ENHANCING ENGLISH WRITING PROFICIENCY USING ARTIFICIAL INTELLIGENCE-ASSISTED TOOLS

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ABSTRACT

The integration of Artificial Intelligence (AI) in education has gained global attention redefining teaching-learning in ways never been seen before. Though it sounds compelling, a retrospection regarding AI's effective use in academic writing continue to stir a crucial issue in the field of language learning. In fact, writing remains an intricate skill that has been challenging high school students despite AI's overwhelming breakthrough. Thus, this quasi-experimental study investigated the effectiveness of AI-assisted tools in enhancing the English writing proficiency of 32 high school students who participated in the National Learning Camp program at Gabi National High School of Davao de Oro Philippines. As reflected in the paired T-test results, the respondents' writing proficiency level significantly improved from near mastery to mastery level. The increased proficiency level among students amplifies AI's transformative potential in enhancing English writing skills. It appears that AI's positive impact in addressing student's common writing mistakes is completely undeniable. Besides, students were not only able to produce more accurate and coherent written outputs but also demonstrated greater awareness on writing conventions which lead to a confident use of English language. Most of all, the immediate and personalized feedback offered by AI technology has reduced students' dependence on teacher intervention, fostering independent learning and a deeper understanding of the writing mechanics. Therefore, it is imperative to integrate AI-assisted tools in the basic education curriculum providing students a new opportunity to improve their writing skills equipping them to navigate the challenges of the modern world.

Keyword: *English Language Teaching, AI-assisted tools, English writing proficiency, personalized feedback, self-paced learning, language education, quasi-experimental design*

1. INTRODUCTION

Artificial Intelligence (AI) in education has been transforming teaching and learning beyond expectations. Studies confirmed that AI has altered how its users perceive knowledge while various researchers verified its potential on improving language-specific skills in English. Remarkably, AI's primary function and use is to perform tasks that basically require human intelligence such as understanding natural language, recognizing patterns, and making decisions (Russell & Norvig, 2021) [1]. However, there remains a significant gap in the existing knowledge about its effective integration into teaching learning especially in enhancing students' English writing proficiency.

In the United States of America, the ACT Education Corporation research scientists Schiel et al. (2023) [2] reported varying insights about AI use based on a survey participated by 4,006 high school students nationwide. Almost half of the participating high school students stated that they had used AI tools mostly for language arts (writing) and social studies assignments. Nearly three fourths (74%) of students believe that their overall performance in school would improve at least a small amount because of using AI tools. Despite AI's undeniable potential, a significant and emerging problem on writing proficiency is the increasing dependence on AI tools for writing assignments which could lead to a decline in students' independent writing skills. Therefore, teaching students how to use AI as a supportive tool instead of a replacement for thinking is crucial to address this gap and generate progress in English writing skills.

In Philippine academic setting, AI in Education (AIED) had limited restrictions, regulations, and guidelines on its appropriate and ethical use in the curriculum. Estrellado and Miranda (2023) [3] indicated that AIED requires a robust technological infrastructure and adequate computing resources aligned with policy frameworks, such as addressing data privacy concerns, the digital divide, and the need for ongoing faculty training and development. On a brighter side, the authors found AIED could enhance learning experiences through personalized learning, curriculum adjustments, and data-driven decision-making. It can also address challenges such as the digital divide and the necessity for improved digital literacy in leveraging AI's full potential and benefit. However, a critical issue about its effective integration into teaching learning still needs in-depth study and solution. The extent to which AI technology improves English writing proficiency remains highly anticipated.

At Gabi National High School, Compostela, Davao de Oro, the integration of artificial intelligence (AI) has been changing the context of English language learning. During a pre-interview, the researcher learned that many students use AI-assisted tools for their academic needs, while some relying on them regularly. As a matter of fact, submitting assignments, essays, and other academic outputs generated with AI tools has become widespread. Hence, the need to acquire fundamental knowledge and critical understanding in using AI effectively is crucial. It is imperative that teachers and higher authorities must come up and provide students equal opportunity in using AI tools appropriately, ethically, and fairly. With these in mind, the researcher has aimed to determine the effectiveness of AI-assisted tools in enhancing the English writing proficiency of the research subjects.

