



AI-POWERED LEARNING TOOLS ON STUDENT READING COMPREHENSION SKILLS

Ellen Mae C. Gallaza ¹
Liela C. Buenviaje, PhD ^{1,2}

¹ West Visayas State University- Calinog Campus
Calinog, Iloilo, Philippines

² ORCID Number: 0000-0003-3833-1879

<https://doi.org/10.5281/zenodo.19498523>

ABSTRACT

This study investigates the relationship between the use of Artificial Intelligence (AI)-powered learning tools and the reading comprehension skills of first-year college students at West Visayas State University across selected campuses. In recent years, the rapid advancement of digital technologies has significantly transformed higher education, with generative AI tools such as ChatGPT, Grammarly, and QuillBot becoming integral to students' academic routines. These tools are commonly utilized for summarizing texts, clarifying complex ideas, paraphrasing content, and providing real-time academic assistance. While they offer notable advantages, including increased efficiency, personalized learning experiences, and immediate support, growing concerns have emerged regarding students' overreliance on these technologies, which may negatively affect deep comprehension, critical thinking, and the development of independent analytical skills. Anchored in Constructivist Learning Theory and the Technology Acceptance Model (TAM), this study employs a descriptive-correlational research design to examine both the extent of AI tool usage and its relationship with students' reading comprehension performance. Data were collected using a researcher-developed questionnaire that measured the frequency, purpose, and perceived usefulness of AI tools, alongside a standardized reading comprehension test to objectively assess proficiency. Statistical analyses, including descriptive statistics and correlation tests, were conducted to determine the strength and direction of the relationship between variables and to identify patterns in students' engagement with AI technologies. The findings are expected to provide comprehensive insights into the role of AI-powered tools in shaping

reading comprehension, offering valuable implications for educators, curriculum developers, and policymakers in promoting balanced and responsible technology integration. Ultimately, the study aims to support instructional practices that enhance critical thinking, encourage independent learning, and strengthen foundational literacy skills, ensuring that AI serves as a complementary tool rather than a substitute for meaningful cognitive engagement.

Keywords: *Reading comprehension, Artificial Intelligence Learning Tools, Descriptive Correlational study*

INTRODUCTION

The rapid advancement of artificial intelligence (AI) has brought significant changes to higher education, fundamentally transforming the ways students engage with academic tasks. AI-powered tools, such as those that assist with reading, writing, and comprehension, have become integral to students' daily learning routines. These technologies offer immediate support through summarization, explanation of complex concepts, and feedback on written work, providing opportunities for more personalized and efficient learning experiences. By making information more accessible and tasks more manageable, AI has the potential to enhance students' overall academic performance (Dwivedi et al., 2023; Kasneci et al., 2023; Zawacki-Richter et al., 2019).

However, despite these advantages, challenges in reading comprehension continue to persist among college students. Many struggle with understanding difficult vocabulary, analyzing ideas critically, and maintaining focus during sustained reading tasks. While AI tools can act as scaffolds that support learning, there is concern that overdependence on technology may limit cognitive engagement, encourage superficial processing of information, and reduce opportunities for students to develop independent analytical and interpretive skills (Clinton, 2019; Delgado et al., 2018; Dwivedi et al., 2023).

At West Visayas State University, students across multiple campuses increasingly incorporate AI tools into their academic activities. Yet, observable difficulties in reading comprehension remain, highlighting a critical gap between the availability of technology and the development of essential academic skills. Furthermore, research examining how AI usage varies across different programs and campuses, and its actual effect on reading comprehension, remains limited. This lack of evidence underscores the need to investigate both the benefits and potential drawbacks of AI integration in higher education (Zawacki-Richter et al., 2019).

In response to this gap, the present study aimed to explore the relationship between the use of AI-powered learning tools and reading comprehension skills among first-year college students. By examining the frequency and manner of AI usage alongside students' comprehension performance, the study sought to determine whether these tools genuinely enhanced learning or contributed to overreliance and reduced critical engagement. Ultimately, the findings were intended to provide practical insights for

educators and institutions, guiding the responsible implementation of AI in academic settings while fostering the development of strong foundational literacy skills and deeper cognitive engagement (Holmes & Tuomi, 2022; Silor & Silor, 2025).

