

# Research Writing Competence of Grade 12 Students: Towards Research Culture Improvement

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**Abstract.** This study examined the research writing competence of Grade 12 students using a descriptive-correlational design. The sample comprised 315 students from various academic tracks, assessed with a validated teacher-made survey questionnaire. Results indicated a moderately high level of research writing competence overall, with the STEM strand showing the highest proficiency. Significant differences in research competence among academic tracks were noted, reflecting the influence of diverse instructional methods and socio-economic factors. A positive correlation between academic grades and research competence was found, suggesting that students with higher academic performance generally possessed better research writing skills. Recommendations to enhance research writing competence included improving instructional quality, promoting collaborative research projects, providing regular practice and feedback, establishing mentorship programs, integrating research skills throughout the curriculum, fostering a research culture, and involving parents and the community. These strategies aim to improve students' research writing skills and academic performance, preparing them for future educational and professional challenges.

**Keywords:** Research writing; Grade 12; Research culture.

## 1.0 Introduction

Research writing competence is a critical skill that all students should strive to develop. It enhances critical thinking and analytical skills and cultivates the ability to communicate ideas and findings effectively (Trudel et al., 2022). In today's information-driven world, conducting thorough research and presenting it coherently is invaluable. Moreover, honing research writing competence equips students with the tools to contribute meaningfully to their fields of study (Tamban & Maningas, 2020). Whether in the sciences, social sciences, humanities, or any other discipline, articulating well-researched arguments and insights is fundamental to academic and professional success (Binh & Nguyen, 2020).

Additionally, research writing competence empowers individuals to engage with and contribute to the broader intellectual discourse in their respective fields. It allows for the dissemination of knowledge, the exploration of new ideas, and the enrichment of existing scholarship. Therefore, nurturing this competence is beneficial on an individual level and contributes to advancing knowledge and understanding within the academic community (Aljaaidis et al., 2020). Furthermore, research writing competence is closely linked to career development. Professionals in various industries must conduct research, write reports, and communicate findings effectively (Castillo-Martínez & Ramírez-Montoya, 2021).

Strong research writing skills not only set individuals apart in the job market but also open doors to opportunities for advancement and recognition. By developing research writing competence, students and professionals are

better equipped to contribute to the academic community, advance their fields of study, and excel in their careers. In conclusion, the ability to write academically and conduct research is crucial for students' academic and career development.

While research writing competence is undoubtedly valuable in certain academic and professional contexts, it is important to acknowledge that not all fields or careers prioritize this skill to the same extent. Some may argue that overemphasizing research writing competence can detract from other equally important skills and aptitudes (Nikoulina, 2020). For example, in practical and vocational fields such as trade professions, technical skills, and hands-on experience often precede the ability to conduct extensive research and write scholarly papers. In these fields, individuals may find that their time and energy are better spent honing practical abilities rather than investing heavily in research writing competence.

Moreover, the emphasis on research writing competence may inadvertently marginalize individuals who excel in other areas, such as creative arts or interpersonal communication (Khalifa, 2018). By prioritizing research writing competence, there is a risk of undervaluing diverse talents and strengths integral to the academic and professional landscape. While research writing competence certainly has its place, it is essential to recognize that it should be balanced with a holistic approach to skill development and career readiness. This includes acknowledging and nurturing a wide range of talents and proficiencies equally important to academic and professional success (Tan et al., 2021).

### **Role of Research Writing Among Senior High Schools in the Philippines**

The role of research writing among senior high school students in the Philippines cannot be underestimated. It equips students with essential academic skills and prepares them for higher education and the demands of the professional world (Vacalares et al., 2023). Research writing helps students develop critical thinking skills, improve their ability to gather and analyze information, and communicate their ideas effectively (Nedjai, 2023). While the importance of research writing competence has been highlighted in various academic and professional contexts, its significance in the educational journey of high school students cannot be overstated.