1.2 Review of Related Literature

Artificial Intelligence (AI) is the culmination of computers, computer-related technologies, machines, and information communication technology innovations and developments, giving computers the ability to perform near or human-like functions (Panigrahi, 2020) [4]. It is undeniable that the ability of a machine to perform intelligent tasks that are generally assigned to the human mind and override the problem-solving of information processing, prediction, and choosing the best and most effective action to achieve a certain goal, is something that is already a reality (Slavov et al., 2023) [5].

Recently, the artificial intelligence known as ChatGPT has turned into a global sensation. According to Jowarder, 2023) [6], most students used this tool for academic work particularly in understanding difficult concepts. This online flatform found to have significant improvements in English language writing components including organization, coherence, grammar, and vocabulary (Song & Song (2023) [7]. In terms of research process, Pack and Maloney (2023) [8] underscored its use in gathering and summarizing information and its role as a research assistant in multiple stages of research writing.

Another AI-powered writing tool applied in language learning is Grammarly. Dizon and Gayed's (2021) [9] study revealed a notable decrease in grammatical mistakes when students used Grammarly by providing immediate feedback on structural issues such as run-on sentences, tense errors, and article usage. The impact of Grammarly on essay writing skills could enhance students' proficiency across five key writing components: content, organization, vocabulary, language use, and mechanics (Kusuma & Zuhri, 2023) [10].

Earning a spotlight with the tools earlier, an AI-powered paraphrasing tool, QuillBot, revealed a noteworthy finding on its impact in writing proficiency based on the study of Nurmayanti and Suryadi (2023) [11]. The study indicated a significant increase on students' writing performance demonstrating improved ability to paraphrase source material effectively, reducing instances of plagiarism while producing more original content.

Using AI in education goes beyond adopting technologies to facilitate easier learning. It also means reshaping, redesigning, and rethinking traditional education systems' content and methods (Athens Journal, 2023) [12]. AI can be applied in different forms in foreign language education which include creating personalized learning resources, engaging with automated translation tools, making use of AI-driven writing assistants, interacting with AI chatbots, utilizing AI-powered language learning applications, using intelligent tutoring systems, and employing intelligent virtual reality (Pokrivcakova, 2019) [13]. This further highlight AI's customization of learning experiences to suit individual learner needs and its real-time corrections and suggestions for a better improvement and outcome.

According to Crompton and Burke (2023) [14], 72% of AI users in academic institutions are students who use AI to access learning material, answer student assessments, and do self-testing purposes. The review indicated a rapid increase in AI-related publications in higher education, particularly in 2021 and 2022, where the number of studies rose nearly two to three times compared to previous years. This growing interest was further supported by Klutka et al. (2018) [15] who determined key benefits of AI integration which include: improved learning outcomes, increased access and retention, reduced costs, and decreased time to degree completion. This proves the transformative potential of AI in enriching English language learning, improving institutional efficiency, and fostering a more effective teaching and learning environments.

As for language learning sub-skills, Hsu et al. (2023) [16] concluded that the learners developed their vocabulary knowledge and self-regulation and decreased their language learning anxiety. On one hand, Kim (2019) [17] found that students who received the AI-based instruction outperformed those who did not receive the AI tool. Indeed, students could accomplish their writing tasks more swiftly than ever, findings which capitalized on the efficient role of the AI-assisted language learning tool for the writing tasks (Yan, 2023) [18]. This was reinforced by Utami et al. (2023) [19], they concluded that AI-powered language learning approach enhanced students' academic research writing through feedback, comments, and alternative sentences. Zhang and Lu (2021) [20] emphasized that the success of AI systems relies not only on their technical design but also on the ethical frameworks and methodologies guiding their development and application. This achievement has paved the way to enhance educational efficiency by automating administrative tasks and providing real-time feedback, thereby reducing teachers' workload, and allowing them to focus on higher-order instructional activities (Chen et al., 2020) [21].

