' research writing skills before the implementation of the seminar series with its different indicators. In the pre-test, the overall

mean of all indicators was 46.53, indicating a poor research writing skills among students. The indicator with the highest mean was communication and language skills with a mean score of 58.00, indicating a satisfactory skill in writing research, followed by research and methodology skills with a mean of 46.67 then, problem identification and conceptualization with a mean of 46.00, followed by information and evidence seeking skills with a mean of 41.33 and finally, statistics, quantitative analysis, and evidence evaluation skills with a mean of 40.67. All indicators based on the mean showed that students' research writing skills in the five aspects were showed poor. This suggests that most students lacked foundational knowledge and confidence in writing academic research. The results highlight a clear need for targeted support to develop their research writing competencies.

Table 3. *Summary on the Level of Research Writing Skills Among Grade 11 Student Before the Implementation of Seminar.*
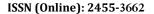
Indicator	Average Percentage Score	Description
Problem Identification and Conceptualization	46.00%	Poor
Information and Evidence Seeking Skills	41.33%	Poor
Research Methodology Skills	46.67%	Poor
Statistics, Quantitative Analysis, and Evidence Evaluation Skills	40.67%	Poor
Communication and Language Skills	58.00%	Satisfactory
Overall Percentage Score (%)	**46.53%**	**Poor**

Lubis and Huda (2021) revealed that students face challenges in the topic selection process as they struggling to analyze gaps or issues in existing research. Similarly, (Islam Khan, 2024) students also do not know how to make the connection between their existing knowledge with the new information through their research to help them in the topic selection process. Moreover, Thindwa et al. (2020) found that a challenge that affect students' information behavior, is the lack of online information literacy, undermining the credibility and accuracy of their academic work. In congruence, Li and Hassan (2023) found that college students heavily rely digital tools for academic help, often lacking with formal training in information literacy. Another study supported by Holmes et al. (2021) implied that due to insufficient instructional support and unfamiliarity with methodological concepts, students face significant challenges in Practical Research, particularly in designing instruments, planning data collection, and writing the methodology section. Also, Tumiran (2024) found that these obstacles are linked to ambiguous teaching processes, limited resources, and time constraints, contributing to widespread confusion of the students regarding fundamental methodological concepts. Furthermore, Morata and Poblete (2024) emphasized that overconfidence in statistical procedures that coexists with poor practical application, largely due to

theory focus teaching methods and gaps in instructor expertise. Similarly, Kadusale et al. (2024) found that students lacked foundational competence in statistical analysis resulting in high stress and a failure to accurately interpret data in their research. Additionally, the very low-level of fifth indicator finds support with Al-Sheikhly et al. (2020) for learners struggling with professional communication it found that anxiety, lack of confidence, and poor oral presentation skills were barriers to effective academic discourse. Also, Chishiba and Joseph (2024) found that lack of exposure to academic communication skills leads to a weaker group engagement.

Research Objective No. 2: **What is the level of the student's research writing skill among grade 11 students after the series of seminar intervention has been implemented?**
Table 4 presents the post-test results of 15 Grade 11 students, evaluating their research writing skills following the intervention. The post-test results revealed a higher $M = 89.07$ with a reduced $SD = 1.30$ indicating a very satisfactory skill in research writing. This means that the students' knowledge with research writing skill is very satisfactory. Also, the lower standard deviation in the post-test implies that the intervention not only raised knowledge but also helped narrow the gap between higher- and lower-performing students. Additionally,

the scores ranged from a low of 43 to a high of 47, demonstrating increase after the intervention. The score of 43 and 44 emerged as the most frequently achieved result, recorded by 8 students, further emphasizing the overall strength of performance within the group. The post-test results clearly show that the seminar series significantly improved students' research writing abilities. Students gained confidence and competence in structuring research proposals, understanding quantitative statistics, and proper referencing and reflecting a deeper understanding of research methodologies.

