

Research Writing Skills and Academic Performance of Senior High School Students

Mariel I. Custodio, MAEd

Graduate Student, Tomas Claudio Colleges, Morong, Rizal, Philippines

Faculty Member, Philippine Technological Institute of Science, Arts and Trade, Inc. (PhilTech), Tanay, Rizal Philippines

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Email of Corresponding Author: marielcustodio220@gmail.com

Abstract

This study examined the research writing skills and academic performance of Senior High School students at Philippine Technological Institute of Science and Technology (PhilTech) in Tanay, Rizal during the School Year 2025–2026. Specifically, the study assessed the extent of students' research writing skills in terms of research planning and organization, note taking and data collection, critical thinking skills, and data analysis, and determined their relationship with academic performance. The study also analyzed whether significant differences exist in research writing skills when students are grouped according to selected profile variables. The study employed a descriptive survey research design with documentary analysis. The respondents consisted of 326 Grade 12 students enrolled in Practical Research 2, selected from a total population of 1,764 students using Slovin's formula and simple random sampling technique. The respondents were described according to age, sex, sibling position, number of children in the family, monthly family income, parents' educational attainment, and parents' occupation. Data were gathered through a researcher-made questionnaire-checklist designed to measure the extent of research writing skills. Documentary analysis was also utilized by examining the respondents' first-quarter grades to determine their academic performance. Findings revealed that most of the respondents were 18–20 years old, female, and either first or second born in the family. Many came from families with more than two children and with a monthly income below ₱15,000, while most parents were high school graduates or college undergraduates. Results showed that the students highly practiced research writing skills in all areas measured. Significant differences were found in research writing skills when grouped according to sex, number of children in the family, and mother's occupation, while age, sibling position, family income, parents' educational attainment, and father's occupation showed no significant differences. The overall academic performance of the students was Very Satisfactory based on their first-quarter grades. Furthermore, the results indicated a significant relationship between research writing skills and academic performance. The study concluded that stronger research writing skills contribute to improved academic performance among senior high school students. It recommended that teachers continuously strengthen research-related instruction and provide more opportunities for students to practice research writing through structured activities and projects. The proposed action plan is also recommended for implementation, and further studies may be conducted considering other relevant variables.

Keywords: research writing skills, academic performance, senior high school students, critical thinking, research planning, data analysis

1. Introduction

Education plays a significant role in the intellectual, social, and moral development of individuals. It provides learners with knowledge, critical thinking skills, and the capacity to make informed decisions in addressing the demands of a rapidly changing society. Beyond academic learning, education nurtures values, creativity, and social responsibility that contribute to national development and global citizenship. As societies continue to evolve, education must equip learners with competencies that enable them to analyze information, generate knowledge, and apply evidence-based reasoning in solving real-world problems.

In the Philippines, the importance of research and innovation is emphasized in Article XIV, Section 10 of the 1987 Philippine Constitution, which mandates the State to prioritize research and development, invention, innovation, and their utilization for national progress. This constitutional provision highlights the need for educational institutions to strengthen scientific inquiry and research culture among learners. In support of this mandate, Department of Education Order No. 16, s. 2017, known as the Research Management Guidelines, promotes and institutionalizes research initiatives within the basic education system. The policy encourages schools to integrate research activities into teaching and learning processes to enhance educational quality and evidence-based decision making.

Within the senior high school curriculum, research writing is an essential academic requirement that develops students' ability to plan investigations, analyze information, and communicate ideas systematically. Research writing skills include competencies such as research planning and organization, note taking and data collection, critical thinking, and data analysis. These competencies are necessary for preparing students for higher education and professional environments that require analytical thinking and scholarly communication.

Existing literature emphasizes the importance of structured research writing practices in improving academic outputs. Grimm (2024) noted that organizing ideas through outlining helps students develop clearer and more coherent research papers. Similarly, Kanchan et al. (2023) highlighted that the use of credible academic sources and databases strengthens the reliability and quality of research outputs. Other investigations have identified common challenges encountered by student researchers, including time management difficulties, problems in developing thesis statements, and writer's block during the drafting stage (Kubota, 2022; Yahmun et al., 2024; Tavener-Smith, 2021). Feedback mechanisms such as peer review and academic writing workshops were also found to improve research writing competence and formal language use (Fatimah et al., 2021; Aziz et al., 2021).

Research among senior high school students also indicates that writing competence is related to academic achievement. Studies have shown that students with stronger research and writing skills tend to demonstrate higher levels of academic performance (Cuayson, 2024; Uddin, 2025). However, students still encounter difficulties in areas such as constructing research frameworks, managing citations, narrowing research topics, and synthesizing findings effectively (Cepillo, 2024; Roxas, 2023; Acheron & Sapungan, 2024).