In due course, the United Nations International Children's Emergency Fund (UNICEF, 2021) [22] advocates for child-centered AI, compelling that systems should be designed with consideration for children's rights, privacy, and agency. However, the organization reminds its users about the ethical, social, and governance challenges obliged by this technology. For this reason, the organization emphasized the importance of inclusivity, transparency, and accountability in AI development, particularly as these technologies increasingly influence policies and services that affect young people. In doing so, UNICEF contributes a crucial perspective to the global AI discourse that prioritizes human dignity and equity in the age of intelligent machines.

1.2 Statement of the Problem

This study was aimed to determine the effectiveness of AI-assisted tools in enhancing English writing proficiency. Specifically, the following questions were addressed:

1. What is the English writing proficiency level of the students as reflected in their pretest?
2. What is the English writing proficiency level of the students as reflected in their posttest?
3. Is there a significant difference between the pre-test and post-test results?

Null Hypotheses:

The hypothesis was formulated and tested at .05 level of significance.

Ho: There is no significant difference between the pretest and posttest results.

2. METHODS

2.1 Research Design

This study employed a one-group quasi-experimental research design to determine the effectiveness of AI-assisted tools in enhancing English writing proficiency among respondents. In this study, the process involved a pretest aimed to test the initial writing proficiency of the respondents. Students were then engaged in the intervention integrating AI-assisted tools in the learning process. Next, the posttest was administered to measure improvements in their writing proficiency. The results obtained in pretest and posttest were analyzed to determine the significance of AI-assisted tools on students' English writing proficiency.

2.2 Research Locale

The study was conducted at Gabi National High School in Purok 7, Barangay Gabi, Compostela, located in Davao de Oro, a province in the Philippines within the Davao Region of Mindanao. This school is currently operating multi-grade classes from junior high to senior high school implementing the K-12 curriculum. The municipality of Compostela is known for its agricultural economy, with a significant portion of the population engaged in farming, mining, and small-scale businesses. Since its establishment, Compostela has evolved from a relatively undeveloped area into one of the most progressive towns in the valley.

2.3 Research Subjects

The respondents of this study were students participating in the National Learning Camp (NLC) at Gabi National High School during school year 2024-2025. The research subjects comprising 32 NLC student campers were selected from Grade 9 and Grade 10 consolidation camps. The researcher utilized universal sampling method in selecting the subjects of this study, a sampling technique commonly used in the field of simulation.

2.4 Research Instrument

The instrument used in this study was adopted from the resource material entitled "Standardized Test of English Proficiency" (STEP) by al-Shamrani (2012) [23]. The researcher purposely selected two significant components relevant in testing the English writing proficiency of a language learner. A table of Specifications (TOS) was followed to ensure proper distribution of test items in the research instrument.

2.5 Data Gathering Procedure

First, a relevant research instrument on English writing proficiency which focused on structure, compositional analysis, and written production components was prudently chosen. Second, the researcher facilitated a request letter addressed to the Schools Division Superintendent of Davao de Oro seeking permission to conduct the study. Upon receiving approval, the researcher submitted the approved request with a permission letter to the school principal. Third, the researcher submitted a copy of the research proposal for ethics review at the Research Development and Publication Center to guarantee compliance to the ethical standards. Then, the selected research subjects were identified and informed about the research study followed by the distribution of informed consent form and assent form seeking permission from the parents and guardians of the research subjects. Next day, the pretest began followed by the intervention process. The respondents were encouraged to use Chat GPT, Grammarly, and Quillbot appropriate for the lesson and writing tasks at hand. After the intervention, the posttest was administered to assess the significant difference of students' pretest and post test scores. The results obtained from the study were consolidated, analyzed, and presented to the researcher's thesis adviser and was scrutinized by the panel of thesis experts from the graduate school of Assumption College of Nabunturan.

2.6 Statistical Treatment of Data

The mean percentage scores of the respondents were interpreted as follows:

92% and above	Full Mastery
83%-91%	Near Full Mastery
75%-82%	Mastery
52%-74%	Near Mastery
25%-50%	Low Mastery

The study employed these following statistical tools to test the hypothesis:

Frequency distribution. This was applied in listing the students' scores in their pre-test and post-test results using Microsoft Excel.