Research writing equips students with essential academic skills and fosters a culture of inquiry and academic rigor from an early age (Kappal, 2023). Engaging in research writing encourages students to think critically, question assumptions, and seek evidence to support their ideas. This process helps them develop a deep understanding of their subjects and the ability to think analytically, skills that are invaluable for their future educational pursuits and professional endeavors (Kanwal & Butt, 2021). Furthermore, research writing prepares students for the rigors of higher education by familiarizing them with the process of gathering, evaluating, and synthesizing information. It hones their ability to navigate various sources, discern credible information, and present their findings coherently and persuasively (Saka et al., 2021). These skills contribute to their academic success and empower them to become informed and discerning individuals in an information-driven world.

Additionally, research writing instills in students the importance of effective communication, both in written and verbal forms. As they learn to articulate their ideas and findings through research writing, they cultivate the ability to convey complex information clearly and compellingly (Haryono & Adam, 2021). This skill is indispensable in their future academic pursuits and professional endeavors, where the ability to communicate effectively can greatly impact their success. Moreover, cultivating research writing competence at the high school level allows students to explore their interests, delve into new ideas, and contribute to the broader intellectual discourse. It encourages them to engage with diverse perspectives, develop original insights, and participate in meaningful knowledge creation (Jamil et al., 2016).

Therefore, research writing among senior high school students in the Philippines is crucial in nurturing a generation of critical thinkers, effective communicators, and informed individuals who are well-equipped to excel in higher education and the professional world. By embracing research writing as an integral part of their educational journey, students are empowered to develop the skills and competencies necessary for their academic and career advancement.

### **Educational Strategies to Improve Research Writing Skills**

Educational strategies to improve research writing skills include providing explicit instruction on research methodologies, teaching students to analyze and evaluate sources critically, offering opportunities for collaborative research projects, and regular practice in drafting, revising, and editing research papers (Bakri, 2023). Expanding upon the educational strategies mentioned, explicit instruction on research methodologies should encompass the technical aspects of conducting research and the development of critical thinking skills. By guiding students through formulating research questions, identifying relevant sources, and evaluating the credibility and reliability of information, educators can instill a deeper understanding of the significance of rigorous inquiry (McMillan, 2023). Encouraging students to question assumptions, consider alternative viewpoints, and connect across diverse sources can enrich their research writing competence by fostering a more profound engagement with their subject matter.

In addition to honing critical analysis and evaluation skills, collaborative research projects can provide a platform for students to delve into complex topics from various perspectives. Engaging in interdisciplinary collaboration fosters an enriched understanding of the multifaceted nature of academic inquiry, allowing students to synthesize diverse perspectives and contribute to a more comprehensive body of knowledge (Saw & Jiang, 2020). Moreover, collaborative research endeavors nurture essential teamwork and communication skills, empowering students to navigate the complexities of working with others to achieve common academic goals. Furthermore, offering regular practice in drafting, revising, and editing research papers not only cultivates proficiency in written expression but also promotes a deeper comprehension of the iterative nature of scholarly inquiry.

By guiding students through refining their initial drafts, addressing feedback, and honing their arguments, educators can instill a profound appreciation for the iterative nature of knowledge production and the value of continuous refinement in academic discourse (Wu & Schunn, 2020). These educational strategies enhance students' research writing skills and cultivate a more profound academic depth by nurturing critical thinking, collaboration, and resilience in the face of complex scholarly challenges.

### **Challenges in Cultivating Research Writing Skills Among Students in Schools**

Challenges in cultivating research writing skills among students in schools include a lack of emphasis on critical thinking and inquiry-based learning, limited exposure to diverse sources and perspectives, inadequate support and guidance from faculty, and a lack of opportunities for revision and feedback (Hart & Annear, 2020). There is also a need for greater integration and coherence in the research process, as many students struggle with research anxiety, overestimation of their skills, lack of time management, difficulty in selecting appropriate sources, and disconnect between different stages of the research process.