Despite these findings, many senior high school students continue to experience challenges in completing research requirements, particularly in schools where access to academic resources and technological facilities is limited. In the Philippine Technological Institute of Science and Technology (PhilTech) in Tanay, Rizal, several Grade 12 students encounter difficulties in preparing research papers for Practical Research 2 due to limited internet access, lack of research resources, and insufficient mastery of research writing techniques. These challenges may affect both the quality of their research outputs and their overall academic performance.

Although previous studies have examined research writing competence and academic achievement, limited empirical evidence focuses on the relationship between specific research writing skills and academic performance among senior high school students in private institutions in Rizal. In particular, few studies have analyzed how competencies in research planning and organization, note taking and data collection, critical thinking, and data analysis influence students' academic outcomes.

In view of this gap, the present study aims to determine the extent of research writing skills of senior high school students and examine their relationship with academic performance. The findings of this study are expected to provide insights that may guide educators in strengthening research instruction and improving students' research competencies.

2. Materials and methods

2.1 Research Design

The study used descriptive type of research utilizing a questionnaire as the tool in gathering pertinent data..

2.2 Research Setting

The study was conducted in Philippine Technological Institute of Science and Technology Inc., also known as PhilTech in Tanay, Rizal. This school is part of the private schools in the aforementioned municipality that cater Senior High School Students Grades 11 and 12. It has academic and technical vocational livelihood (TVL) track with the following strands: Science, Technology Engineering and Mathematics (STEM), Humanities and Social Sciences (HUMSS), Accountancy, Business, and Management (ABM), Home Economics (HE), and Information and Communication Technology (ICT). A total of 3,200 students are enrolled at PhilTech for the school year 2025–2026 in both Grade 11 and Grade 12.

2.3 Respondents

The respondents of the study were selected grade 12 students of Philippine Technological Institute of Science and Technology Inc. or known as PhilTech-Tanay. The sample size was determined using the Slovin's formula. Hence, out of 1764 grade 12 students, 326 were considered. They were chosen using simple random sampling technique. They were described in terms of age, sex, sibling position, number of children in the family, monthly family income, parents' educational attainment and parents' occupation

2.4 Research Instruments

The study utilized a researcher-made questionnaire-checklist as the primary instrument for data collection. The instrument consisted of two parts: the first part gathered the respondents' demographic profile, including age, sex, sibling position, number of children in the family, monthly family income, parents' educational attainment, and parents' occupation. The second part measured the extent of senior high school students' research writing skills in terms of research planning and organization, note taking and data collection, critical thinking skills, and data analysis, with ten items for each component, totaling forty items. Responses were rated using a five-point Likert scale ranging from 1 (Never/Least Practiced) to 5 (Always/Very Highly Practiced). The academic performance of the respondents was determined through their first quarter average grades, which were interpreted using the Department of Education grading scale. To ensure validity, the instrument underwent content validation by experts, including professorial lecturers, the thesis adviser, a statistician, the Dean of the Graduate Studies Program, the academic coordinator, and a research consultant, whose suggestions were incorporated into the final revision of the questionnaire.

2.5 Data Collection

The researcher followed the Gantt Chart of Activities in the conduct of the study. This includes the formulation of research problem up to the revision of the manuscript and submission of the final copy. After the validation of the instrument, permission to conduct the study was obtained from the Office of the Schools Division Superintendent. The questionnaire-checklists was administered to the respondents through the Google Survey form and printed questionnaire checklist in compliance with the Data Privacy Act of 2012. After the retrieval, the data were encoded and processed through the Statistical Package for Social Sciences (SPSS) in the College Statistical Center. Analysis and interpretation of data followed. Based on the interpreted data, summary of findings, conclusions and recommendations were formulated. After the oral defense, suggestions made by the panel members were incorporated. The manuscript was subjected to anti-plagiarism test in the statistical center. After the final editing and revision, hardbound copies were submitted to the Office of the Dean of the Graduate Studies Program and other offices concerned..

2.6 Data Analysis

The data gathered in the study were analyzed using appropriate statistical tools. Frequency, percentage, and rank distribution were used to describe the profile of the respondents based on the selected variables. The weighted mean was utilized to assess the extent of research writing skills of senior high school students in terms of research planning and organization, note taking and data collection, critical thinking skills, and data analysis. To determine whether there were significant differences in the extent of research writing skills when respondents were grouped according to their profile variables, one-way analysis of variance (ANOVA) was applied. The frequency, mean, and standard deviation were used to determine the level of academic performance of the respondents based on their first quarter average grades. Finally, correlation analysis was employed to determine the significant relationship between the extent of research writing skills and the academic performance of senior high school students...