The findings indicate a notable improvement in students' research writing skills following the intervention, supporting the study that emphasize the effectiveness of structured academic writing support in enhancing learners' ability to engage in research-based writing (Teng, 2022). Moreover, the overall strong performance suggests that explicit instruction and sustained guidance can help students master the complex components of research writing, such as argumentation, citation, and coherence (Manchón & Polio, 2022). Additionally, it was showed that guided-writing instruction with teacher student collaboration led to statistically significant gains in writing skills and motivation among students in their academic writing (Martarini and Sastaparamitha, 2020). These findings affirm the value of the seminar particular in quantitative with the goal of enhancing students with essential research writing competencies.

Table 4. *Level Of Research Writing Skills among Grade 11 students after the implementation of Seminar Series*

Post Test Scores	Frequency	Percentage
47	1	6.67%
46	3	20.00%
45	3	20.00%
44	4	26.67%
43	4	26.67%
Total	**15**	**100.00%**
Overall Mean		**89.07%**
Standard Deviation		**1.30**
Description		**Very Satisfactory**

On the other hand, after the intervention, the researcher provided the same set of questionnaires to check the progress. The post-test overall mean was 89.07, indicating a very satisfactory student improvement in research writing. The indicator with the highest mean was communication and language skills at 92.00, indicating an outstanding skills in research writing, followed by problem identification and conceptualization with a mean of 90.67, also indicating an outstanding skills in writing research, then information and evidence seeking skills with a mean of 89.33, indicating a very satisfactory skills in writing research, also research and methodology skills with a mean of 88.67, indicating a very satisfactory skill and statistical/quantitative analysis skills with a mean of 84.67, indicating a very satisfactory in student's research writing skills. The post-test results showed a remarkable improvement, with the overall mean indicating a substantial increase in student skills in writing research. Statistical analysis further validated these results, revealing a significant t-value result of 30.4, which underscores the effectiveness of the intervention in significantly enhancing student awareness and skills in research writing.

Table 5. *Summary on the Level of Research Writing Skills Among Grade 11 Students After the Implementation of Seminar*

Indicators	Average Percentage Score	Description
Problem Identification and Conceptualization	90.67%	Outstanding
Information Seeking Skills	89.33%	Very Satisfactory
Statistical/Quantitative Analysis Skills	84.67%	Very Satisfactory
Research Methodology Skills	88.67%	Very Satisfactory
Communication and Language Skills	92.00%	Outstanding
Overall Percentage Score (%)	**89.07%**	**Very Satisfactory**

Pnevmatikos et al. (2023) implied that students' ability to conceptualize problems for their academic writing is an important trait of the 21st century as it equips them to tackle real-world issues with critical thinking. Similarly, (Adebisi, 2022) support also that students must have the ability to conceptualize issues to prepare them in today's knowledge-driven world hence, more research is required to advance knowledge and innovation to solve issues. Moreover (Alahi and Yesmin, 2024) found that, students' literacy to information indicates higher skills in proper citation, current, and relevant sources, employed correct APA formatting, and demonstrated improved data interpretation which boosts students' research efficacy. Similarly, (Chan and Sung, 2025) found that students who can utilize academic-oriented search engines and able to consistently identify peer-reviewed journal articles, these advantages not only improve the relevance and credibility of students' research writing but also foster higher-level skills. Moreover, Daniel (2022) found that postgraduate students who develop a strong mastery of research methodologies significantly improve the quality of their theses. Hence, it leads to more structured data collection and analysis, more credible

conclusions, and a higher standard of academic and professional integrity in their writing. Additionally, Taherdoost (2022) emphasized that understanding research methodologies is essential in academic writing, as it enables researchers to identify and select the most appropriate approach for their specific study and to navigate the research process effectively. Furthermore, Philip (2023) highlighted that a solid foundation in statistics and quantitative training is crucial for students, as it enables them to design rigorous studies, interpret data accurately, and approach analysis with greater confidence. With that, according to Dani and Al Quraan (2023) emphasized that reinforcing a basic understanding of descriptive statistics such as standard deviation in lab reports significantly enhanced students' ability to interpret data accurately. Supported by the study of Macke and Tapp (2021) emphasized that collaborative learning environments and strong communication skills are crucial for improving students' academic writing and engagement. Lastly, Sun et al. (2021) also found that students' writing self-efficacy a core component of strong language skills.

Research Question No. 3: Is there significant difference between pre-test and post-test employing the research seminar?