Therefore, it is essential to develop strategies that address these challenges and promote the development of research writing skills among students (Supriyadi et al., 2020). Educators must prioritize critical thinking and inquiry-based learning to address these challenges and foster the development of research writing skills among students. They should create an environment encouraging students to explore diverse perspectives and engage in independent research. Educators should also provide ample support and guidance to students, offering regular opportunities for revision and feedback to help them improve their research writing skills (Peters et al., 2019).

In addition to providing explicit instruction on research methodologies, educators should create an environment that fosters critical thinking and inquiry-based learning. This involves encouraging students to delve deeper into their research questions, critically analyze diverse perspectives, and consider alternative viewpoints (Setiawan & Islami, 2020). Educators can nurture a more profound engagement with their subject matter by guiding students to question assumptions and make connections across diverse sources. This approach develops their research writing competence and cultivates a mindset of intellectual curiosity and rigorous inquiry (Peterson, 2020). Furthermore, limited exposure to diverse sources and perspectives can be addressed by introducing students to various scholarly materials. Educators should strive to integrate interdisciplinary perspectives into the curriculum, allowing students to explore complex topics from various angles (Supsiloani et al., 2021). This exposure enriches their understanding of the multifaceted nature of academic inquiry and cultivates a broader intellectual outlook. However, overexposure to research writing might deprive other cognitive and practical skills of development. Especially in technical and vocational strands, teachers must know how to balance research tasks

and the competencies demanded by the subject. Nonetheless, research is integral and is a core of every learning endeavor.

### **Promoting Integration and Coherence in the Research Process**

Educators should emphasize the integration and coherence of research writing to mitigate the disconnect between different stages of the research process. This can be achieved by guiding students through the entire research journey, from formulating research questions to refining their final drafts (Reynolds et al., 2020). By promoting a seamless flow between research stages, educators can help students overcome research anxiety, improve time management, and develop a comprehensive understanding of the iterative nature of knowledge production. Thus, educators can effectively address the challenges in cultivating research writing skills among students by prioritizing critical thinking, providing exposure to diverse perspectives, offering adequate support and guidance, and promoting integration and coherence in the research process. This holistic approach enhances students' research writing abilities and nurtures a deeper academic depth by fostering critical thinking, collaboration, and resilience in the face of complex scholarly challenges.

### **Fostering Research Culture Among Students in Schools**

To foster a research culture among students in schools, creating an environment that encourages and supports inquiry-based learning is crucial. Educators should allow students to engage in research projects and collaborate with their peers. Additionally, integrating research skills and writing throughout the curriculum can help students see the relevance of research in different subject areas (Arrieta & Marasigan, 2021). By incorporating research activities and assignments in diverse disciplines, educators can help students understand the interdisciplinary nature of academic inquiry and develop transferable research skills. This approach promotes a research-oriented mindset and equips students with valuable skills for future academic and professional endeavors.

Mentorship plays a pivotal role in fostering a research culture among school students. Educators and experienced researchers can serve as mentors, guiding students through the intricacies of research projects and providing valuable feedback and support (Dahlberg & Byars-Winston, 2019). By offering mentorship opportunities, schools can create a nurturing environment where students feel encouraged to explore their research interests and pursue scholarly endeavors. Mentorship also fosters a sense of community and collaboration, as students benefit from the guidance of seasoned researchers while also learning the importance of supporting their peers in their research pursuits (Krim et al., 2019).

### **Role of School Policies and Environment in Supporting Research Education**

School policies and the overall environment are crucial in supporting student research education. Schools should have policies that prioritize and support research activities to create a conducive environment for research education. This includes allocating dedicated time and resources for research projects, establishing partnerships with external research institutions or experts, and providing access to well-equipped research facilities and materials (Quitoras & Abuso, 2021).

In addition, schools should encourage a culture of open inquiry and critical thinking, where students are free to explore their research interests and ask meaningful questions without fear of judgment or constraints (Arrieta & Marasigan, 2021). Schools can inspire a love for learning and discovery among students by creating an environment that values research. This can lead to a more enriched educational experience and allow students to develop their research skills and contribute to advancing knowledge in their chosen fields.

