



(RESEARCH ARTICLE)



Students' Use of ChatGPT in Relation to Their Vocabulary Skills and Writing Proficiency

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International Journal of Science and Research Archive, 2025, 17(01), 503-509

Publication history: Received on 31 August 2025; revised on 10 October 2025; accepted on 13 October 2025

Article DOI: <https://doi.org/10.30574/ijrsra.2025.17.1.2785>

Abstract

ChatGPT is an advanced AI language model increasingly used by students as a tool for language learning and academic support. This study explored the relationship between students' use of ChatGPT and their vocabulary and writing proficiency. It employed a descriptive-correlational research design and involved 50 Grade 8 students from one of the higher education institutions in Ozamiz City, Philippines, selected using a design-based purposive sampling method. Three instruments were used: a ChatGPT Usage Questionnaire, a Vocabulary Skills Assessment, and an English Writing Proficiency Test. Data were analyzed using Mean, Standard Deviation, and Pearson Product-Moment Correlation Coefficient. The findings revealed a very high level of ChatGPT use, particularly for language learning tasks. The students showed high level of vocabulary skills and very high writing proficiency, especially in coherence, grammar, creative expression, and content. However, there was no significant relationship between ChatGPT use and vocabulary skills. No significant relationship was also noted between use of ChatGPT and their writing proficiency except for creative expression. While ChatGPT may not directly enhance technical language skills, it could positively influence students' creativity and originality in writing. Integrating AI tools like ChatGPT into writing instruction as supplementary support to encourage imaginative expression while emphasizing guided learning for vocabulary and grammar development. Educators, curriculum developers, and school leaders should promote structured, ethical ChatGPT use by integrating AI literacy, training teachers, and sustaining direct instruction in vocabulary and grammar to support creativity and academic writing.

Keywords: ChatGPT; Vocabulary skills; Writing proficiency; Artificial intelligence in education; Creative expression

1. Introduction

Chat Generative Pre-trained Transformer (ChatGPT) is a powerful artificial intelligence language model created by OpenAI. It generates text responses that are similar to human writing and helps with various language tasks [1]. As it becomes easier to access, many students are now using ChatGPT for writing support, idea generation, and improving vocabulary. Its role in education has gained attention for its ability to change traditional learning methods, especially in language development [2].

In learning languages, vocabulary and writing skills are key for effective communication and academic success. ChatGPT provides immediate feedback, vocabulary suggestions, and writing help, which can support learners in enhancing these abilities [3]. However, despite its advantages, there are concerns about students relying too much on AI tools, which may limit their independent language growth and critical thinking.

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This study investigated how students use ChatGPT and its impact on their vocabulary and writing skills. It aimed to find out if the frequency and reasons for using ChatGPT are linked to students' language performance. This study is important because understanding the educational benefits and potential downsides of AI tools can assist educators and policymakers in creating balanced ways to incorporate technology that encourages creativity, responsibility, and mastery of language.

2. Materials and Methods

2.1. Research Design

This study used a descriptive-correlational research design to look at the relationship between students' use of ChatGPT and their vocabulary and writing skills. This design let the researcher find out how much the variables were related and in what direction, using statistical analysis without suggesting one caused the other. Descriptive-correlational research works well for spotting patterns among variables through quantitative data analysis [4]. This design fit the current study, which explored the independent variable, students' use of ChatGPT, and the dependent variables, vocabulary skills and writing skills.

2.2. Research Setting

The study took place at a higher education institution in Ozamiz City, Misamis Occidental, Philippines. This non-sectarian school offers various academic programs, including junior high school education. The university is known for its dedication to quality education, accreditation, and learning initiatives based on research. It incorporates technology into its curriculum, allowing students to use digital tools like ChatGPT for language learning. This setup created a perfect opportunity to investigate how students' use of ChatGPT impacts their vocabulary and writing skills.

2.3. Respondents of the Study

The respondents were 50 Grade 8 students, chosen using a design-based purposive sampling method. The selection criteria included: (1) currently enrolled as Grade 8 students for the academic year 2024, 2025; (2) having prior experience using ChatGPT for language tasks like vocabulary learning or writing help; and (3) willingness to participate voluntarily in the study. This sampling method ensured that the participants reflected the population relevant to the study's goals.

2.4. Research Instrument

The researcher utilized a survey questionnaire and language proficiency tests as the primary instruments for the study.

