

Senior High School Students' Research Writing Skills in Relation to Artificial Intelligence Dependence

John Ritchie V. Reyes¹, Danica A. Arroyo², and Myla M. Calderon³

^{1,2,3}Lumil Integrated National High School (Department of Education, Philippines)

Abstract— Artificial Intelligence is emerging as a powerful tool in modern era. This offers ideas, assistance, and convenience in various fields. Students are taking advantage of AI. They use it in doing school projects, presentations, and even research papers. Nevertheless, over-reliance on AI can lead to some drawbacks. This study aimed to correlate the students' level of dependence on AI and their research writing skills. This also sought to know their perceptions regarding this topic. This research applied mixed methods: 100 respondents answered sets of Likert Scale Survey and four open-ended questions. It was found out that the level of dependence on AI does not significantly affect the students' research writing skills. Students describe themselves as competent in research writing and do not heavily rely on AI. They use AI as assistance for generating ideas, proofreading, and improving their research paper in terms of grammar, spelling, and sentence structure. Though they acknowledge its benefits, they also identify its disadvantages. Lower critical thinking skills, reduced learning, and questionable academic integrity of their outputs can be brought by misuse of AI.

Keywords— academic integrity, AI-generated contents, Artificial Intelligence, education, research writing skills.

INTRODUCTION

In today's fast-moving, technology-driven world, Artificial Intelligence (AI) has found its way into many areas of education, and this includes research. As Tuhin (2025) explains, AI has become a powerful force that is transforming industries, society, and even the way research is conducted. With senior high school students now engaging in more research tasks, many of them are beginning to rely heavily on AI tools to help them complete their work.

Academic writing is an essential skill that helps students understand different ideas, build clear and logical arguments, and take part in meaningful academic discussions (Smith, 2026). However, with AI tools such as writing assistants and content generators now easily accessible worldwide, concerns are growing about how these technologies might influence students' ability to develop and strengthen their own writing skills (Deep & Chen, 2025).

Ortega-Dela Cruz and Dela Cruz (2025) highlight that integrating AI into education brings both opportunities and challenges. On the positive side, AI tools can make research more efficient by handling tasks like data analysis, conducting literature reviews, and helping

with initial drafts. These tools give students access to vast amounts of information and can guide them in finding relevant sources. However, relying too heavily on AI may hinder the development of crucial research and writing skills, such as critical thinking, constructing strong arguments, and maintaining originality. When students grow accustomed to AI-generated content, they may find it difficult to develop their own ideas, synthesize information, and communicate their thoughts effectively.

This study sought to explore how much senior high school students rely on AI tools when conducting research and how this reliance related to their actual research writing skills. By looking at the connection between students' dependence on AI and their proficiency in research writing, the study aimed to shed light on both the potential benefits and possible drawbacks of incorporating AI into education. The findings could help educators, policymakers, and curriculum developers create strategies that make the most of AI's advantages while minimizing its potential negative impact on students' ability to write and think critically in their research.

REVIEW OF RELATED LITERATURE

The Importance of Research Writing Skills

Research writing is more than an academic requirement; it is a critical skill that fosters intellectual growth and academic success. Students with strong research writing skills demonstrate enhanced critical thinking, effective problem-solving, and confident information management. These competencies enable them to analyze ideas deeply, integrate diverse perspectives, and communicate their thoughts clearly and logically (Castillo-Martínez & Ramírez-Montoya, 2021). Hilario et al. (2025) found that critical thinking is central to the development of academic writing skills and that its integration was associated with significant improvements in the quality of students' texts and overall writing competencies.

Beyond academic performance, research writing encourages deeper engagement with learning. Rather than merely memorizing facts, students explore complex concepts and develop original insights, resulting in more meaningful and lasting understanding. Studies also indicate a strong link between research writing proficiency and higher academic achievement, as well as the development of advanced cognitive skills (Castillo-Martínez & Ramírez-Montoya, 2021). Furthermore, these abilities extend beyond school, preparing students for workplaces where analytical thinking and clear communication are highly valued.

The Role of Artificial Intelligence in Education

Artificial Intelligence (AI) is increasingly transforming education by providing tools such as grammar checkers, plagiarism detectors, and writing assistants. These technologies offer instant feedback, suggest improvements, and help generate ideas, making the writing process more efficient and accessible. AI tools can be especially beneficial for non-native speakers and students with learning challenges, supporting the development of writing mechanics and facilitating the drafting process.

However, AI use also presents challenges. Educators caution that overreliance on AI may weaken independent critical thinking and writing skills, as students might depend on automated suggestions

instead of developing and articulating their own ideas. While AI can enhance surface-level writing, it cannot fully replace deep analytical reasoning or the creation of original ideas (Deep & Chen, 2025).

