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Research Article

Students' Exposure to Generative AI Models and Their Influence on English Writing Proficiency

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ABSTRACT

The predominance of Generative Artificial Intelligence (Gen AI) models on the web poses significant effects on the learning habits of the students at a state university because of their convenience in access, grammar correction, paraphrasing text, and generating ideas. Several researchers showed conflicting findings on the advantages and disadvantages of Gen AI models' use in the academic performance of students. Hence, this study tried to establish the relationship between exposure to Gen AI tools and the English writing proficiency of 19 purposively selected freshmen education students specializing in English language at a state university in Panay Island, Philippines. It utilized a descriptive correlation design, a validated researcher-made questionnaire, and an essay writing performance test to gather the data. Mean percentage was used as the descriptive statistical tool, and Spearman's Correlation Coefficient was adopted to establish the correlation. Rubrics patterned after the university grading system were utilized to determine the written outputs. Results revealed that the majority of the freshmen education students specializing in English language were female, had used the Gen AI tool Quillbot, but had low exposure to other Gen AI tools, and a moderately satisfactory rating in their English writing proficiency. It further established that the English writing proficiency has no or negligible relationship with their exposure to Gen AI tools ($r = -0.152$, $p > 0.05$).

Keywords: *Artificial intelligence, Generative AI, AI models, English writing proficiency*

Background

The continuous use of Generative Artificial Intelligence (Gen AI) models has posed crucial queries to various entities that require reliable responses derived from thorough investigations and relevant research. This quest for a well-studied and methodologically proven response could provide empirical data that would

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become the basis for redirecting the users' perspective in the appropriate utilization of these technologies, either to circumvent the huge possibility of the gradual deterioration of human mental abilities or to improve features of these tools that would cater to the demands in terms of convenience in the academia.

Education is now an AI-integrated system employing Generative Artificial Intelligence (Gen AI) in constructing instructions and learning materials. It can be utilized by teachers to help generate the type of questions that educators might need for examinations and assignments to enhance students' competency (Onal & Kulavuz-Onal, 2023; Van den Berg, 2024); assists in constructing competent questionnaires and grading the students' output, lesson planning (Hong, 2023; Grassini, 2023; Van den Berg & Du Plessis, 2023). Lessons can be generated on different levels of cognitive demand for different levels and can be adapted to suit both the educators' and learners' various needs and contexts (Van den Berg & Du Plessis, 2023).

In a report by Rosenbaum in June 2024, the use of GenAI, particularly ChatGPT, among teachers has increased over a year from 55% in 2023 to 79%, and among K-12 students, from 37% to 75% in a survey conducted in May this year. Of this number, 46% of teachers and 48% of K-12 students use ChatGPT at least weekly. However, the rapid increase of its use in the school community has alarmed school authorities, particularly on ethical and responsible use, aside from issues on access and equity to all students and teachers (Jack & Heng, 2024).

Likewise, Gen AI tools such as Bard, Chat GPT, and DALL-E potentially impact the learning process (Lim et al., 2023). This requires the participation of society to address the issues arising in the integration of generative artificial intelligence in education to fully leverage its application advantages (Yu & Guo, 2023). It is necessary to educate the public on their understanding of Gen AI from a cultural perspective. According to Yao (2024), the use of generative artificial intelligence in education brings both benefits and challenges. Through technological optimization, policy guidance, social participation, and cultural guidance, the rational and healthy development of the educational environment can be promoted.

Recently, generative AI models represent the next wave of innovation in artificial intelligence, applicable across various industries and fields, such as education, medicine, engineering, agriculture, and other sectors. Though offering novel solutions and creative opportunities, these have been coupled with associated ethical challenges that must be subject to continuous debate and strategic governance. This means that with further advancement in technology, innovation has to be matched with responsible use to unlock all the potential benefits of generative AI. Through technological tool advancements, these models aid the process of learning and work. As mentioned by Dumitru et al. (2024), the Gen AI technology, inspired by the complexity of the human brain, unveils a new frontier, showing the possible effect of such technology on creativity, such as innovative content generation through absorbed data and user prompts. These models are built for generating and regenerating content like text, images, illustrations, and others—concepts based on existing data.