Thus, to make research more interesting and stimulating for junior high school students, educators should review the curriculum and identify research concepts and theories appropriate for their age group. They should also provide teachers with training, development, and mentoring opportunities to enhance their research capabilities. Additionally, schools should prioritize establishing a research culture by providing students with mentorship opportunities and creating a supportive environment that values research and encourages open inquiry and critical thinking (Haeger & Fresquez, 2016).

By doing so, students will be empowered to engage in research, develop scientific skills, and cultivate a sense of ownership and involvement in their educational journey. With this, students will be empowered to engage in

research, develop scientific skills, and cultivate a sense of ownership and involvement in their educational journey. Furthermore, schools should also consider the role of parental involvement and community support in research education. By actively involving parents and the community in research education, schools can create a holistic approach that further enhances students' learning experiences (Boonk et al., 2018). Schools can create a holistic approach that further enhances students' learning experiences by actively involving parents and the community in research education.

### **Comparative Studies on Research Competence of the Students in the Philippines**

Analyzing the research competence of students in the Philippines, it has been observed that there is a need for greater emphasis on research skills development among students across different educational institutions. To address this need, it is important for schools and educational institutions in the Philippines to prioritize the integration of research skills training and development into their curriculum (Cerbito, 2023). This can be achieved by implementing research-focused courses, workshops, and projects that provide students with opportunities to enhance their research capabilities (Arrieta & Marasigan, 2021).

By equipping students with research skills, they will not only be better prepared for higher education and future careers. However, they will also develop critical thinking, problem-solving, and analytical skills essential for success in various academic and professional endeavors. Additionally, schools must provide resources and support for teachers in their research endeavors. Teachers will be better equipped to guide and support their students in their research journeys by providing professional development opportunities, access to research resources, and mentorship programs.

Furthermore, collaboration among educational institutions, government agencies, and industry stakeholders is essential in creating a research ecosystem that promotes the development of research competencies among students and fosters a culture of research in the country. Integrating research skills development into the curriculum, providing resources and support for teachers, and fostering collaboration among stakeholders are key steps toward enhancing research competence.

## **2.0 Methodology**

### **2.1 Research Design**

The study utilized the descriptive-correlational research design. According to Creswell, a descriptive-correlational design is a research approach that combines both descriptive and correlational elements (Asio & Dios, 2019). In this study, the researcher aimed to describe the characteristics or relationships among variables without establishing a causal connection. The researcher wanted to see the research competence of each strand and their relationship to their academic grade in research subjects. The findings will serve as a reference for research improvement strategies in schools that can be benchmarked in the Division of Manila.

### **2.2 Research Participants**

The participants in this study were Grade 12 students. They came from different tracks offered by the institution. The sampling technique used in this study was purposive sampling. Purposive sampling is a sampling technique by the researcher, and it depends on his/her judgment upon selecting the population that will participate in the study. It is also the most appropriate sampling technique considering the nature of the study concerning time and resources available. There were 315 students, which the researcher purposefully chose. They represented 50% of the total population of the senior high school department. The students were chosen from the school's Academic and TVL Tracks.

### **2.3 Research Instrument**

The primary instrument in this study was a teacher-made survey questionnaire. Three experts validated the survey for content and language validity. Their comments were considered in creating a valid survey questionnaire for the pilot testing. Then, the questionnaire was pilot-tested on 20 students who were not included in the actual study. Their answers were tallied and subjected to a reliability test using Cronbach's Alpha. The reliability test revealed a 0.98 score in internal consistency with excellent interpretation.

## 2.4 Data Gathering Procedure and Analysis

The survey questionnaire was administered through Google Forms. The researcher asked permission from Grade 12 advisers to supervise and facilitate the completion of the survey. The respondents were given one week to complete the survey. After accomplishment, the data were gathered automatically and computed for analysis. The data gathered were subjected to statistical treatment for analysis and interpretation. For the demographic profile of the respondents, weighted mean, percentage, and standard deviation were used. For the research competence of different tracks, the researcher used ANOVA to determine the significant differences among the groups and Pearson R for the significant relationship between the overall research writing competence and academic standing in the Practical Research subjects of Grade 12 students.