Tasks that require students to critique AI-generated content can reveal their ability to analyze and evaluate responses, fostering critical thinking and deeper engagement with learning (Lamberti et al., 2025). Similarly, AI-supported writing tools that incorporate structured cognitive scaffolds encourage students to remain actively involved in planning and reasoning, leading to improved writing quality and the development of emerging AI literacy (Zhang et al., 2026).

Comprehensive AI integration in education should consider its impact on cognition, learner agency, emotional engagement, and ethical development. Uncritical adoption of AI may undermine critical reasoning and autonomous learning (Lee & Park, 2026). While AI tutors can empower students, they may also diminish learner autonomy and critical engagement if not paired with intentional, reflective pedagogical practices (Martinez & Chen, 2025).

AI Dependence and Its Impact on Writing Skills

AI dependence arises when students rely heavily on technology to perform tasks, they would normally complete independently. In research writing, this can include generating ideas, gathering information, drafting, or editing papers.

This reliance presents both advantages and disadvantages. On the positive side, AI tools can improve efficiency, assist with workload management, and support students who struggle with writing mechanics. However, excessive dependence may impair critical cognitive skills. Overreliance on AI can weaken analytical abilities, critical thinking, and the capacity to construct well-supported arguments, potentially limiting the development of essential academic and professional writing skills (Deep & Chen, 2025).

A survey of 9,000 secondary school teachers in England revealed that two-thirds of educators noticed a decline in students' critical thinking, creativity, and writing skills associated with increased use of AI tools. Many teachers reported that students felt less need to develop foundational learning skills due to their reliance on AI technologies (Hurst, 2026).

Similarly, educators in the United States have expressed concern that AI may encourage students to "outsource thinking," reducing genuine engagement with course material. Improper use of AI tools has been identified as a factor that can erode habitual cognitive effort and diminish critical thinking abilities (Rogers, 2025).

Research highlighted by Time suggests that using AI tools like ChatGPT during writing tasks may also limit deep cognitive engagement. Participants who relied on AI for writing exhibited lower neural activity, weaker memory recall, and reduced creative performance compared with those who completed tasks without AI assistance, raising concerns about the long-term effects of AI dependence on higher-order thinking processes (Chow, 2025).

Strategies for Effective AI Integration in Education

Given AI's dual effects, it is crucial to integrate it thoughtfully in education. One strategy is to use AI as a supportive tool rather than a replacement for independent learning. Teachers can guide students to leverage AI for specific purposes, such as grammar checks or idea generation, while still emphasizing critical thinking and original writing.

Teaching AI literacy is equally important. Students must understand how AI works, recognize its limitations, and evaluate the reliability of AI-generated content. Activities that require critical engagement with AI, such as comparing AI outputs with personal ideas or analyzing AI-generated content, can help strengthen both writing skills and critical thinking. Roberto (2024) further emphasizes that assignments should be structured to promote deeper

reasoning and thoughtful engagement with AI, rather than allowing it to replace students' cognitive effort.

METHODOLOGY

A. Research Design

This study utilized mixed method research design. By combining both the quantitative and qualitative research approaches, the researchers gain a more insightful understanding of the topic (Lumivero, 2025). According to George (2025), using mixed methods can suffice what the other research design lacks.

The researchers specifically used descriptive-correlational research design. Barooah (2025) defined it as a research design that seeks the relationship between two variables. This seeks the effect of one factor on another. This study examined if the senior high school students' dependence on Artificial Intelligence could minimally or greatly affect their research writing skills. This could be learned using inferential statistics.

Furthermore, by incorporating qualitative research design, the thoughts of the students pertaining to the use of Artificial Intelligence in research writing were deeply understood. Thematic analysis was particularly used to analyze the qualitative data given by the respondents. It looks for common codes, themes, and patterns that lead to answering the established research questions (Jones, 2022). The researchers used the themes generated from Google Form as their guide in analyzing and interpreting the qualitative data.

B. Participants

The respondents of the study were 100 senior high school students from a particular integrated high school in Silang, Cavite. They were chosen because they had taken research subjects such as Practical Research 1 and 2, and Inquiries, Investigations, and Immersion.

Table 1 shows the distribution of the respondents based on sex and grade levels.

Table 1. Distribution of Respondents

Grade Level	Male	Female	Total
Grade 11	25	25	50
Grade 12	25	25	50
Total	50	50	100

Quota sampling was applied in this study. It ensured that there is equal representation from all subgroups of target subjects. This eliminates the research bias because sub-units of the population are well represented (Alex, 2024). There were 50 respondents from each grade level. These were divided into two sex groups: 25 males and 25 females. In this way, students from each demographic could give their perception regarding the research topic.