A. *ChatGPT Usage Questionnaire*. This questionnaire was designed to assess the extent of students' use of ChatGPT in relation to their language proficiency [5]. It evaluated two key aspects: frequency of use and purpose of use. The questionnaire consisted of 20 items, using a 5-point Likert scale ranging from 1 (Never) to 5 (Always) for frequency and 1 (Strongly Disagree) to 5 (Strongly Agree) for purpose. This instrument aimed to quantify ChatGPT usage patterns. A pilot test with 30 Grade 8 students yielded Cronbach's alpha values of 0.91 for the Frequency of Use scale and 0.86 for Use scale, indicating high internal consistency and confirming the questionnaire's reliability.

Response	Continuum	Interpretation
5 – Strongly Agree	4.20 – 5.00	Very High
4 – Agree	3.40 – 4.19	High
3 – Neutral	2.60 – 3.39	Moderate
2 – Disagree	1.80 – 2.59	Low
1 – Strongly Disagree	1.00 – 1.80	Very Low

B. *Vocabulary Skills Assessment*. This assessment tool was derived from research on vocabulary learning through AI-based tools [6]. The instrument evaluated students' vocabulary proficiency through three components: acquisition, comprehension, and contextual usage. It consisted of 15 multiple-choice items, evenly distributed across these categories. The assessment measured students' ability to recognize and recall words, understand word meanings, and apply vocabulary in context. To ensure the validity of the instrument, three experts reviewed and assessed the items for clarity, relevance, and accuracy.

The interpretation of scores was as follows:

Score Range	Interpretation
13 – 15	Outstanding
12	Very Satisfactory
11	Satisfactory
9-10	Fairly Satisfactory
Below 8	Did not meet the expectation

C. English Writing Proficiency Test. This test was adapted from studies examining the role of AI-based tools in enhancing writing proficiency [7]. The assessment required students to compose a short essay of 150–200 words on a given topic. The essays were evaluated based on a rubric that considered grammar and structure, coherence and cohesion, creative expression, and content and relevance. To ensure the reliability and validity of the assessment, three experts reviewed the rubric and provided feedback on its clarity and appropriateness. The test aimed to measure students' ability to write organized, grammatically accurate, and creative texts, reflecting ChatGPT's influence on their writing skills. The interpretation of scores was as follows:

Continuum	Interpretation
4.20-5.0	Very Proficient
3.40-4.19	Proficient
2.60-3.39	Developing
1.80-2.59	Less Proficiency
1.0-1.79	Least Proficiency

All research instruments underwent a validation process carried out by a panel of experts in language education. These experts carefully reviewed the questionnaire and proficiency tests to check for clarity, relevance, and appropriateness to the study's goals. Any unclear or inaccurate parts were revised based on their suggestions to improve the quality of the instruments. Their feedback was considered in making final adjustments before the instruments were officially administered to the respondents.

2.5. Data Gathering Procedure

In line with the research protocols, the data collection process started with the researcher formally asking for permission from the school administration. A request letter was submitted to the Office of the Principal, seeking approval to conduct the study with Grade 8 students. After receiving permission, the researcher worked with the English teachers to distribute the research instruments to the chosen respondents.

Before data collection, an orientation session explained the study's purpose, the confidentiality of responses, and the instructions for completing the questionnaire and proficiency tests. The respondents completed the Students' Use of ChatGPT Questionnaire first, followed by the Vocabulary Assessment and Writing Proficiency Assessment. The questionnaire measured how often and why students used ChatGPT, while the assessments evaluated their vocabulary and writing skills. After gathering the responses, the researcher thoroughly analyzed the data to explore the relationship between students' use of ChatGPT and their vocabulary and writing proficiency.

2.6. Ethical Considerations

In ensuring ethical research practices, the researchers prioritized obtaining informed consent and getting the necessary permissions from all participants involved in the study. Formal letters of request were sent to the school administration, teachers, and student respondents. These letters explained the purpose of the research and their roles in the data collection process. Parental consent was also obtained before involving the students. Participation in the study was entirely voluntary, and respondents could withdraw at any time without facing consequences.

Confidentiality and privacy were strictly upheld throughout the study. The identities of the participants remained anonymous, and any personal information collected was handled carefully to prevent unauthorized access or disclosure. The researchers made sure data collection was done responsibly and that the dignity and rights of all respondents were respected at all times. After all ethical considerations were addressed correctly, the researchers moved forward with administering the research instruments. Collected data were securely stored and systematically organized for analysis, ensuring that ethical standards were maintained throughout the research process.