Table 6. *Significant Difference between Pre-test and Post-test*

Type of Test	N	df	Mean	SD	t-value	Cohen's d	P-value	Decision $\alpha = 0.05$
Pre-Test	15	49	46.53	2.49	30.4	7.84	< .001	**Significant**
Post-Test	15		89.07	1.30				

Presented in Table 6 are the results of the significant difference between the pretest and post-test scores, indicating the performance levels of 15 students in the experimental group in measuring the research writing skills of the students, $t(49) = 24.0, p < .001$. Since the probability value ($p < .001$) is less than the level of significance ($\alpha = 0.05$), the null hypothesis is rejected. This means that there is a significant difference between the pretest and post-test scores. The effect size ($d = 7.84$) indicates an extremely large effect, suggesting that the intervention had a substantial impact on learners' performance. These findings highlight the effectives of seminar series in enhancing Grade 11 students' research writing skills.

The findings revealed a statistically significant difference between the pretest and post-test scores, indicating measurable improvement in students' research writing skills. The substantial increase in mean scores suggests that students developed stronger competencies in areas such as problem formulation, methodology, and data interpretation. The reduced standard deviation in the post-test further implies more consistent performance across the group. In conclusion, the results confirmed the effectiveness of the Seminar in enhancing both the quality and consistency of students' research writing.

Research Question No.4: What Insights Did the Students Share to The School Administrators with Regards to Action/Intervention Taken?
To answer this research question, in-depth interviews and focus group discussion were conducted with the informants and participants. Probing questions were asked to elicit their responses regarding their observation and experiences with the

impact of Seminar strategy in improving research writing skills among grade 11 students enrolled in the summer class. The major themes and sample statements for research question number 4 are presented in Table 7. Participants shared their responses about their own experience and observation of the intervention. From the answers of the participants, four major themes emerged: (1) difficulty in research due to lack of exposure; (2) enhanced knowledge in quantitative research; and (3) enhanced confidence in writing research; and (4) importance of mentorship and guided support (5) the need for accessibility of varied research-related resources.

The first theme was perceived by the grade 11 students about their difficulty in research due to lack of exposure. The grade 11 students expressed difficulties in understanding quantitative research due to their lack of prior experience. They found the technical concepts confusing and unfamiliar, especially since most had only been exposed to qualitative methods. It was congruent with the study of (Alharbi, 2022) that these struggles often stem from inadequate research training and limited academic writing experience, which negatively impact the quality of student outputs. It was found also that students frequently express anxiety and reduced confidence in their ability to complete research tasks effectively. It was also supported with the study, that many students enter higher education without sufficient background in research skills, making it hard for them to grasp key concepts such as literature review, methodology, and academic argumentation. It was found that students with minimal prior experience in research writing often exhibit confusion, low confidence, and a high rate of errors in their academic outputs (Komba, 2021).
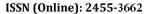
The seminar on quantitative research proved to be helpful for many students. Before attending, several of them admitted they were confused about key concepts and procedures. After the session, they felt much clearer and more confident in their understanding. This supports findings by Li & Zhang (2021), who observed that group discussions can be. Students not only got better at understanding research concepts and writing clear research problems, but also improved in organizing their ideas, using academic language, and citing sources correctly. These gains were largely thanks to hands-on activities, real examples, and helpful peer feedback during the seminar. It shows that when students receive clear, focused instruction on how to write each part of a research paper, their writing skills improve significantly Kim et al. (2021).

Several students shared that after the week-long seminar, they felt much more confident about research, especially in understanding the basics of quantitative methods. Before the seminar, many admitted they had little to no idea what quantitative research involved. These results support other studies showing that research seminars can greatly boost students' confidence in academic writing. When students are exposed to research concepts and language through discussions and group activities, they naturally become more comfortable with interpreting and conducting research. (Wortman-Wunder & Wefes, 2020). Additionally, targeted instruction in research basics boosted students' confidence, leading to clearer, more structured papers and greater involvement in research activities. Teaching research fundamentals early helps build self-efficacy and supports stronger academic performance and engagement (Sari & Wahyuni, 2023). In congruence, according to Escandallo et al. (2024) self-esteem plays a crucial role in students' performance with their academic tasks as it helps them to overcome challenges particularly in research writing to help them present their work effectively.