Today, Gen AI technologies have invaded the classrooms and revolutionized education. Students and teachers alike have used them to enhance the teaching-learning experiences. But just like any other technology that comes along, its use, too, has advantages and disadvantages in education. The advantages include personalized learning, feedback, and support, automated tasks, and enhanced student engagement, while the disadvantages are ensuring accuracy and reliability (hallucination), addressing academic dishonesty, equity and access, training and support, and limitations in different disciplines (Al-Smadi, 2023).

Nevertheless, the experimental study by Dja'far and Hamidah (2024) to assess the effectiveness of using AI-based technology on the writing skills of college students showed significant improvement. Thus, they concluded that the integration of these types of tools in teaching academic writing can be a way to address the challenges faced by students as well as teachers in the writing class. In another study by Chan and Hu (2023) on the perceptions of undergraduate and postgraduate students in Hong Kong, students enumerated the reasons why they are willing to use AI technologies in

learning, writing, and research. Among these were because of its personalized and immediate learning support, writing and brainstorming support, research and analysis support, visual and audio multimedia support, and administrative support. However, they, too, have apprehensions such as about accuracy and transparency, privacy and ethical issues, and holistic competencies, which could result due to overreliance, career prospects, and human values.

Several studies concluded that Gen AI models like Grammarly, Quillbot, Wordtune, and GPT 3 have enhanced the writing proficiency of students in terms of grammar and punctuation, paraphrasing skills, identification of writing weaknesses, and stimulation of creative and critical thinking (Tambunan et al., 2022; Kurniati & Fithriani, 2022; Lam & Moorhouse, 2022; Mhlanga, 2023). On the contrary, other researchers conclude that Gen AI models would lead students to a diminishment of critical thinking, curtailing of creative thinking and originality, ineffectiveness in addressing higher-order writing elements, such as argument structure and coherence, inability to fully grasp the subtleties and nuances of human language and emotion, and unequal accessibility (Iskender, 2023; Johinke et al., 2023; Farrokhnia et al., 2023; Haleem et al., 2023; Mozumder et al., 2022).

It is quite evident that Gen AI models were both useful and disruptive to the overall learning of students. Indeed, the objective of this study is to find out if Gen AI models influence the English writing proficiency of education students specializing in the English language at a state university in northern Panay in the Philippines. Specifically, it will appreciate the writing performance of students in terms of content and organization, as well as the level of relationship between exposure to GenAI models and English writing proficiency.

Educators in the Philippines, just like Santiago Jr. et al. (2023), stated that incorporating AI tools in Philippine HEIs may become a cause of issues such as overreliance on AIs and deterioration of students' and researchers' development of critical thinking and writing skills. With the prevalence of technological and resource challenges, AI tools might tolerate plagiarism if not used ethically by the user. While they acknowledge the potential benefits of Gen AI models as they become prevalent in higher education institutions (HEIs) because of the convenience they give to students—personalized learning, feedback, and task automation, various concerns arise regarding student overreliance, potential decrease of critical thinking, and also their writing skills. The reliance of students on these technological models helped them to ease their difficulty with the schoolwork that they must perform. However, their writing competence is being compromised as their creativity, critical thinking, and sense of originality are neglected (Fontanilla et al., 2023).

Giray et al. (2024) also consider its limitations and issues of cheating, data fabrication, and possible decline in the creativity and critical thinking of students. Fontanilla et al. (2023) highlight the potential disadvantage of AI tools integration in the education of students, rather than using these as supplementary aids for learning.

Conversely, Austria et al. (2022) stated that the use of AI chatbots is beneficial to the enhancement of students' writing abilities. By providing immediate feedback, individualized instruction, and a supportive learning environment, AIs can support the development of writing skills and language learning of the students. Soriano et al. (2024) found a significant improvement in the writing attitude and proficiency of Filipino ESL learners, particularly in clarity and grammar accuracy. Dalan (2024) has disclosed that improved learning outcomes, self-paced learning, adaptive assessment strategies, and increased student engagement are the potential benefits of integrating AI into language education. Filipino learners will be empowered and subject to succeed in a globalized world if they mobilize AI models with cautious observance of the ethics of usage. But despite the diverse studies on the efficacy of AI tools in language education in the Philippines, particularly in writing, he found out that there is still a need to conduct more localized and culturally sensitive approaches to establish the different language needs of Filipino learners.