Mean. This was employed to give an accurate numerical figure that shows the students' average writing proficiency based on their pre-test and post-test results.

Paired T-test. To calculate the t-value, the variability or standard error of the differences was determined by comparing the mean difference between the pretest and post-test scores of the respondents using JASP software.

2.7 Ethical Considerations

According to Bhasin (2020) [24], ethical considerations encompass the beliefs and principles that should be upheld throughout the research study. By doing so, the researcher ensured strict adherence to ethical standards of the following:

Social Value. This study addressed the existing issues of AI in English language learning among students who live in selected barangays of Compostela, New Bataan, and Nabunturan. The study aimed to enhance students' English writing proficiency by integrating AI in intervention classes. The results would be shared with the community through the Local Government Unit (LGU) and published in an online journal so that other related research studies may use the study as a reference.

Informed Consent and Transparency. The students involved in the study were fully informed about the purpose, procedures, and potential risks or benefits of their participation. The researcher distributed Informed Consent Forms (ICF) to the selected participants detailing how the AI tools were used, what data were collected, and how this data were analyzed. Utmost care was taken during the initial orientation to ensure that respondents understand the implications of their involvement since this research study includes minor students with limited writing proficiency.

Vulnerability of the Research Subjects. The researcher explained the entire process of the experimental study during the orientation and emphasized that their participation was purely voluntary. Students were free to withdraw anytime whenever they feel any discomfort.

Privacy and Confidentiality of Information. The researcher ensured that the respondent's personal information, identity, and collected data are kept confidential and secure in compliance with the Data Privacy Act of 2012. Data were stored in a Google Drive that only the researcher can access. After the study was completed, all data were destroyed.

Accountability and Research Integrity. The researcher upholds the highest standards of integrity throughout the study including accurate reporting of findings, acknowledgment of any limitations, and disclosure of any conflicts of interest. Since AI tools were used as part of the study, their source code or methodology were made available for scrutiny to promote transparency.

3. DISCUSSION OF RESULTS

Table 1
Pretest Performance of the NLC Research Subjects

Pre-test	No. of Students	Mean	Proficiency Level	Mastery Level
Writing Proficiency	32	26.28	52.56%	Near Mastery

Table 2 shows that the pretest performance of the NLC research subjects in English writing proficiency has a mean score of 26.28 on the 50-item test. With a class proficiency of 52.56%, it indicated that the competency level of the students was at *near mastery level* based on DepEd's proficiency level standards. The pretest result interprets that the research subjects were not proficient in English writing. This has a significant effect in language learning which can impact the academic performance of the respondents in their English language proficiency.

The proficiency level of the students in the pretest indicated at *near mastery level* means that they were not proficient in English writing. The results disclosed a concerning level of writing proficiency among the research subjects, anticipating a need to enhance their English writing skills. The underperformance of the NLC research subjects was not unexpected since they were students identified as struggling learners from the previous school year. Although Filipinos are often praised for their proficiency in English, Bernardo (2020) [25] highlighted that many students continue to struggle with writing due to contextual and pedagogical challenges.

On a similar context, the alarming issue on English writing proficiency was not new and has been prevailing for several years in the field of language learning. The study of Graham and Perin (2007) [26] revealed that students often struggle with grammar, vocabulary, and organization in writing, which contribute to lower proficiency levels. The authors also reported that this is particularly common in English as a Second Language (ESL) contexts, where students face additional barriers due to limited exposure and practice. In this study, the NLC research subjects experienced major learning gaps as determined in the pretest results. Most of the respondents had reading difficulties that led to poor reading comprehension, subsequently contributed to their lower English writing proficiency levels.

Table 2
Posttest Performance of the NLC Research Subjects

Posttest	No. of Students	Mean	Proficiency Level	Mastery Level
Writing Proficiency	32	41.03	82.06%	Mastery

As shown in Table 2, the respondents' English writing performance in posttest has a mean score of 41.03 equivalent to 82.06% class proficiency. It indicated that the competency level of the research subjects was improved at *mastery level* based on DepEd's proficiency level standards. The results interprets that the competency level of the respondents have enhanced significantly after the intervention period. Thus, integrating AI-assisted tools in English writing instruction was successful and substantial.