C. Research Instrument

The research instrument was developed through adapting the indicators coming from two studies. First, the researchers used the 10 indicators from the article Students' AI Dependency in 3R's: Questionnaire Construction and Validation by Capinding (2024) under the subpart of the questionnaire labelled as "Dependence on Artificial Intelligence in the Domain of Writing. These were picked to measure the senior high school students' dependence on Artificial Intelligence in writing. Second, they also used the questionnaire of Lacson and Dejos (2022) from their article entitled "Research Skills Scale for Senior High School Students: Development and Validation". This measured the senior high school students' research writing skills.

The questionnaire was composed of four (4) parts. Part I determined the demographic profile of the students in terms of sex, grade level, and strand. Part II measured the students' dependence level on Artificial Intelligence in writing. Part III gauged the students' level of research writing skills. Both Parts II and III used a 5-point Likert scale survey. Part IV had four (4) open-ended questions asking for students' thoughts regarding the usage of Artificial Intelligence in writing a research paper.

D. Research Procedure

The study began by seeking the school head's approval to conduct the study. After the approval, the researchers sought for respondents who were willing to participate. They received informed consent stating the details of the research. Then, they answered the survey questionnaire through Google Form. The collected data were subjected to various data analysis: statistical treatments and thematic analysis.

Ethical Considerations

Voluntary Participation. The researchers looked for 100 students who were suited to the qualifications needed for the study. No one was forced to participate against their will. They were told that they could withdraw anytime if they eventually felt uncomfortable about the topic and repercussion of the study.

Informed Consent. Each respondent was provided with informed consent. The letter contained the purpose of the study, its nature, methods, and timeframe. A letter of consent was given to the non-minor students while a letter of assent was given to the minor students. Guardian's approvals were requested for the students aged under 18 years old.

Anonymity. The respondents were not required to give their personal information such as names and address. Their identities were kept secret. No photos and videos were taken while data collection transpire.

Confidentiality. The researchers assured the students that their responses would be kept with utmost confidentiality. Their identities would not be revealed in any kind of report such as research papers and presentations.

Potential Harm. The researchers explained thoroughly to the respondents about the potential consequences of participating in the study. This might bring negative perceptions and feelings while they were answering the survey questionnaire because they would assess and evaluate themselves in terms of dependence on Artificial Intelligence and writing skills.

Results Communication. The researchers were dedicated to making an informative and honest

research report. Research bias was eliminated. They were committed not to manipulating any data. They presented the results and discussions based only on the data collected from the students.

Results and Discussions

Table 2 presents the number and its corresponding percentage of students according to their level of Artificial Intelligence in writing based on the survey mean scores.

Table 2. Frequency of Students based on their Level of Artificial Intelligence Dependence

Leve of Dependence	F	%
Highly Dependent	0	0.00
Dependent	24	24.00
Moderately Dependent	38	38.00
Lowly Dependent	31	31.00
Very Lowly Dependent	7	7.00
Total	100	100.00

Legend: 4.20 – 5.00 (Highly Dependent) 3.40 – 4.19 (Dependent) 2.60 – 3.39 (Moderately Dependent) 1.80 – 2.59 (Lowly Dependent) 1.00 – 1.79 (Lowly Dependent)

This shows that most of the students are moderately dependent on using Artificial Intelligence tools in writing, garnering 38 that corresponds to 38.00% of the total respondents. This is followed by lowly dependent with 31 respondents. No student classified themselves as highly dependent on using the said tools. This implies that students use AI to some extent in doing academic writing; however, they do not heavily rely on it. Nevertheless, a report of Asean Digital Outlook and AI Ready Asean Research stated that 76.00% of the Filipino students use AI tools in writing (Quiambao, 2026). This calls for strengthening the country’s policy for the responsible usage of AI for the benefit of society and economy. The world is indeed embracing Artificial Intelligence, as 86.00% of

the students all over the world are using it for their study; 54.00% of them are using it weekly (Digital Education Council, 2024).

In this study, the respondents used AI in checking spelling and grammar, generating ideas, paraphrasing, and proofreading. This is similar to the result of the study of Freeman (2025) saying that 50.00% of the students utilized AI to enhance the quality of their outputs. Students struggle with grammar, sentence structure, searching appropriate materials, and choosing of right words (Jimenez et al., 2024). This suggests that AI is beneficial for these aspects. Table 3 illustrates the level of students’ research writing skills based on their self-assessment.