2.7 Ethical Considerations

The study ensured the protection of the rights and welfare of all respondents. Participation was voluntary, and respondents were informed about the purpose of the study. Confidentiality and anonymity of all information provided were strictly maintained, and data were used solely for research purposes. The researcher ensured that the respondents were treated with respect and that no harm, whether physical, emotional, or psychological, would result from their participation in the study.

3. Results and Discussion

3.1. Profile of the Respondents in Terms of the Selected Variables

As reflected in the table, in terms of age, out of 326 respondents, 42.6% are 18-20 years old and 24.6% are 15-17 years old. The rest have ages 21 years old and above. In terms of sex, there are more females than males with 59.2 % females and 40.8 males. With regard to their sibling position, 33.7 % are first born, 19.6% are second born and the rest are third born and up. As regard to the number of children in the family, 23.3 % belong to families with 4 children, 23 % belong to families with three children and 16.9% belong to families with 2 children. As to their monthly family income, 32.5 % have monthly family income below Php 10,000, 26.7% have monthly family income of Php 10,000 – Php 14,999 and the rest have monthly family income of Php 15,000 and above. With regard to parents' educational attainment, many of the fathers are high school graduates with 30.7 %, 19 % are college graduates, 12 % are high school undergraduates. Likewise, most of the mothers are high school graduates with 26.7%, 20.2 are college graduates and 17.8% are college undergraduates. As regard to parents' occupation, most of the parents have other occupation aside from the identified occupations with 39.6% and 40.2% respectively.

Table 1: Frequency and Percentage Distribution of the Respondents in Terms of the Selected Variables

Age	f			%		
24 years old and above	37			11.3		4
21-23 years old	70			21.5		3
18-20 years old	139			42.6		1
15-17 years old	80			24.6		2
Total	326			100		
Sex	f			%		
Male	133			40.8		2
Female	193			59.2		1
Total	326			100.0		
Sibling Position						
1 st	110			33.7		1
2 nd	64			19.6		2
3 rd	55			16.9		3
4 th	45			13.8		5
5 th and above	52			16.0		4
Total	326			100.0		
Number of Children in the Family	f			%		
6 children and above	53			16.3		4
5 children	39			12.0		5
4 children	76			23.3		1
3 children	75			23.0		2
2 children	55			16.9		3
1 child	28			8.6		6
Total	326			100.0		
Monthly Family Income						
Php 20,000 and above	73			22.4		3
Php 15,000 – Php 19,999	60			18.4		4
Php 10,000 – Php 14,999	87			26.7		2
below Php 10,000	106			32.5		1
Total	326			100.0		
Parent’s Educational Attainment	Father			Mother		
	f	%	Rank	f	%	Rank
College Graduate	62	19.0	2	66	20.2	2
College Undergraduate	38	11.7	4	58	17.8	3
Vocational	22	6.7	7	23	7.1	6
High School Graduate	100	30.7	1	87	26.7	1
High School Undergraduate	39	12.0	3	39	12.0	4
Elementary Graduate	37	11.3	5	20	6.1	7
Elementary Undergraduate	28	8.6	6	33	10.1	5
Total	326	100.0		326	100.0	
Parent’s Occupation						
Government Employee	36	11.0	2	28	8.6	4
Private Employee	32	9.8	4	27	8.3	5
Self-employed	30	9.2	5	33	10.1	3
OFW	35	10.7	3	46	14.1	2
Office Personnel	19	5.8	7	19	5.8	7
Informal Worker	28	8.6	6	18	5.5	8
Businessman/Businesswoman	17	5.2	8	24	7.4	6
Others	129	39.6	1	131	40.2	1
Total	326	100.0		326	100.0	

3.2. Extent of Research Writing Skills of Senior High School Students as Perceived by Themselves with Respect to the Different Aspects

As reflected in the table, with respect to the different aspects, first in rank is Note Taking and Data Collection, with an overall weighted mean of 4.22 interpreted Highly Practiced. All the other aspects are interpreted Highly Practiced with last in rank is the aspect Data Analysis with an overall weighted mean of 4.15. The composite weighted mean is 4.18 interpreted Highly Practiced. It could be deduced from the results that students research writing skills are highly practices in their academic undertakings. This means that students regularly practice their note taking skills, critical thinking skills, research planning and organization skills and data analysis to produce quality research outputs. Findings imply that students perceive themselves as highly practiced in research writing skills, with strengths in note taking, data collection, and critical thinking. Students may need further development in research planning, organization, and data analysis. This conforms with the citation of Xavier (2022) that research writing skills include critical thinking, accurate information gathering and analysis, and clear, structured communication of findings. Senior high school students' research writing skills are essential for academic success, but studies show they often face difficulties with content development, paragraph structure, and word choice, leading to apprehension and disengagement