## 2.5 Ethical Considerations

The researcher followed ethical guidelines in conducting this study. The respondents were given time to read the informed consent form and the survey data privacy disclaimer. The researcher assured the respondents that their answers would be strictly confidential and would be utilized for research investigation only.

## 3.0 Results and Discussion

### 3.1 Demographic Profile of the Respondents

Table 1 data were primarily derived from the retrieved responses from the questionnaire. Data were analyzed and tabulated for a better perception of theence for the HUMSS strand among students, indicating a strong interest in humanities and social sciences, and the STEM strand, with 21% of the students reflecting a substantial interest in science and technology fields, which are critical for future technological advancements and innovation. The ABM strand, while still popular, has the lowest enrollment among academic tracks at 6%, suggesting that fewer students are pursuing business-related courses. Among the TVL tracks, HRS is the most popular, attracting 12% of the students.

**Table 1.** Demographic profile of the respondents

| Strand | Track    | Frequency | Percentage |
|--------|----------|-----------|------------|
| ABM    | Academic | 23        | 6%         |
| STEM   | Academic | 73        | 21%        |
| HUMSS  | Academic | 120       | 43%        |
| ICT    | TVL      | 33        | 10%        |
| HRS    | TVL      | 42        | 12%        |
| SMAW   | TVL      | 24        | 8%         |

The data suggested a growing interest in the hospitality industry, a significant economic sector. ICT, with 10% of the students, highlights a considerable interest in information and communications technology, aligning with the global trend towards digitalization. The SMAW track, with 8% of the students, indicates a niche interest in specialized vocational skills like welding. The data also revealed the diversified students from both Academic and TVL Tracks offered by the school's SHS program. They all have undergone practical research subjects necessary to complete their respective strands. Moreover, skills and competencies gained from previous research subjects were needed in a more complex research subject, Inquiries, Investigations, and Immersion (3 I's), wherein they were required to write a full-blown thesis paper.

### 3.2 Research Writing Competence of Grade 12 Students

In Table 2, the data revealed the students' research competence in terms of research writing competence across various strands offered in the school. A moderately high level of competence across all groups, with an overall mean score of 3.87. This uniformity suggested that students, irrespective of their academic tracks, have developed a consistent proficiency in these essential research skills. However, with a mean score of 4.18, the STEM group indicated superior research skills, likely due to the rigorous research methodologies inherent in STEM education (National Research Council, 2012).

The data also revealed minimal score variation within each group, as evidenced by the low variance and standard deviation. For instance, the STEM group, which recorded the highest average score of 4.18, had a variance of 0.18 and a standard deviation of 0.43, reflecting a tightly clustered performance around the mean. Similarly, the HUMSS group, despite having the largest number of students (120), exhibited a variance of 0.33 and a standard deviation of 0.57, indicating a consistent level of competence among the students.

**Table 2.** Descriptive statistics of the research writing competence of Grade 12 students

| Groups         | Count | Sum   | f     | Variance | SD    | Average     | Descriptor                                 |
|----------------|-------|-------|-------|----------|-------|-------------|--------------------------------------------|
| ABM            | 23    | 88.70 | 7.300 | 0.250    | 0.500 | 3.86        | Moderately High Level of Competence        |
| HUMSS          | 120   | 440.0 | 38.10 | 0.326    | 0.571 | 3.67        | Moderately High Level of Competence        |
| STEM           | 73    | 305.4 | 23.17 | 0.183    | 0.428 | 4.18        | Moderately High Level of Competence        |
| ICT            | 33    | 126.1 | 10.48 | 0.357    | 0.598 | 3.82        | Moderately High Level of Competence        |
| SMAW           | 24    | 93.03 | 7.620 | 0.388    | 0.623 | 3.88        | Moderately High Level of Competence        |
| HRS            | 42    | 158.9 | 13.33 | 0.267    | 0.517 | 3.78        | Moderately High Level of Competence        |
| <b>Overall</b> |       |       |       |          |       | <b>3.87</b> | <b>Moderately High Level of Competence</b> |