Research Questions

This study sought to answer the following questions:

1. What is the extent of use of AI-powered learning tools among the respondents when taken as a whole and when classified according to sex and course?
2. What is the level of reading comprehension skills among the respondents when taken as a whole and when classified according to sex and course?
3. Is there a significant difference in the extent of use of AI-powered learning tools when respondents are grouped according to sex and course?
4. Is there a significant difference in the level of reading comprehension skills when respondents are grouped according to sex and course?
5. Is there a significant relationship between the extent of use of AI-powered learning tools and the reading comprehension skills of the respondents?
6. What seminar or intervention program can be proposed based on the results of the study?

METHODOLOGY

This study employed a descriptive–correlational research design to determine the relationship between the extent of use of AI-powered learning tools and the reading comprehension skills of college students. The study was conducted during the Academic Year 2025–2026 at West Visayas State University – Calinog, Lambunao, Janiuay, and Pototan Campuses. The respondents consisted of 200 first-year students enrolled in Bachelor in Elementary Education (BEED), Bachelor of Science in Information Technology (BSIT), and Bachelor of Science in Hotel and Restaurant Management (BSHRM). The respondents were selected through purposive sampling, with 50 students coming from each campus. They were further categorized according to sex and course, with 70 males (35%) and 130 females (65%), and program distribution of 68 HRM (34%), 68 BEED (34%), and 64 BSIT (32%). Participation in the study was voluntary, and informed consent was secured from all respondents prior to data collection.

The primary instrument used in the study was a researcher-made questionnaire composed of three parts. The first part gathered the respondents' demographic profile, specifically their sex and course. The second part consisted of a 5-point Likert scale questionnaire designed to measure the extent of use of AI-powered learning tools, with response options ranging from 1 (Never) to 5 (Always). The third part was a 30-item multiple-choice test used to assess the respondents' reading comprehension skills. The instrument underwent content validation by three experts in educational research and instructional technology to ensure its relevance and clarity. It was also pilot tested among 30 students from West Visayas State University – Janiuay Campus who were not included in the actual respondents. The results of the pilot test were analyzed using Cronbach's

alpha to determine reliability, and necessary revisions were made before the final administration of the instrument.

The data gathering process began with securing permission from the respective campus administrators. Upon approval, the researcher personally administered the questionnaires to the respondents, explaining the purpose of the study and providing clear instructions to ensure accurate responses. After completion, all questionnaires were immediately collected to maintain data integrity. The responses were then organized, tabulated, and prepared for statistical analysis.

The gathered data were analyzed using appropriate descriptive and inferential statistical tools. Frequency count and percentage distribution were used to describe the respondents' profile. The mean was used to determine the extent of use of AI-powered learning tools and the level of reading comprehension skills, while the standard deviation measured the variability of responses. The Mann–Whitney U test was applied to determine significant differences when respondents were grouped according to sex, while the Kruskal–Wallis H test was used to determine differences when grouped according to course. To examine the relationship between the use of AI-powered learning tools and reading comprehension skills, Spearman's rho was utilized. All statistical analyses were processed using the Statistical Package for the Social Sciences (SPSS), with the level of significance set at 0.05.

RESULTS

Inferential Data Analysis

The Differences in the Use of AI-Powered Learning Tools among the Respondents when Classified as to Sex

The difference in the extent of use of AI-powered learning tools among the respondents when classified as to sex is shown in Table 4. The Mann-Whitney U Test result revealed that there is no significant difference ($p = 0.406$) between male and female respondents. The p -value is greater than .05. The null hypothesis which states that there is no significant difference in the extent of use of AI-powered learning tools when respondents are classified as to sex was not rejected. This result indicates that both male and female respondents have comparable levels of engagement in using AI-powered learning tools. Hence, the null hypothesis is not rejected. The findings clearly demonstrate that sex does not significantly influence the use of AI-powered learning tools among the respondents.

Table 4

Mann-Whitney U Test Results on Differences in the Use of AI-Powered Learning Tools among the Respondents when Classified as to Sex

Variable	N	Mean Rank	Sum of Rank	Z	Sig.
Sex					
Male	70	95.88	6711.50	0.830	0.406
Female	130	102.99	13388.50		
Total	200				

Table 4 shows that both male and female respondents demonstrate comparable levels in the use of AI-powered learning tools. This suggests that access, familiarity, and perceived usefulness of AI tools are similar across sexes, resulting in no significant variation in their usage.