It is in this context that this study was conducted to determine the influence of students' exposure to GenAI models on their English

writing proficiency. Establishing factual evidence on the effects of exposure to Gen AI tools on the writing proficiency, particularly of education students from a state university in a non-urban setting, could help educators design a policy on the use of these technological breakthroughs.

This study was anchored on constructivism in AI as pronounced by Hadzic (2021), who believes "that learning or knowledge is created by constructing internal models of the world that are constantly adjusted to fit with new experiences". The exposure of learners to Gen AI tools facilitates their learning experiences – either by self-directed learning, exploration, and generation of content that reflects their understanding and creativity, or collaboration and interaction among them (Owen, 2025).

It was also grounded in the socio-cultural theory and human-AI collaboration framework, as it highlights the synergistic interplay between human (students) intelligence and generative AI capabilities. Socio-cultural theory is about how societal and cultural influences affect the way human beings develop, think, feel, and behave. It explains how these factors interact with individuals for the latter to learn, develop, and grow (Cherry, 2024). As used in this paper, it explains how the environment – people, practices, culture (school, technology) – influences the actions and behavior of learners.

Methods

Design. The research utilized the descriptive-correlation research design to determine the influence of students' exposure to Gen AI models on their English writing proficiency. According to Quaranta (2017), this correlation design is a study that showcases the interest of researchers between or among variables. The researchers employed this research design as it was the most appropriate means to obtain the desired results of the study, emphasizing the positive and negative impact the variables could have on each other.

Respondents and Participants. All the first-year Bachelor of Secondary Education (BSED) major in English students from a state-run teacher education institution in Western Visayas enrolled during the academic year 2023-2024 were involved in the identification of to who were familiar with and are actual users of the AI tools. Of that number, only 19 respondents were purposely selected to be part of the participants who went on to proceed with the English writing activity. This number may be a limitation on the results and conclusion of the study.

Two (2) English language instructors were involved in checking the essays written by the participants using a standardized rubric. Data privacy was strictly observed in the course of the study.

Data Collection. A validated researcher-made questionnaire was utilized in this study. The questionnaire was composed of three parts. Part 1 asked about the respondents' background information; Part 2 included statements on the Gen AI models and AI tools they use in their academic tasks; and Part 3 was an English essay writing task to determine their writing proficiency.

Data Analysis. The data gathered were analyzed using the descriptive correlation method of ranking the responses of the participants. This method was used to answer the objectives and provide an in-depth discussion for the study.

The data of students' exposure to GenAI models was based upon their corresponding equivalent number of minutes per day, as shown below:

Exposure to Gen AIs in minutes/day	Description
41 – 60 minutes	High
21 – 40 minutes	Average
0 – 20 minutes	Low

A holistic rubric was used to measure the students' essay writing proficiency. The rubric was confirmed by the research adviser and validated by two English instructors. It was composed of two criteria for proficiency in content (including idea generation, vocabulary, and language use), and in organization (including

coherence and logical flow, and use of transitional words and phrases). Each of these criteria is comprised of 5 indicators with corresponding points from 1 to 5, where the highest possible score for the essay is 100 points for the two criteria.

The results of the essay writing test identified the English writing proficiency of the students, and were interpreted using the percentage based on the grading system of a state-run institution and the descriptive equivalent of the holistic rubric as indicated below:

Points	Descriptive Equivalent
96 – 100	Outstanding
90 – 95	Very Satisfactory
84 – 89	Satisfactory
78 – 83	Moderately Satisfactory
75 – 77	Poor

To determine the level of relationship between the exposure to GenAI models and the English writing proficiency of students, the Spearman Correlation Coefficient was used. Specifically, raw scores from the essay writing test and the number of minutes students were exposed each day to GenAI models were tested as variables using the Statistical Package for the Social Sciences (SPSS).