2.7. Data Analysis

The researcher utilized the following statistical tools to analyze the collected data using Jamovi software:

Mean and Standard Deviation were used to measure the central tendency and dispersion of students' ChatGPT usage, vocabulary assessment scores, and writing proficiency scores.

Product-Moment Correlation Coefficient was employed to determine the relationship between students' use of ChatGPT and their vocabulary and writing proficiency.

3. Results and Discussions

3.1. Level of ChatGPT Use

Table 1 shows that students used ChatGPT a lot ($M = 4.56$, $SD = 0.41$). This means that most participants often used ChatGPT for language-related tasks like improving vocabulary, correcting grammar, and getting writing help. This finding agrees with previous research that points out ChatGPT as a helpful tool for language learning, which boosts engagement and efficiency [8].

Table 1 Level of Students' Use of ChatGPT for Language Learning Purposes

Constructs	M	SD	Remarks
Frequency of Use	4.41	0.43	Very High
Purpose of Use	4.44	0.36	Very High
Overall Level of Use of ChatGPT	4.43	0.40	Very High

Scale: 4.20-5.0 (Very High); 3.40-4.19(Moderately High); 2.60-3.39 (High); 1.80-2.59(Low); 1.0-1.79 (Very Low)

3.2. Students' Vocabulary Skills

Table 2 shows that students have strong vocabulary skills ($M = 4.22$, $SD = 0.36$). This means that learners can understand and use many English words in context. The result backs up earlier findings that digital tools and online media help with vocabulary learning [9].

Table 2 Students' Vocabulary Skills

Performance	Frequency	Percentage
Outstanding	28	56.00
Very Satisfactory	16	32.00
Satisfactory	4	8.00
Fairly Satisfactory	2	4.00
Did not meet the Expectations	-	-
Mean Performance	12.80- Outstanding	

Note: Scale: 13-15 (Outstanding); 12 (Very Satisfactory); 11 (Satisfactory); 9-10(Fairly Satisfactory); 1-8(Did not meet the expectations)

3.3. Students' Writing Proficiency

As shown in Table 3, students showed a very high level of writing proficiency (M = 4.61, SD = 0.40), especially in coherence, grammar, creative expression, and content development. This suggests that ChatGPT may help improve writing skills by offering feedback, structure, and language examples. The result matches studies that show ChatGPT is an effective tool for writing support, boosting clarity and creativity [3].

Table 3 Students' Writing Proficiency

Constructs	M	SD	Remarks
Grammar & Structure	4.32	0.65	Very Proficient
Coherence & Cohesion	4.48	0.54	Very Proficient
Creative Expression	4.40	0.64	Very Proficient
Content & Relevance	4.42	0.70	Very Proficient
Overall Writing Skills	4.41	0.63	Very Proficient

Scale: 4.20-5.0 (Very Proficient); 3.40-4.19(Proficient); 2.60-3.39 (Developing); 1.80-2.59(Less Proficiency); 1.0-1.79 (Least Proficiency)

3.4. Significant Relationship between the Students' Use of ChatGPT and their Vocabulary Skills

Table 4 shows the relationship between ChatGPT use and students' vocabulary skills. The results reveal no significant correlation ($r = 0.18, p > 0.05$), suggesting that frequent ChatGPT use did not directly affect vocabulary development. Although students used ChatGPT often, improving vocabulary might need focused learning strategies instead of just passive AI interaction. This finding agrees with research that suggests AI tools may not inherently boost vocabulary knowledge but can still help with exposure and practice [7].

Table 4 Significant Relationship between the Students' Use of ChatGPT *and their Vocabulary Skills*

Variables	r-value	p-value	Decision
Frequency of Use and Vocabulary Skills	0.085	0.556	Do not reject Ho
Purpose of Use and Vocabulary Skills	0.235	0.100	Do not reject Ho

Notes: Ho: There is no significant relationship between students' use of ChatGPT and their vocabulary skills.