Table 2: Extent of Research Writing Skills of Senior High School Students as Perceived by Themselves with Respect to the Different Aspects

Aspects	W $\bar{X}$	VI	Rank
Research Planning and Organization	4.16	Often (Highly Practiced)	3
Note Taking and Data collection	4.22	Often (Highly Practiced)	1
Critical Thinking Skills	4.18	Often (Highly Practiced)	2
Data Analysis	4.15	Often (Highly Practiced)	4
Composite W$\bar{X}$	4.18	Often (Highly Practiced)	

3.3. Significant Difference on the Extent of Research Writing Skills of Senior High School Students as Perceived by Themselves with Respect to the Different Aspects in Terms of their Profile

As shown in the table, with respect to the different aspects in terms of age, sibling position, monthly family income, parents' educational attainment and fathers' occupation, the results of the F-test reveal probability values greater than .05. This fails to reject the null hypothesis stating that there is no significant difference on the extent of research writing skills of senior high school students with respect to the different aspects in terms of the cited variables. On the other hand, in terms of sex, number of children in the family and mothers' occupation, the null hypothesis is rejected since all the probability values are less than .05. Findings denote that age, sibling position, monthly family income, parents' educational attainment and fathers' occupation are not significant on the research writing skills of senior high school students. On the contrary, students' writing skills is influenced by their sex, number of children in the family and mothers' occupation. Results imply that male and female students differ in their research writing skills. Likewise, number of children in the family and mother's occupation are contributory factors on the research writing skills of students. On the other hand, age, sibling position, monthly family income, parents' educational attainment and fathers' occupation are not contributory to the students' research writing skills. This is in relation with the findings of the study of Cepillo (2024) which revealed that age and sex are not significant on the research writing competencies of students. It was also found out that socio economic status, parents' level of education is significant on students' research competencies.

Table 3: Results of the F-test on the Significant Difference on the Extent of Research Writing Skills of Senior High School Students as Perceived by the Respondents with Respect to the Different Aspects in Terms of Their Profile

Variables/ Aspects	F-comp	p-values	Ho	VI
Age				
Research Planning and Organization	1.843	.753	Accepted	Not Significant
Note taking and data collection	1.032	.732	Accepted	Not Significant
Critical Thinking Skills	0.997	.932	Accepted	Not Significant
Data Analysis	1.213	.332	Accepted	Not Significant
Sex				
Research Planning and Organization	10.698	.001	Rejected	Significant
Note taking and data collection	11.331	.001	Rejected	Significant
Critical Thinking Skills	13.613	.048	Rejected	Significant

Data Analysis	6.433	.012	Rejected	Significant
Sibling Position				
Research Planning and Organization	.646	.665	Accepted	Not Significant
Note taking and data collection	2.011	.077	Accepted	Not Significant
Critical Thinking Skills	1.193	.312	Accepted	Not Significant
Data Analysis	1.723	.129	Accepted	Not Significant
Number of Children in the family				
Research Planning and Organization	5.898	.002	Rejected	Significant
Note taking and data collection	7.744	.024	Rejected	Significant
Critical Thinking Skills	2.433	.035	Rejected	Significant
Data Analysis	2.264	.048	Rejected	Significant
Monthly Family Income				
Research Planning and Organization	1.051	.381	Accepted	Not Significant
Note taking and data collection	.751	.558	Accepted	Not Significant
Critical Thinking Skills	.620	.649	Accepted	Not Significant
Data Analysis	.737	.567	Accepted	Not Significant
Father's Educational Attainment				
Research Planning and Organization	1.655	.002	Accepted	Not Significant
Note taking and data collection	1.102	.003	Accepted	Not Significant
Critical Thinking Skills	.514	.798	Accepted	Not Significant
Data Analysis	1.398	.215	Accepted	Not Significant
Mother's Educational Attainment				
Research Planning and Organization	2.086	.055	Accepted	Not Significant
Note taking and data collection	1.073	.379	Accepted	Not Significant
Critical Thinking Skills	.461	.837	Accepted	Not Significant
Data Analysis	1.469	.188	Accepted	Not Significant
Father's Occupation				
Research Planning and Organization	.809	.580	Accepted	Not Significant
Note taking and data collection	1.560	.147	Accepted	Not Significant
Critical Thinking Skills	1.074	.096	Accepted	Not Significant
Data Analysis	1.649	.071	Accepted	Not Significant
Mother's Occupation				
Research Planning and Organization	2.009	.054	Rejected	Significant
Note taking and data collection	3.181	.003	Rejected	Significant
Critical Thinking Skills	3.953	.000	Rejected	Significant
Data Analysis	3.704	.001	Rejected	Significant