Table 3. Students’ Level of Research Writing Skills based on Survey Mean Scores

Variables	X	SD	Description
Problem Identification and Conceptualization Skills	3.78	0.78	Competent
Information and Evidence Seeking Skills	3.88	0.65	Competent
Research Methodology Skills	3.80	0.73	Competent
Statistics/Quantitative Analysis and Evidence Evaluation Skills	3.82	0.74	Competent
Communication and Language Skills	3.75	0.79	Competent
Overall Students’ Level of Research Writing Skills	3.81	0.68	Competent

Legend: 4.20 – 5.00 (Highly Competent) 3.40 – 4.19 (Competent) 2.60 – 3.39 (Moderately Competent)
1.80 – 2.59 (Lowly Competent) 1.00 – 1.79 (Very Lowly Competent)

The table shows that all the five variables for research writing skills got the mean scores ranging from 3.75 to 3.88 which are all classified as “Competent”. The standard deviations do not have large discrepancies as they range from 0.65 to 0.79. This implies that the students perceived themselves to have a solid knowledge and understanding of research. Additionally, this indicates that they have constant application of these learnings. In comparison, Cuayzon (2024) reported that Grade 12 students had a

moderate high competence in research writing while Pelaez (2025) concluded that senior high school students are “Competent” in research writing. Despite some shortcomings, these studies evidently reveal that students possess the necessary skills in this field.

Table 4 shows the result of Pearson-r in determining the relationship between the survey scores of students’ level of Artificial Intelligence dependence and research writing skills level.

Table 4. Relationship between Students' Level of Artificial Intelligence Dependence and Research Writing Skills Level

Variables Related to Students' Level of Artificial Intelligence Dependence	p-value	r-value	Level of Correlation
Problem Identification and Conceptualization Skills	0.32	0.10	Negligible
Information and Evidence Seeking Skills	0.25	0.12	Negligible
Research Methodology Skills	0.31	0.10	Negligible
Statistics/Quantitative Analysis and Evidence Evaluation Skills	0.44	0.08	Negligible
Communication and Language Skills	0.38	0.09	Negligible
Overall Students' Level of Research Writing Skills	0.30	0.10	Negligible

The table reveals that the computed p-values are all greater than the alpha (0.05); thus, fail to reject the null hypothesis. There is no significant relationship between the students’ level of dependence on Artificial Intelligence and their research writing skills. This tells that dependence on Artificial Intelligence does not significantly affect the students’ knowledge, understanding, and skills of the students in research writing.

2024), language proficiency (Baba, 2025), and labor efficiency (Boncoro, 2024).

On the other hand, a study inferred that usage of AI can lead to low critical thinking skills (Tian & Zhang, 2025). Moreover, there is no sufficient evidence that AI can affect students’ achievement based on the same study of Boncoro (2025). Like in this present study, there is no strong evidence that too much reliance on AI can lead to students’ success in research writing.

Some studies highlighted the potential perks and drawbacks of using Artificial Intelligence. It can help improve academic writing (Khalifa, 2024), students’ academic achievement and engagement (Asmara,

Table 5 shows the themes generated based on the responses of the students’ perception about using AI in research writing.

Table 5. Generated Themes on Perceptions of Students in Using AI Tools in Research Writing

Generated Theme	Theme Definition
Perceived Helpfulness and Convenience	It tells that many respondents find AI tools helpful, convenient, and a time-saver for research papers, as they assist in organizing ideas, improving grammar/writing, understanding topics, and making the work easier to start and manage.

Concerns about Over-reliance and Integrity	It indicates a significant number of students express feelings of guilt, anxiety, or worry about relying too much on AI. It states that it can be a barrier to learning, critical thinking, and intellectual ownership, leading to a feeling of 'cheating' or that the work is not fully their own.
Recommended Use as a Guide/Support	It implies that AI should only serve as a guide, assistance, or support tool (e.g., for grammar checks, brainstorming, clarifying concepts), and should not replace the student's own effort, analysis, or core writing/thinking.
Focus on Specific Functions	It shows that AI is frequently mentioned as useful for specific tasks like checking and correcting grammar, rephrasing, structuring/organizing ideas, and generating initial ideas or examples.
Acknowledged Drawbacks	It tells that some users note that AI can sometimes provide inaccurate or outdated information, or that it might stray from the intended topic.

Students' responses from the data gathered show that their views on AI tools are mixed, but generally thoughtful and aware of both the benefits and the risks.