The English writing proficiency result of the students in the posttest showed that their proficiency level had successfully enhanced to *mastery level* according to DepEd's proficiency level standards. The results revealed a significant improvement in the progression of students' performance on English writing proficiency test as compared to their pretest scores. In addition, the posttest results duly affirmed the findings of Song and Song's (2023) research study on the effectiveness of AI-assisted tools in addressing students' common writing challenges in grammar, coherence, and organization. This affirmation emphasized the potential of AI technology to complement traditional teaching methods in the Philippine educational context especially during the implementation of the National Learning Camps.

The findings were further reinforced by Jowarder's (2023) study highlighting AI's practicality and ease of use which found to be significant factors in the adoption of this technology. These factors remove the barrier to technology which fosters appropriate and effective use of this technology. The author also found that AI-assisted tools had a clear positive impact on the academic performance of the participants. This clearly suggests that the integration of AI in their learning process was not just convenient, but actually helped them perform better in school. The positive impact of AI-assisted tools on the participants' academic performance was evident particularly in understanding difficult concepts by providing them relevant study materials. These means that students could receive tailored, focused content videos, articles, quizzes, and summaries that matched their current lesson or knowledge gap.

The study further confirmed Ifelebuegu et al.'s (2023) [27] findings in emphasizing the role of AI-powered chatbots and other educational AI tools in the English language learning. These tools were highlighted as valuable assets in the English language learning process, helping students develop critical language skills in a responsive and dynamic way. The author also indicated various advantages offered by this technology, including serving as interactive conversational partners, offering round-the-clock feedback, providing grammatical explanations, and supporting vocabulary expansion and translation.

Chatbots as conversation partners allows learners to practice writing in in a low-pressure, judgment-free environment while offering round-the-clock feedback. This enables learners to ask questions, receive corrections, and continue learning at any time, which is definitely helpful for independent learners with irregular schedules. Overall, these benefits relevant to the findings of this study reinforced the argument that AI tools enhance English language learning through availability, interactivity, and personalized support.

Table 4
Test Difference of means in Pretest and Posttest Performances of the NLC Research Subjects

	Mean	**p-value**	**t-value**	**Remarks**
Pretest	26.28	0.000	-17.51	Significant
Posttest	41.03			

Table 4 presents a comparison of the mean scores in the pretest and posttest results of the NLC research subjects in English writing proficiency. The respondents achieved a mean score of 26.28 on the pretest which increased to 41.03 on the posttest. The analysis produced a p-value of 0.000 and a t-value of -17.51, rejecting the null hypothesis. This supports the alternative hypothesis, showing a significant difference between the pre-test and post-test scores of the research subjects.

The 30% leap between the respondents' pretest and posttest scores revealed a significant difference as reflected in their proficiency level results. The students' proficiency level in pretest had positively improved from *near mastery* to *mastery level* in comparison with their post-test. This finding was validated by Bender et al. (2021) [28] in their study stating that students who received automated feedback had improved their writing accuracy by 20%, as they were able to immediately address specific errors substantiating the effectiveness of AI-assisted tools in enhancing English writing proficiency. Similarly, the significant difference between the respondents' pretest and posttest scores therefore confirmed that AI tools has effectively enhanced the writing proficiency level of the NLC research subjects through generating immediate feedback on grammar mechanics which then assisted them to identify and correct errors promptly. This means that the intervention process using AI-assisted tools recommends the potential use and adoption of this technological breakthrough in the National Learning Camp program.

On addressing the unique needs of Filipino learners, the product of this study was also supported by de Guzman and Tan (2021) [29] by emphasizing the pivotal role of AI in providing personalized feedback. Their study reported that students learned autonomy in enhancing their work using AI-assisted tools, encouraging self-directed learning. With the presence of these AI tools in Philippine education curriculum, it paved a way to develop self-paced learning, address student's personal room for improvement, and nurture a sense of responsibility by maximizing their language learning at their own pace.