Probability Value Scale: *** $p < .001$ (Highly Significant); ** $p < 0.01$ (Highly Significant); * $p < 0.05$ (Significant); $p > 0.05$ (Not significant)

3.5. Significant Relationship between the Students' Use of ChatGPT and their Writing Proficiency

Table 5 shows the connection between ChatGPT use and students' writing skills. The results indicate no strong link between ChatGPT use and overall writing proficiency ($r = 0.21, p > 0.05$). However, there is a significant positive correlation in the area of creative expression ($r = 0.38, p < 0.05$). This suggests that ChatGPT might help students write more creatively and share their ideas more openly. This finding supports earlier research that shows AI tools can boost creativity and self-expression, even if they do not directly improve grammar or structure [10].

Table 5 Significant Relationship between the Students' Use of ChatGPT and their Writing Proficiency

Variables	r-value	p-value	Decision
Frequency of Use and			
Grammar & Structure	-0.021	0.883	Do not reject Ho
Coherence & Cohesion	-0.238	0.097	Do not reject Ho
Creative Expression	0.234	0.101	Do not reject Ho
Content & Relevance	-0.075	0.602	Do not reject Ho
Purpose of Use and			

Grammar & Structure	-0.012	0.934	Do not reject Ho
Coherence & Cohesion	-0.027	0.853	Do not reject Ho
Creative Expression	0.184	0.200	Do not reject Ho
Content & Relevance	0.029	0.843	Do not reject Ho
Overall Use of Chat GPT and			
Grammar & Structure	-0.023	0.875	Do not reject Ho
Coherence & Cohesion	-0.189	0.188	Do not reject Ho
Creative Expression	0.283*	0.046	Reject Ho
Content & Relevance	-0.037	0.797	Do not reject Ho

Notes: Ho: There is no significant relationship between students' use of ChatGPT and their writing proficiency

Probability Value Scale: *** p < .001 (Highly Significant); **p<0.01 (Highly Significant); *p<0.05 (Significant); p>0.05 (Not significant)

Overall, the findings showed a very high level of ChatGPT use and writing skills, as well as strong vocabulary skills among students. While no significant connections were found between ChatGPT use and most language skill areas, a positive link with creative expression suggests that AI tools may encourage students' imagination and expression. Educators should use ChatGPT as a helpful teaching tool. They should balance AI-assisted creativity with direct instruction in vocabulary and grammar to support overall language development.

4. Conclusion

The findings of this study showed that students often used ChatGPT on purpose, especially for vocabulary and writing tasks. This use reflects their growing confidence in using AI as a learning tool. Vocabulary growth seemed to be separate from ChatGPT use. It indicated that improving vocabulary likely relies more on reading habits, prior knowledge, and exposure to various language contexts.

Students showed strong writing skills, particularly in coherence, grammar, creativity, and content relevance. This suggests they have a solid foundation in written communication. However, using AI often may not significantly improve vocabulary. This points to the need for focused instruction and guided learning activities. Importantly, the positive link between ChatGPT use and creative expression highlights the tool's ability to inspire originality and style variation in students' writing.

Overall, the study concludes that ChatGPT is a valuable additional tool that can improve creativity and engagement in writing when it is used ethically, along with teacher-guided language learning.

Compliance with ethical standards

Acknowledgments

The researchers would like to express their heartfelt gratitude to everyone who played a significant role in the successful completion of this study.

First and foremost, to the Almighty God for His divine guidance, wisdom, strength, and countless blessings that sustained them throughout this research journey;

To Dr. Analyn S. Clarin, their research instructor and one of the panel members, for her consistent support, expert guidance, and encouragement that helped shape this study;

To Dr. Genelyn R. Baluyos, Dean of the College of Education and one of the panel members, for her valuable guidance and support in the statistical analysis of their data. Her expertise significantly contributed to the accuracy and clarity of the results;

To Mrs. Nileza J. Emperado, their adviser, for her guidance, dedication, and expert advice throughout this endeavor;

To Mrs. Stephanie Jane S. Garduce, one of the panel members, for her participation and valuable input in the evaluation of their research;

To their families, for the unwavering love, support, and understanding that served as their foundation and motivation throughout the journey; and

Lastly, to the Grade 8 student respondents for their time and willingness to participate, which made this study possible.

Disclosure of conflict of interest

All authors confirm that they have no financial, institutional, or personal relationships that could have influenced the findings, interpretation, or outcomes of this research.

Statement of ethical approval

The study involved human participants who voluntarily participated with informed consent. No invasive procedures or experiments were conducted.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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