Many students see AI as helpful and convenient. They shared that AI makes research writing easier, especially when it comes to starting a paper, organizing ideas, and improving grammar. For some, it reduces stress and saves time, making tasks feel more manageable. One of the most impactful responses from a student says, "I feel that using AI tools can be helpful when working on research papers, especially for organizing ideas, improving grammar, and understanding difficult concepts. AI can make the writing process faster and less stressful. However, I also believe it should not replace my own thinking and effort. It should only serve as a guide or support tool rather than doing the entire work for me." This suggests that AI plays a supportive role in helping students deal with the challenges of research writing.

Students also tend to use AI for specific purposes rather than relying on it completely. Common uses include checking grammar, rephrasing sentences, generating ideas, and clarifying difficult topics. These are clearly evident as well in the response of the previously mentioned student. However, another student also said, "I believe AI tools are helpful in writing research papers because they assist in organizing ideas and improving grammar. However, they should only serve as support tools and not replace a student's own effort and critical thinking," which clearly shows that these students have a similar

perspective on the use of AI Tools in research writing. This shows that students are not simply depending on AI to do the work for them but are using it as a tool to assist certain parts of the writing process.

At the same time, many students expressed concerns about over-reliance and honesty. Some admitted feeling guilty or uncomfortable when using AI, especially when they feel that the work is no longer fully their own. Others worry that too much dependence on AI can affect their ability to think critically, learn independently, and develop their writing skills. Among the responses from students, two statements represent these concerns well.

One of the students said, "Honestly, deep inside, there's this feeling of guilt for relying on the help of AI tools. Because I know I am capable of doing it, and just lack guidance, but yeah. I sometimes give in to the temptations..." The other one also expressed guilt by saying, "I feel somewhat guilty even though I'm just using it to arrange my thoughts since I know that I should be better than resorting to this as there are a lot of ways to not use this."

Because of this, a strong idea among students is that AI should be used only as a guide or support tool. They believe it is acceptable for brainstorming, checking errors, or understanding concepts, but not for doing the entire research paper. Students emphasized the importance of still putting in their own effort and thinking.

In conclusion, students are aware of the limitations of AI. Some mentioned that AI can give incorrect or outdated information, or responses that do not fully match their topic.

This makes them cautious and reminds them not to fully trust AI outputs. Students recognize that AI can be a useful tool, but they also understand the importance of using it responsibly. They value its convenience but still believe that real learning comes from their own effort and critical thinking.

This supports the conclusion formed in the study of Ya’u and Mohammed (2025). It stated that AI truly helps the students in generating ideas, enhancing the research work, the understanding difficult concepts. Moreover, these same benefits are also evident among the postgraduate students (Aldulaijan & Almallk 2025). They added that students can maximize the use of AI tools without abandoning their own ideas.

Table 6 shows the themes extracted from the respondents regarding the potential effects of AI on their ideas, thinking process, and learning.

Table 6. Generated Themes on the Perceived Effects of AI Use on Students’ Ideas, Thinking Process, and Learning

Generated Theme	Theme Definition
Reduced Critical Thinking and Over-Reliance	It shows that many respondents believe that over-reliance on AI can weaken their critical thinking, originality, and independent thinking skills, leading to laziness and the feeling of being dependent on the tool.
Idea Enhancement and Generation	It tells that AI is seen as beneficial for generating new ideas, improving or expanding existing ideas, providing different perspectives, and deepening understanding of the topic.
Organizational and Structural Aid	It indicates that a significant number of responses highlight that AI helps in organizing thoughts, structuring the research, creating drafts/outlines, and clarifying complex concepts.
Writing and Grammar Improvement	It means that AI is frequently used for checking grammar, correcting errors, and rephrasing sentences, which improves the overall quality of the writing.
Impact on Learning	It implies that while AI can accelerate learning and provide quick knowledge/explanations, many fear that excessive use hinders deeper learning and the development of essential academic skills.

Students’ responses from the second question show that AI plays a mixed role in their academic work. While they see it as very helpful in many parts of research writing, they also have clear concerns about how it might affect their thinking and learning if used too much.

Many student respondents worry that depending too much on AI can make them less independent in thinking. Some feel that it can reduce their creativity and make them “lazy” or overly reliant on ready-made answers. Instead of thinking deeply on their own, they fear they might just accept AI-generated ideas. The most significant response that manifests this says, “I think my own ideas will vanish because I become AI

dependent and my creativity and learning will gone because my knowledge is depending on AI.” This shows that students are aware that too much dependence on AI may weaken their ability to think critically and develop their own ideas.

At the same time, students also shared that AI helps them come up with new ideas and better understand their topics. When they feel stuck or unsure where to start, AI gives them suggestions that help them think more clearly and explore different perspectives. For many, it works like a “boost” for their thinking rather than a replacement for it. This perception was well represented by the response of a student that says, “It gives me more ideas on how to enhance my writing

skills, it helps me think faster because of the given idea and it also provides support for better learning”.