3.4. Level of Academic Performance of Senior High School Students as Revealed by their Average Grades in the First Quarter

As reflected in the table, out of 326 students, 51.2% achieved Very Satisfactory performance in the first quarter, with average grades of 85–89, while 47.9% attained Outstanding performance of 90–100. The overall mean performance of 89.46, interpreted as Very Satisfactory, indicates that, on average, students are performing above standard expectations. The standard deviation of 3.864 further suggests that students' grades are closely clustered around the mean, reflecting a high degree of consistency and homogeneity in academic achievement. Findings indicate its implications and insights into learning behaviors and levels of preparedness exhibited by the students. A major indicator of the students' involvement with the learning program and their dedication to their studies through effective learning practices can be identified in the presence of a high number of students with Very Satisfactory and Outstanding scores. This also indicates that the students not only lack knowledge but also possess the ability to think at a higher level and tackle research-related tasks. Homogeneity of the scores also defines an environment where success is not just within the hands of a few students but most students have the capability of meeting learning objectives. This implies that the senior high school students try to exert their best efforts in their studies to develop the needed competencies. This further implies that students are fulfilling their responsibilities in accomplishing learning tasks. This conforms with the statements of Recuerdo (2024) that academic performance denotes the extent of knowledge acquired by students, quantifiable through attained numerical scores and

their corresponding transmuted grades. Academic performance pertains to how students engage with their studies and manage or complete various assignments assigned by their educators..

Table 4. *Level of Academic Performance of the Senior High School Students as Revealed by their Average Grades in the First Quarter*

Grade		Frequency	Percentage
90 – 100	Outstanding	156	47.9
85-89	Very Satisfactory	167	51.2
80-84	Satisfactory	3	0.9
75-79	Fairly Satisfactory	-	-
74 Below	Did not meet expectation	-	-
Total		326	100
Mean	89.46(VS)		
Highest	98		
Lowest	80		
Std. Deviation	3.864		

3.5. Significant Relationship Between the Extent of Research Writing Skills of Senior High School Students and their Level of Academic Performance

The table depicts that with respect to the different aspects, the test of relationship shows probability values significant at .05 level. This rejects the null hypothesis stating that there is no significant relationship between the perceived extent of research writing skills and academic performance of senior high school students. Findings indicate that research writing skills of students is associated with their level of academic performance. This means that the higher the academic performance of students, the better their research writing skills. Findings imply that there is a strong positive correlation between research writing skills and academic performance, meaning that students with better writing skills tend to have higher grades. Strong research writing abilities enhance academic performance by improving a student's capacity for critical thinking, information analysis, and effective communication of ideas. This relates with the findings of the study of Cuayson (2024) which revealed a positive correlation between academic grades and research competence suggesting that students with higher academic performance generally possessed better research writing skills.

Table 5: *Computed r-values on the Significant Relationship Between the Extent of Research Writing Skills of Senior High School Students and their Level of Academic Performance*

	r-values	p-value	Ho	VI
Research Planning and Organization	.239	.000	Rejected	Significant
Note taking and Data Collection	.301	.000	Rejected	Significant
Critical Thinking Skills	.310	.000	Rejected	Significant
Data Analysis	.280	.000	Rejected	Significant

4. Conclusion & Recommendations

The study concludes that the extent of research writing skills among senior high school students in terms of research planning and organization, note taking and data collection, critical thinking skills, and data analysis generally does not significantly vary when respondents are grouped according to age, sibling position, monthly family income, parents' educational attainment, and fathers' occupation. However, significant differences were observed when the students were grouped according to sex, number of children in the family, and mothers' occupation. These findings indicate that certain demographic factors may influence the development and practice of research writing skills among senior high school students.

Furthermore, the study establishes that research writing skills significantly influence the academic performance of senior high school students. Competencies such as organizing research ideas, collecting and analyzing data, and applying critical thinking contribute to students' academic achievement. In view of these findings, it is recommended that teachers

continue to strengthen research instruction by providing guidance and structured learning activities that enhance students' research competencies. Students should also be encouraged to apply their critical thinking and note-taking strategies in various research tasks. The implementation of the proposed action plan is recommended, and future studies may be conducted to explore additional variables related to research writing skills and academic performance.

Compliance with ethical standards

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