The interpretation of correlations was anchored on the recommendations of Dancey and Reidy (2007), which are shown below:

Interval Coefficient	Relationship Level
≥0.70	Very Strong
±0.40 - ±0.69	Strong
±0.30 - ± 0.39	Moderate
±0.20 - ± 0.29	Weak
±0.1 - ± 0.9	Negligible

Results and Discussion

Profile of Respondents

Sex. Table 1 shows that more females participated in the study, with 16 or 84.21% than males, with only 3 or 15.79% of the total respondents. This may imply that the results may be more specific to the perceptions of females than males. However, this result is in contrast to the findings of Nyaaba et al. (2024) on the Generative AI (Gen AI) tools awareness, use, and views among pre-service teachers (PSTs), which found that male PSTs have a higher frequency of use than female PSTs. A large disparity in gender gap in the use of Gen AI was also found by Aldasoro et al. (2024) in their study, where 50% of men have used Gen AI as compared to only 37% of women. Liu and Wang (2024) noted that Gen AI users are young, highly educated, and male.

Table 1. Sex Profile of Respondents

Sex	N	%
Male	3	15.79
Female	16	84.21
Total	**19**	**100**

Gen AI Models Frequently Used. Table 2 suggests that Quillbot is the top choice of the respondents, with 14 users, followed by Cici with 6 users, ChatGPT and Grammarly with 4 users, and Microsoft Bing with only 1 user. This implies that Quillbot is the most popular among the respondents than any other Gen AI tool available online. Yet, in a survey report made by Jackson in 2024 on the world's leading gen AI tools, Google Bard topped the list, followed by Bing Chat, OpenAI ChatGPT, OpenAI, DALL-E-3, and Adobe Firefly Image 2. But for Liu and Wang (2024), Chat GPT leads the top 40 popular gen AI tools in the global market with 82.5% of the 1 billion monthly web traffic in March 2024. This was followed by Gemini, Poe, Perplexity, and Claude, completing the top 5. Bransen (2024) has identified that the 6 best AI education tools for students and teachers are ChatGPT, Copilot (Bing Chat), Perplexity AI, Quillbot, Canva, and Grammarly. These tools can be of great help to students and teachers as they make data analysis easy, help improve the teaching-learning process, and make learning

smarter. As reported by Ventura and Lopez (2024), education students of Quirino State University-Diffun utilize AI tools that they are aware of. For these students, the top 5 AI tools they mostly use are Canva, Quillbot, ChatGPT, Grammarly, and Photomath.

Table 2. Gen AI Models Frequently Used by Respondents

GenAI Models Used	Frequency of AI Users	Rank
Quillbot	14	1
Cici	6	2
ChatGPT	4	3
Grammarly	4	3
Microsoft Bing	1	4

Exposure to Gen AI Models. Table 3 shows the classification of respondents according to their exposure to Gen AI models. Twelve 12 students (63.16%) had low exposure, followed by 4 students (21.05%) with average exposure, and 3 students (15.79%) with high exposure. This result implies that secondary teacher education students specializing in the English language are still not particular in the use of Gen AI tools in their learning activity. This result is supported by the study of Gasaymeh et al. (2024), which showed results where university students had moderate familiarity and engagement with Gen AI writing tools, resulting in a lack of technical knowledge of them.

The study by Fabro et al. (2024) found that high school and college students from Region I in the Philippines mostly use AI tools in ensuring the originality and the correct grammar use of their writing. However, they use AI tools in making assignments and creating reports.

Table 3. Exposure to Gen AI Models

Exposure to Gen AI	f	%
High	3	15.79
Average	4	21.05
Low	12	63.16
Total	**19**	**100**

Legend: High (41-60 minutes); Average (21-40 minutes); Low (0-20 minutes)

English Writing Proficiency

Content in Terms of Idea Generation. Table 4 displays that the majority of respondents obtained a poor performance in terms of idea generation with 6 (31.58%) students, followed by 5 (26.32) students with satisfactory performance, 4 (21.05%) students with outstanding performance, 3 (15.79%) students with very satisfactory performance and 1 (5.26%) student with moderately satisfactory performance. It is implied by this result that since most of the respondents have low exposure to the GenAI tools, their writing performance in terms of content remains as these was originally written.