Students also appreciate how AI helps them organize their thoughts. It guides them in making outlines, structuring their research, and making their ideas more organized and easier to follow. One student responded, “When I use AI with making outlines for my research, it guides me and helps me think or process a proper information and source for it.” Some also mentioned that AI helps simplify complex topics, making it easier for them to process information and build their papers step by step.

A very common use of AI is for grammar checking and improving writing quality. Students shared that AI helps correct errors, rephrase sentences, and improve word choices. This student was very appreciative of AI by saying, “It lessen the effort that I put on my work, but I learn much easier with the use of ai”. This makes their research writing clearer and more polished, especially for those who struggle with grammar or sentence construction.

Among the responses, the one that turned to be most impactful says, “I think, using AI to help writing research affects my ideas by expanding and also limiting it to better match the criteria. I also think, when I use AI, my thinking process is reduced because I am allowing AI to do my work but, I always read and analyze the AI generated work and rephrases it so that it would match my ideas. And I think that AI is affecting my learning by making it much easier

because I can just make AI do a structured notes so that I can just read it and learn the lessons.” Students have mixed feelings about how AI affects their learning. On one hand, it helps them learn faster by giving quick explanations and ideas. On the other hand, some worry that if they rely on it too much, they might not learn deeply or develop important skills like critical thinking and analysis. Because of this, many students believe AI should support learning, not replace it.

In general, students see AI as a helpful tool that makes research writing easier and more manageable. However, they are also careful about using it too much. They understand that while AI can support their ideas, improve their writing, and guide their learning, real understanding and critical thinking still need to come from their own effort.

According to Pratiwi et al., 2025, if students do not use AI responsibly, this can reduce students’ critical thinking. This is also reflected in the study of Ya’u and Mohammed (2025). They also point out that too much reliance to AI can affect students’ creative thinking and forming of ideas. Despite these drawbacks, Abogunrin et al., (2025) that AI can *be* beneficial if it is utilized properly like in literature review, data analysis, and writing processes.

Table 7 presents the themes formed from the answers of the students regarding the advantages and disadvantages of using Artificial Intelligence in writing a research paper.

Table 7. Generated Themes on the Possible Advantages and Disadvantages of Using Artificial Intelligence in Writing a Research Paper

Generated Theme	Theme Definition
Efficiency and Speed	It refers to the advantage of Artificial Intelligence in writing a research paper in terms of saving time and faster work. AI significantly assists in summarizing content, proofreading, and citation formatting, making the research process easier, faster, and more convenient.
Writing and Idea Assistance	It refers to the advantage of Artificial Intelligence in writing a research paper that helps in generating ideas and overcoming writer’s block. It explains complex concepts into simpler ones, and also improves grammar, sentence structure, and organization.

Dependence and Reduced Skills	It pertains to the disadvantage of using Artificial Intelligence in writing a research paper in terms of its over-reliance on it that can weaken critical thinking skills, lessen creativity, reduce originality, and lead to idleness or no personal learning at all.
Accuracy and Ethics	It pertains to the major disadvantage of Artificial Intelligence in writing a research paper on the possibility of gaining inaccurate, biased, or non-credible information. It also has a high risk of plagiarism or academic dishonesty if the generated content is used without proper acknowledgement.

Productive people work at least 3 to 4 hours a day (Nowak, 2022) but they maintain a work life balance by having a break (Wedgwood, 2026). In contrast, AI can work uninterruptedly (Pareek, 2022) and can produce output efficiently (Madachian & Taherdoost, 2025). Hence, students tend to rely on AI to assist them in their schoolwork particularly, writing their research paper.

Many of the surveyed Grade 11 and 12 students emphasize that AI helps them in writing their research paper in terms of saving time and faster work. One student explained, "In terms of advantages, I believe that it is very efficient in terms of time management. Whenever something is due to be submitted in a short period of time, and when you're lacking of ideas from your brain, that's exactly the right time to use such software." Students often experience cramming when their school works are already piled up. Therefore, they tend to utilize AI applications so they can finish their work faster and meet the due date of submission. One student mentioned, "Positive advantages it offers would be making it easier for students to accomplish certain tasks due to the quality-of-life AI can (sometimes) offer. It can also even further improve a student's writing skills if they utilize usage of AI sufficiently and ethically." They also believe that AI significantly assists in summarizing content, proofreading, and citation formatting. In fact, another student emphasized, "Some advantages of using AI include faster research assistance, better grammar and sentence construction, idea generation, and help in organizing content. It can also provide explanations that improve understanding of complex topics." They find AI as a helpful partner in doing their research work especially on its content and organization; thus, the research process becomes easier, faster, and more convenient.