Table 7. *Themes and Supporting Statements on the Insights of Students from the Participation of Seminar in Enhancing their Research Writing Skills*

Essential Themes	Supporting Statements
Difficulty in Research Due to Lack of Exposure	• *"It is difficult for me to conceptualize quantitative research not until there is seminar series like this that help me understand the concepts"* IDI_02 • *"This part of research is very difficult for me because, I only experienced doing qualitative research"* IDI_02 • *"Quantitative research felt confusing sir because I have not experienced doing this"* IDI_04 • *"My understanding of quantitative research was very limited…I struggled with the technical concepts"* IDI_09 • *"Before attending the seminar, I found quantitative research difficult to understand due to unfamiliarity with the concept's sir"* IDI_10
Enhanced Knowledge in Quantitative Research	• *"It strengthened my knowledge in writing quantitative research…After attending the seminars, I learned new concepts that broadened my skills in conducting research in Grade 12".* IDI_02 • *"The series of seminars helped build knowledge in research writing skills, specifically in practical research 2 quantitative".* IDI_03 • *"The series of seminars really helped strengthen my knowledge in writing because it allowed me to correct my mistakes early on and made the research process more manageable".* IDI_05 • *"I gained a better understanding of what a hypothesis is, how to use statistical tools, and how to follow the correct format for a research paper. This also helped me understand the process more clearly and made it easier for me to work on my research"* IDI_07
	• *"I now feel more prepared and less intimidated to carry out quantitative studies".* IDI_03 • *"This made abstract concepts more understandable…I now feel capable of applying the concepts to real research projects"* IDI_04 • *"The seminar series removed the fear I had towards…I now feel more competent and confident to create a research paper"* IDI_08

Increased Confidence and Readiness in Research Writing	• *"The seminar simplified the steps and gave us practical examples. I now feel more independent and skilled in quantitative research"* IDI_09
The Importance of Feedback and Guided Support	• *Having a teacher that guide us during the research process made a big difference, especially when I didn't understand the statistical parts."* IDI_02 • *"Maybe, for us students we need teachers that is very patient in explaining the concepts, which will help me not feel lost in the process."* IDI_04 • *One-on-one consultations with each member from the group would help us improve our work significantly… I could ask questions freely and learn step-by-step."* IDI_07 • *"We would like also from them to consistently checked our progress and explained difficult parts in a simple way"* IDI_08
The Need for Accessibility of Varied Research-related Resources	• *"My thought about this sir is that school administrators should actively and even rigorously support…providing with more resources such as access to workshops, research materials, and updated research materials"* IDI_03 • *"Maybe they could also provide updated materials and books so that we have a clearer guide"* IDI_04 • *"Invest in software or tools we can use for data analysis like Excel. They can also give us more time or resources, like computer labs, during research season"* IDI_06 • *"I believe that school administrators should provide resources like free internet, and give time for teachers to attend training or workshops to help students more active in learning effectively"* IDI_09

students who took part in structured discussions before writing showed noticeable improvements in how they organized and expressed their research ideas. The improvements in students' writing lasted over time, showing how effective structured seminar series about quantitative to the Grade 11 students' research writing skills.
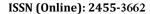
Furthermore, students stressed the importance of supportive, approachable teachers who provide clear explanations and personalized feedback, highlighting how vital mentorship is in guiding them through the challenges of quantitative research. With that, it was supported by the study of (Andriani and Rahmawati, 2021) emphasized that consistent guidance and feedback are key to helping students improve their research writing, especially when learning the basics. It builds confidence, corrects misunderstandings, and strengthens their work. Studies show that students with ongoing support produce clearer, more structured, and academically sound papers than those with little guidance. This continuous mentorship also encouraged greater motivation and reduced writing-anxiety (Zhao and Meier, 2022).

Additionally, students also recognized and appreciated the support from school leaders who invested in research materials, training, and other resources to help them grow. This aligns with studies showing that when administrators back research efforts, like offering workshops and tools as it strengthens teachers' ability to guide students, ultimately improving students' research skills Tagadiad et al., (2024). Findings implied that institutional support through training, resources, and materials plays a vital role in strengthening research skills among both teachers and students. It helps improve writing quality, encourages independent work, and supports diverse learning needs. These findings highlight the importance of ongoing administrative commitment to building a strong, research-focused academic environment (Ali & Ullah, 2022).