Based on the qualitative study by Marzuki et al. (2024), teachers have different views on the impact of AI writing tools on the students' ability to generate new ideas. While one teacher has highlighted its significance in stimulating creativity and expanding the ideas of students, another teacher is apprehensive that the written output could be generic and impersonal. Another teacher viewed that the use of AI tools in generating content could hamper the imagination of students and lead them to be overly reliant instead. For Gultekin Talayhan & Babayigit (2023), the use of AI writing tools has positively impacted the content writing of students as they offer and suggest prompts for idea generation and expression. Aljuaid (2024) is apprehensive that although AI technologies help students' grammar and style, their impact on the creativity and critical thinking of

students remains questionable. This view is seconded by Rahmi et al. (2024), who stated that although AI tools help students' grammar and style, there is still no assurance that these would not affect the creativity and critical thinking of students.

Table 4. Content in terms of Idea Generation

Idea Generation	f	%
Outstanding	4	21.05
Very Satisfactory	3	15.79
Satisfactory	5	26.32
Moderately Satisfactory	1	5.26
Poor	6	31.58
Total	**19**	**100**

Content in terms of vocabulary and language use. Table 5 shows that most of the respondents gained poor performances in terms of vocabulary and language use, with 7 or 38.84% of the total population, followed by moderately satisfactory with 5 (26.31%) students, outstanding and satisfactory with 3 (15.79%) students, and very satisfactory with only 1 (5.26%) student. Considering the unpopularity of using AI tools in students' academic writing sessions of students, the results imply that the effect was poor to moderately satisfactory, with only a few showing competencies.

In the results presented by Marzuki et al. (2024), college teachers have forwarded positive and negative views on the use of AI tools in a writing class. They pointed out that although the AI writing tools enhance the vocabulary of students by providing a repertoire of advanced vocabulary words, this might also lead to complex vocabularies that complicate the written output. According to Rahmi et al. (2024), although AI writing tools help students correct their grammatical errors, their composition lacks density, and their intended message and thoughts are not effectively conveyed and expressed.

Table 5. Content in terms of Vocabulary and Language Use

Vocabulary & Language Use	f	%
Outstanding	3	15.79
Very Satisfactory	1	5.26
Satisfactory	3	15.79
Moderately Satisfactory	5	26.31
Poor	7	36.84
Total	**19**	**100**

Organization in terms of coherence and logical flow. Table 6 illustrates that the majority of the students got a poor rate in terms of coherence and logical flow with 7 or 36.84% of the total population, followed by very satisfactory with 5 (26.31%) students, outstanding and very satisfactory with 3 (15.79%) students, and moderately satisfactory with only 1 (5.26%) student. This implies that the inadequacy of exposure of students to GenAI tools translates to their poor to satisfactory performance in the organization and coherence of their output. This is a downside result since students who were exposed to the AI tools have improved the sequence of the paragraphs and fostered a clear, logical flow of ideas. Accordingly, AI writing tools help students organize their thoughts and structure their compositions well (Marzuki et al., 2024). They support the logical arrangement of student ideas (Gultekin Talayhan & Babayigit, 2023).

Table 6. Organization in terms of Coherence and Logical Flow

Coherence & Logical Flow	f	%
Outstanding	3	15.79
Very Satisfactory	3	15.79
Satisfactory	5	26.31
Moderately Satisfactory	1	5.26
Poor	7	36.84
Total	**19**	**100**

Organization in terms of the use of transitional words and phrases. Table 7 indicates that most respondents have poor performance in the use of transitional words and phrases, with 10 or 52.63% of the total population, followed by 4 (21.05%) students rated satisfactory, 3 (15.79%) students rated outstanding, 2 (10.52%) students rated very satisfactory, and 0 students rated moderately satisfactory. This implies that students who have less or no exposure at all to Gen AI tools are likely to have a poor choice of words and phrases in written compositions. The narratives of teachers in the study of Marzuki et al. (2024) revealed that the use of AI writing tools has helped enhance the ability of students to organize their statements and make writing choices of transitional markings and devices to express coherence and smooth flow in communication.