However, some of the students also explained that over-reliance on Artificial Intelligence can weaken critical thinking skills, lessen creativity, reduce originality, and lead to idleness or no personal learning at all. One student explained, "The disadvantage is that students might depend on it too much, which can weaken their critical thinking skills and reduce their own learning." Another student argued, "Now, for disadvantages, there are numerous: one being limiting a student's capability because of their reliance on AI, the second is that it may lessen student's intelligence, and lastly is that AI risks losing the essence of learning and also risk student's losing critical and analyzation skills." This only proves that students also consider the down sides of relying too much on AI. They have also mentioned the possibility of gaining inaccurate, biased, or non-credible information. In support of this, one student said, "Disadvantages can involve over-reliance leading to reduced critical thinking, potential for plagiarism, and the generation of generic or biased content." Based on the students' responses, over-reliance also has a high risk of plagiarism or academic dishonesty if the generated content is used without proper acknowledgement. A response of a student supports this claim, "On the other hand, disadvantages include the risk of overdependence, reduced originality, possible inaccurate information, and ethical concerns such as plagiarism. AI-generated content may also lack deep personal insight or critical analysis if copied directly without evaluation." Since students are properly oriented on research ethics, they tend to be extra careful in gathering pieces of information to avoid plagiarism and academic dishonesty when using Artificial Intelligence particularly when writing their research paper.

In conclusion, students find using Artificial Intelligence efficient on their part when doing research-related tasks, particularly, writing their

research paper. They acknowledge its advantages in terms of its assistance in generating concepts, improving grammar and structure, and organizing content. AI significantly assists them in summarizing content, proofreading, and citation formatting, making the research process easier, faster, and more convenient. On the other hand, it cannot be denied that its use also has its down sides, especially its over-reliance, that can weaken critical thinking skills, lessen creativity, reduce originality, and lead to idleness or no personal learning at all. Too much dependence on AI

while writing their research paper can have the possibility of gathering inaccurate, biased, or non-credible information. If the content is purely AI-generated and used without proper attribution, it will lead to a high risk of plagiarism or academic dishonesty, thus affecting their credibility as student-researchers.

Table 8 shows the themes generated according to the respondents' insights into the responsible usage of Artificial intelligence in writing a research paper.

Table 8. Generated Themes on How Students can be Responsible in Using Artificial Intelligence for Research Writing

Generated Theme	Theme Definition
Use AI as a Guide/Assistant, not a Replacement	It tells that students are responsible when using Artificial Intelligence as a tool for assistance, guidance, or support. For example, generating ideas, creating outlines, and checking grammar, and not a substitute for their own critical thinking, writing, or intellectual contribution.
Verify and Edit Information	It shows students' responsible use of Artificial Intelligence involving intensive checking and verifying of all AI-generated content for accuracy, relevance, and alignment with academic standards. This also involves paraphrasing and editing the research work to ensure its originality.
Maintain Academic Integrity	It refers to students being responsible when avoiding plagiarism or academic dishonesty through adhering to school and institutional policies regarding the use of Artificial Intelligence. Students need to ensure that their final research paper reflects their own concepts and understanding.
Know Limitations and Use Ethically	It pertains to the students' responsible use of Artificial Intelligence through knowing the limitations and boundaries of its tools. Students should utilize them for good intentions and use them in an ethical manner.

According to the study of Clarin et al. (2025), research challenges students in various aspects such as starting the study, literature review, methodology, interpretation, and others. As Artificial Intelligence becomes more prominent now a days, students tend to take advantage of its use for efficiency and convenience. Nevertheless, they need to use it responsible. The Department of Education released DepEd Order No. 003, s. 2026, titled "Foundational Guidelines on AI in Basic Education" that entails the ethical application of Artificial Intelligence in teaching-learning process. In this way, plagiarism and academic dishonesty can be prevented.

Majority of the respondents believe that Artificial Intelligence should only be used as a tool for assistance, guidance, or support, and not a substitute for their own critical thinking, writing, or intellectual contribution. One student answered, "Students are responsible in using Artificial Intelligence for research writing if they use it only as a guide and still do their own research and thinking. They also make sure to check the information, avoid copying directly, and follow rules about honesty and plagiarism." Still, students tend to be very cautious when it comes to generating ideas, creating outlines, and checking grammar for their research paper. Another student emphasized, "A student is responsible in using

Artificial Intelligence when they use it as a tool for support, not as a substitute for their own work. Being responsible includes verifying information from reliable sources, giving proper credit, following school policies, and ensuring that the final paper reflects the student's own understanding and ideas." They reiterated that being a responsible student-researcher involves intensive checking and verifying of all AI-generated content for accuracy, relevance, and alignment with academic standards. One student explained, "I think it is used responsibly when the Artificial Intelligence (AI) is used as assistant, and not an automater for research. To be specific, responsible use is like word suggestions, grammar corrections, and definitions or practical applications." Students believe that they should still practice paraphrasing and editing the research work to ensure its originality.