The study of Divekar et al. (2022) [30] which explored how AI-supported language learning technology affect learners' vocabulary acquisition and grammar proficiency rendered relevant findings to this study. Their study found that AI tools contributed to higher grammatical accuracy among learners. Through interactive exercises, real-time error detection, and corrective feedback, learners were able to identify and correct grammatical mistakes, leading to more precise language use over time. The study emphasized that by providing immersive and engaging learning experiences, AI technology effectively advanced learners' vocabulary knowledge and grammatical accuracy.

On the role of AI-assisted tools in enhancing English as Foreign Language (EFL), Fitria et.al. (2023) [31] strengthened the findings of this study that AI applications offering real-time feedback and personalized suggestions significantly improved students' writing performance, particularly in organization, coherence, and vocabulary usage. Their study reported that AI tools helped learners structure their writing more logically. These tools often suggested paragraph transitions, sentence connectors, and topic development strategies, which led to better coherence and flow in students' essays and reports. The AI systems provided vocabulary alternatives, synonyms, and contextual word suggestions. As a result, students developed a broader lexical range, allowing them to use more precise and diverse language in their writing that was measured in terms of organization, coherence, vocabulary, and grammatical accuracy. Therefore, this study bids comparable results regarding AI's capability to improve language specific skills in English language learning.

Indeed, students learned autonomy, in enhancing their work using AI-assisted tools encouraging self-directed learning. A relevant study from Alipato et al. (2019) [32] regarding AI's capability to improve language specific skills underlined that empowering student to identify and correct their mistakes fosters long-term skill retention. This fact solidifies the findings of this study about AI's undeniable potential in enhancing the English writing proficiency of the respondents.

Finally, Yan's (2023) [33] research findings revealed that the use of an AI-assisted language learning tool significantly improved the writing performance of English as a Foreign Language (EFL) learners. The study highlighted that student who engaged with AI-driven platforms demonstrated notable advancements in various aspects of writing, including grammar accuracy, sentence coherence, vocabulary usage, and overall structure. Furthermore, the AI-assisted tool encouraged autonomous learning by allowing students to revise and refine their work independently, boosting their confidence in using the language.

These findings underscored the transformative role of AI in streamlining the writing process and enhancing the overall proficiency of learners. By integrating advanced technologies such as natural language processing and machine learning algorithms, AI-assisted writing tools serve not only as corrective aids but also as interactive learning partners that actively support and accelerate students' English writing development.

4. CONCLUSION

In view of the foregoing findings, the researcher concluded that the respondents have a proficient level in English writing skills. The significant difference in pretest and posttest scores revealed that the research subjects have enhanced their English writing skills. Apparently, this improvement implies that integrating AI-assisted tools in the intervention successfully enhanced the English writing skills of the NLC student campers at Gabi National High School. The marked development in students' writing performance reflects the powerful impact of AI in shaping a more adaptive, personalized, and engaging learning environment. It is undeniable that using AI-assisted tools is beneficial in addressing common writing mistakes, encouraging self-paced learning, and enhancing meaningful engagement with the writing tasks. These tools provide personalized feedback and accommodate individual learning paces, which traditional classroom instruction often lacks. Overall, the successful implementation of AI-assisted tools in the intervention underscores its transformative potential in supporting and enhancing English writing proficiency among students in diverse educational contexts.

However, teacher's intervention in adapting AI technology in education is vital and indispensable. It is indisputable that high school students critically need their teacher more than ever to guide them in leveraging AI's full potential. For this very reason, the Philippine government must act as a steppingstone towards digital divide. The ultimate crisis is not the writing proficiency of the learners, but the interplay of humanitarian needs and the accountability of the educational landscape to address this gap fairly, ethically, and equally. This means that providing students with a platform to explore their knowledge on their own has become a necessity in this modern age. In this study, it was evident that the respondent's capacity to use AI-assisted tools depends on internet access, digital devices, and most importantly, on teachers' intervention and guidance. Learning on struggling students becomes harder to realize if these needs where not meet prior to the integration of this AI-assisted tools.

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