CONCLUSION
The findings of the study revealed that the Grade 11 students at Asuncion National High School significantly showed difficulties on their research writing skills particularly in practical research 2 quantitative. This was revealed from their pre-test result, where the average score was only 46.53%. This can be inferred that they demonstrated a poor level of research writing skill in quantitative which indicates that Grade 11 students struggled with research skills in terms of problem identification and conceptualization, information and evidence seeking skills, research methodology skills, statistics, quantitative analysis, and evidence evaluation skills, communication and language skills. Thus, the result from the pre-test of Grade 11 students emphasizes the need for an urgent intervention that could support the students in developing their research writing skills particular in quantitative through series of seminars.

Moreover, following the implementation of Seminar particular in quantitative the students showed a remarkable development in their research writing skills. The post-test result showed an average score of 89.07% reflecting an outstanding and significant development in their skill in writing the basics of a research paper. The notable increase suggested that the series of seminars helped improve students research writing skills in their problem identification and conceptualization, information and evidence seeking skills, research methodology skills, statistics, quantitative analysis, and evidence evaluation skills, communication and language skills which are crucial in making research. The post-test outcomes affirmed that guided discussions and varied activities can greatly enhance the student's research writing skills.

Furthermore, the quantitative difference between pre-test and post-test results are both substantial and statistically meaningful. The students' average scores were doubled after the series of intervention conducted, with a large effect size (Cohen's d = 7.84) providing strong evidence of the intervention's effectiveness. The significant improvement in students' scores, marked by a large effect size, implies that the intervention was highly effective in enhancing research writing skills among students who previously struggled.

The quantitative results and qualitative insights from the students revealed that many initially found quantitative research difficult due to limited experience and insufficient foundational knowledge. After participating in the seminar series, students reported strengthened understanding and improved writing skills, which they found impactful for developing research competence. The seminars also helped reduce anxiety and boost confidence, enabling greater collaboration, engagement, and appreciation for the research process. With the added support of varied resources and teacher guidance, students felt more motivated and experienced less writing-related anxiety. The findings affirmed that a structured learner-centered intervention not only improves their research writing skills but as well their attitudes and engagement to research.

RECOMMENDATIONS
This study has successfully attained its objectives, to determine the level of research writing skills among grade 11 students before and after the implementation of seminar particular in quantitative, the significant difference between pre-test and posttest, and the effectiveness and insights shared by the students in the academe. Since this research is limited in many aspects. Given the positive results, it is strongly recommended that, inviting guest speakers or industry professionals to share real-world experiences and insights could significantly enrich the learning experience. These experts can provide practical perspectives on how quantitative research is applied in various industries, offering students a clearer understanding of career-relevant applications and emerging trends. This exposure can also foster networking opportunities and inspire students to explore diverse research paths.

On top of that, it is strongly recommended that future researchers consider expanding the sample size to improve the generalizability of results. Additionally, conducting longitudinal studies would provide a more comprehensive understanding of the long-term effectiveness of the Seminar series in strengthening students' research writing abilities. Further research should also include comparative analyses with other instructional strategies and explore the integration of technological tools, such as digital research writing platforms and AI-assisted writing aids, to enhance both teaching and learning experiences. These innovations could offer more interactive and individualized support for developing research competencies.

Future seminars could benefit from incorporating various technologies training to better equip students with crafting quantitative researches. Including more case studies from various fields would help make the content more relatable and applicable to different research contexts. It would also be valuable to extend the seminar duration to allow deeper exploration of complex topics and provide ample time for hands-on exercises. Lastly, integrating continuous feedback mechanisms would help tailor the seminar content to the evolving needs of the students and improve overall learning outcomes. In conclusion, the recommendations outlined above are grounded in the study's findings and offer a pathway for improving future implementations of the research seminar. In the way of expanding research efforts and refining instructional practices, educational stakeholders can significantly enhance the research writing competence and overall academic literacy of Grade 11 students.

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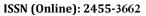
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