According to Peterson (2020), high-quality instructional practices significantly enhance students' research writing abilities, regardless of their academic specialization. Additionally, a study by Martinez and Gonzalez (2019) emphasizes the positive impact of structured writing programs on students' proficiency in crafting research introductions and problem statements. These studies corroborated with the current data, suggesting that the observed levels of competence can be attributed to effective teaching methods and well-structured curricula across various educational tracks.

Thus, the data underscored the importance of consistent, high-quality instruction in developing students' research writing skills. The data further highlighted that well-implemented educational interventions can lead to uniform levels of competence among students from different academic backgrounds. Contextually, the data revealed reflects the combined efforts of research teachers and students. It suggested the hard work and collaboration of all research teachers, regardless of their specialization, in delivering the lesson despite the subject's complexities. Lastly, the data revealed was seen as evidence and manifestation of the student's competence. They won in different national and international contests and presentations with their research papers.

### 3.3 Difference of the Research Writing Competence of Grade 12 Students

Table 3 revealed a significant difference among the groups, as indicated by an F-statistic of 8.55, greater than the critical value of 2.24, and a P-value of 1.34E-07, far below the common alpha level of 0.05. Consequently, the null hypothesis was rejected, confirming significant differences in research writing competence among the students. Although the groups had almost similar averages in research writing, the data revealed the differences through the ANOVA.

**Table 3.** Analysis for the difference of the research writing competence among Grade 12 students

| Source of Variation | SS    | df  | MS    | F     | P-value  | F crit | Decision | Interpretation |
|---------------------|-------|-----|-------|-------|----------|--------|----------|----------------|
| Between Groups      | 12.29 | 5   | 2.458 | 8.549 | 1.34E-07 | 2.243  | Reject   | Significant    |
| Within Groups       | 88.83 | 309 | 0.287 |       |          |        |          |                |

This finding is supported by similar studies that have explored educational competencies across different student groups. For instance, Smith (2019) found that variations in instructional methods and resources contributed to significant differences in writing skills among high school students. Additionally, Jones and Brown (2020) highlighted the impact of socioeconomic factors and access to educational support on student performance in research writing.

These findings align with the present study, which suggests that various factors, including instructional quality, resources, socio-economic background, and differing skills, play crucial roles in shaping students' research writing abilities. The students from the Academic Track were trained and taught rigorous research-related subjects that were completed with their chosen learning path. In contrast, students from the TVL track focused more on practical exercises and applications of the theoretical models born out of research subjects. The data confirmed the heterogeneity of the students in terms of their skills, competence, and learning abilities in research writing while studying the same curriculum.

Given the significant results, it is recommended that educators and policymakers consider these factors to enhance the effectiveness of research writing instruction. Tailored interventions and resource allocations could be implemented to address the disparities and improve overall student competence in research writing. Yet the data revealed disparities in research competence described within the level of high competence. The Department of

Education, as well as other stakeholders, must not be complacent and continue to address learning gaps not only in research subjects but also in the curriculum.

### 3.4 Relationship Between Academic Performance and Research Competence of Grade 12 Students

Table 4 revealed the relationship between academic grades and research competence among grade 12 students. The mean academic grade is 89.5732 with a variance of 31.2039, indicating a relatively high and consistent performance among students. The mean research competence score is 3.84915, with a variance of 0.32305, suggesting that students generally exhibit moderate to high research skills. The Pearson correlation coefficient of 0.35909 demonstrates a positive correlation between academic grades and research competence. This correlation indicates that as students' academic grades improve, their research competence also increases.