Table 7. Organization in terms of Use of Transitional Words and Phrases

Use of Transitional Words & Phrases	f	%
Outstanding	3	15.79
Very Satisfactory	2	10.52
Satisfactory	4	21.05
Moderately Satisfactory	0	0
Poor	10	52.63
Total	**19**	**100**

English writing proficiency in terms of content and organization. Table 8 shows that students made a moderately satisfactory performance in both content and organization, with percentage means of 83.03% and 79.70%, respectively. Overall, the grand mean percentage is 81.47% which is described as a moderately satisfactory performance.

In the findings established by Al-Raimi et al. (2024), Omani students have frequently used AI writing tools in translating words, phrases, and sentences, and in verifying spelling and grammar. It was also found that students used these tools to generate ideas and assist them in writing essays and paragraphs. Indeed, the use of AI writing tools has been a source of support for students in their academic journey. In the study by Utami et al. (2023), they found that AI-based learning tools help students in research, from planning to writing the final output.

Table 8. English Writing Proficiency in terms of Content and Organization

English Writing Proficiency	Mean Percentage	Description
a. Content	**83.03**	**Moderately Satisfactory**
Idea generation	84.21	*Satisfactory*
Vocabulary & language use	81.84	*Moderately Satisfactory*
b. Organization	**79.90**	**Moderately Satisfactory**
Coherence & logical flow	81.47	*Moderately Satisfactory*
Use of transitional words & phrases	78.32	*Moderately Satisfactory*
Grand Mean	**81.47**	**Moderately Satisfactory**

Legend: 96% - 100 % (Outstanding); 90% - 95% (Very Satisfactory); 84% - 89% (Satisfactory); 78% - 83% (Moderately Satisfactory); 75% - 77% (Poor)

Level of Relationship Between Variables

Relationship between exposure to GenAI models and English writing proficiency. Table 9 reveals the level of relationship between the students' exposure to Gen AI models and their English writing proficiency. Using the Spearman Correlation Coefficient, it was determined that the two variables have no or a negligible relationship with a Spearman Rho value = -0.152. This means that their exposure to Gen AI models is not a determining factor in their English writing proficiency.

Table 9. Relationship Between Exposure to Gen AI Models and English Writing Proficiency

Variables	Spearman Rho Value	Relationship Level
Exposure to GenAI models English writing proficiency	-0.152	Negligible

Legend: ≥0.70 (Very Strong); ±0.40 - ±0.69 (Strong); ±0.30 - ± 0.39 (Moderate); ±0.20 - ± 0.29 (Weak); ±0.1 - ± 0.9 (Negligible)

Conclusion

The findings established in the study suggest that students enrolled in the teacher education program specializing in English at a state university are aware of the existence of generative artificial intelligence (Gen AI) tools that can help and support them in their studies. The moderately satisfactory writing proficiency they have may be attributable to the students' exposure to social media. However, they may have yet to explore and expose themselves to these AI tools to be particular of the pros and cons in using them, particularly taking advantage of the benefits they can derive from them. Thus, this calls for teachers and school administrators to look into and consider the benefits of AI tools by establishing norms and policies that indicate the extent and limitations of their use in the academe. One option is to conduct digital literacy education and workshops, or embedment in courses relevant to the use of digital technology among the students and other stakeholders in the academic community.

It was established that Gen AI models do not significantly influence students' writing abilities. But students and teachers can capitalize on the benefits of Gen AI tools in their academic journey, particularly on grammar checks and sentence structures. With this, educators should implement and sustain more meaningful and comprehensive writing instruction, as well as foster a positive learning environment to improve learners' overall writing proficiency.

Further studies may explore other related variables to set standards and limitations on the Gen AI to dispel doubts about its implications on students' language development.

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