School community shows adherence to academic integrity if they possess these qualities according to Tertiary Education Quality and Standard Agency (TEQSA): honesty, trust, fairness, respect and responsibility. In research, this is evident through proper citations, truthful reports of the findings, and submission of original works. Teachers and students are expected to always abide by school and institutional policies even regarding the use of Artificial Intelligence in research writing

One student emphasized, "A student is responsible in using Artificial Intelligence for research writing when they use it as a guide for ideas, properly verify and edit the information, and ensure that the final work remains original and truly reflects their own understanding." Students need to ensure that their final research paper reflects their own concepts and understanding. Another student explained, "A student is responsible in using AI if they use it as a tool for guidance rather than copying answers directly. Responsible use includes verifying information from reliable sources, properly citing references, following school rules about AI use, and ensuring that the final work reflects their own understanding and ideas. A responsible student uses AI to enhance learning, not to avoid effort." As the data shows, students also set limitations and boundaries in using AI in their research works. Another student proved, "A student is

responsible when he only focuses on obtaining the main idea from Artificial Intelligence, without directly copying the prompt that the AI has sent word-for-word. The student is considered a responsible AI user if he/she knows his/her limitations in using such applications." Students should utilize these AI tools for good intentions and use them in an ethical manner. A proof of this is, "I can say that a student is responsible on using AI tools when they don't overly depend on that information given by AI. They only use AI tools to help them think or generate more ideas on a topic."

It concluded that student-researchers are aware of the advantages Artificial Intelligence brings into their lives as students, especially when it comes to research writing. However, they should also be guided with the factors to consider in using AI responsibly particularly, using it as a guide and not as a replacement, verifying and editing information gathered from AI, maintaining academic integrity, knowing its limitations and boundaries, and using it ethically.

CONCLUSIONS

According to the findings of the study, it can be concluded that students have a good competence in research writing. They utilize Artificial Intelligence to some extent; nevertheless, most of them do not heavily rely on it. They typically use it for generating ideas, proofreading and enhancing the overall research outputs in terms of grammar, spelling, and sentence structure. In addition, they acknowledge that AI offers convenience, time-saver, and a good assistance tool. Even so, they still recognize its probable disadvantages. They think that over-reliance on AI tools can reduce critical thinking, learning skills, and academic integrity of the research paper itself. Therefore, they recommend that students need to use AI ethically as assistance and not as sole writer of their paper. They also suggest that they need to verify information that they have generated from it.

RECOMMENDATIONS

The Department of Education needs to integrate the responsible usage of AI in the curriculum as early in primary school. In the modern era, AI is inevitable;

therefore, it is better to have a particular subject discussing it. They are encouraged to provide course outlines, teachers' guide, learning modules, posters, websites, and infomercials regarding this subject matter. In school levels, computer laboratories and e-Libraries have to be more equipped; thus, the learners can explore the digital world in relation to Artificial Intelligence. They need also to conduct symposiums wherein this issue will be addressed, and the learners can also express their ideas regarding this topic. Lastly, the department has to invest in equipment and software that can efficiently detect AI-generated content from the learners' outputs; thus, plagiarism and other research misconducts will be obliterated.

The teachers need to adapt to the Artificial Intelligence era. They are expected to utilize AI responsibly; hence, they serve as models to their learners. They have to rigorously check the learners' outputs to verify the degree of AI assistance. They can equip themselves through seminars and online tutorials. A focus group discussion can also foster the exchange of ideas and best practices among colleagues about AI.

The learners are expected to be responsible in using Artificial Intelligence. Before consulting the AI, they need to develop their own ideas and plans for writing or any project they will do. Then, they may use AI to get more diverse concepts and refinement of their works. They need to verify the AI-generated content through different sources. They also have to paraphrase the contents. Therefore, they can still harness their critical and writing skills. Through these, they will be able to retain the academic integrity of their endeavors.

The future researchers may conduct another research similar to this study. It is recommended that they may use a larger sample size, different grade levels, locale, and subjects. They can also employ interview methods and focus group discussion on gathering data to get more in-depth insights regarding the topic. They may correlate Artificial Intelligence dependence on students' grades in research as indicator of their performance in academic writing.

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