**Table 4.** Analysis for the relationship of academic grades and research competence of Grade 12 students

|                            | Academic Grade | Research Competence |
|----------------------------|----------------|---------------------|
| Mean                       | 89.57          | 3.849               |
| Variance                   | 31.20          | 0.323               |
| Observations               | 314.0          | 314.0               |
| <i>Pearson Correlation</i> | 0.359          |                     |
| <i>df</i>                  | 313.0          |                     |
| <i>t Stat</i>              | 280.9          |                     |
| <i>P(T&lt;=t) one-tail</i> | 0              |                     |
| <i>t Critical one-tail</i> | 1.650          |                     |
| <i>P(T&lt;=t) two-tail</i> | 0              |                     |
| <i>t Critical two-tail</i> | 1.967          |                     |

The statistical analysis included a t-test to assess the significance of the relationship between academic grades and research competence. The t-statistic is 280.885, with a corresponding p-value of 0.00000 (both one-tailed and two-tailed), which indicates that the observed correlation is statistically significant at the conventional levels. The degree of freedom (df) for the test was 313. The critical values for one-tailed (1.64974) and two-tailed (1.96757) tests are lower than the t-statistic, further confirming the significance of the results.

These findings align with previous research indicating a positive relationship between academic performance and research competence of the Grade 12 Senior High School students at Manuel A. Roxas High School. Synonymously, Kuh and Umbach (2004) found that students who engage more in research activities have better academic outcomes, suggesting that research competence can enhance overall academic performance. The data showed that the students' overall grades have a positive relationship with their research skills, as seen in their research outputs.

Also, Lopatto (2007) highlighted that undergraduate research experiences positively impact students' academic and professional development, which may translate into better academic performance in high school settings. Furthermore, Russell, Hancock, and McCullough (2007) demonstrated that research involvement enhances students' understanding of scientific concepts and boosts their academic confidence. Terenzini et al. (1995) highlighted that involvement in research activities fosters critical thinking and problem-solving skills essential to academic success. Hunter, Laursen, and Seymour (2007) supported these findings by showing that research experiences help students develop higher-order thinking skills and a deeper understanding of their field of study.

Thus, the data supported the hypothesis that a significant positive relationship exists between academic grades and research competence among grade 12 students. This suggested that enhancing students' research skills could improve academic performance. The Department of Education must capitalize on these research findings since it will allow them to formulate interventions to improve quality teaching strategically. Also, it can be a benchmark for curriculum revisions highlighting research-based topics or lessons that will enhance the critical and creative thinking of the students. This can improve test scores, especially since the Philippines is participating in the PISA International Examination. Therefore, educational institutions should consider integrating more research-based activities into their curricula to foster students' academic and research competence.

## 4.0 Conclusion

The study on the research writing competence of Grade 12 students revealed significant insights into proficiency levels across various academic strands. The findings indicated a moderately high level of research writing competence among students. Notably, the STEM strand exhibited the highest competence, which could be attributed to the rigorous research methodologies inherent in its curriculum. Diverse students from different tracks participated in this study, yet they yielded a similar level of competence in research writing.

The analysis showed significant differences in research writing competence among the different academic strands, as confirmed by the ANOVA results. This highlighted the impact of diverse instructional methods, resources, and socio-economic factors on students' research skills. Moreover, the study found a positive correlation between academic grades and research writing competence, suggesting that students with higher academic performance tended to have better research writing skills. These skills were evident when the students joined and participated in research presentations. They were encouraged and motivated to participate because of their confidence in exhibiting the research skills learned from the school.

Lastly, the study underscored the importance of high-quality instruction and well-structured curricula in developing students' research writing skills. By integrating research-based activities into the curriculum and providing adequate support and resources, educational institutions could significantly enhance students' academic performance and research competence. The Department of Education must review the curriculum in the Practical Research subjects to underline competencies that need improvement. Similarly, the department must ensure that the teachers are well-equipped with the necessary training and skills to ensure quality teaching of research-based subjects.

## 5.0 Contributions of Authors

The researcher collected, computed, interpreted, and analyzed data and revised the manuscript for publication.

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## 7.0 Conflict of Interests

There was no conflict of interest between all parties in this research endeavor. Consent forms were given to the students for their participation in the study.

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