The Differences in the Use of AI-Powered Learning Tools among the Respondents when Classified as to Course

The difference in the extent of use of AI-powered learning tools among the respondents when classified as to course is shown in Table 5. The Kruskal-Wallis H Test result revealed that there is a significant difference ($p = 0.000$) among the respondents when grouped according to course. The p-value is less than .05. The null hypothesis which states that there is no significant difference in the extent of use of AI-powered learning tools when classified as to course was rejected. This result indicates that students' academic programs significantly influence their use of AI-powered learning tools. Hence, the null hypothesis is rejected. The findings clearly demonstrate that course plays a significant role in determining the extent of AI tool utilization among respondents.

Table 5

Kruskal-Wallis H Test Results on Differences in the Use of AI-Powered Learning Tools among the Respondents when Classified as to Course

Category	N	Mean Rank	df	χ^2	Sig.
Course			2	15.339***	0.000
HRM	68	78.57			
BEED	68	108.39			

BSIT	64	115.41
Total	200	

***p < .001

Table 5 shows that respondents from BEED and BSIT have higher mean ranks compared to HRM students, indicating greater use of AI-powered learning tools. This suggests that academic requirements and exposure to technology influence the level of AI tool utilization among students.

The Difference in the Extent of Use of AI-Powered Learning Tools among the Respondents in the Various Categories of Course

The difference in the extent of use of AI-powered learning tools among the respondents across course categories is shown in Table 6. The pairwise comparison revealed that there are significant differences between HRM and BEED ($p = 0.003$), and between HRM and BSIT ($p = 0.000$). However, there is no significant difference between BEED and BSIT ($p = 0.527$). The p-values for HRM comparisons are less than .05, while the comparison between BEED and BSIT is greater than .05. Thus, the null hypothesis is partially rejected. This indicates that HRM students differ significantly from BEED and BSIT students in their use of AI-powered learning tools, while BEED and BSIT students exhibit similar levels of usage.

Table 6

The Posterior (Mann-Whitney) Test Results for the Significance of the Difference in the Extent of Use of AI-Powered Learning Tools among the Respondents in the Various Categories of Course

Compared Groups	Z	Sig.
Course		
HRM vs. BEED	2.944**	0.003
HRM vs. BSIT	3.724***	0.000
BEED vs. BSIT	0.632	0.527

***p < .001; **p < .01

Table 6 shows that HRM students have significantly lower usage of AI-powered learning tools compared to BEED and BSIT students, while BEED and BSIT students demonstrate comparable levels of usage.

The Differences in the Reading Comprehension Skills among the Respondents when Classified as to Sex

The difference in the level of reading comprehension skills among the respondents when classified as to sex is shown in Table 7. The Mann-Whitney U Test result revealed that there is no significant difference ($p = 0.183$) between male and female respondents. The p-value is greater than .05. The null hypothesis which states that there is no significant difference in the level of reading comprehension skills when respondents are classified as to sex was not rejected. This result indicates that both male and female respondents possess comparable reading comprehension abilities. Hence, the null hypothesis is not rejected. The findings clearly demonstrate that sex does not significantly influence the reading comprehension skills of the respondents.

Table 7

Mann-Whitney U Test Results on Differences in the Reading Comprehension Skills among the Respondents when Classified as to Sex

Variable	N	Mean Rank	Sum of Rank	Z	Sig.
Sex					
Male	70	93.18	6522.50	1.331	0.183
Female	130	104.44	13577.50		
Total	200				

Table 7 shows that both male and female respondents demonstrate similar levels of reading comprehension skills, indicating no significant variation between the two groups.

The Differences in the Reading Comprehension Skills among the Respondents when Classified as to Course

The difference in the level of reading comprehension skills among the respondents when classified as to course is shown in Table 8. The Kruskal-Wallis H Test result revealed that there is no significant difference ($p = 0.383$) among the respondents when grouped according to course. The p-value is greater than .05. The null hypothesis which states that there is no significant difference in the level of reading comprehension skills when classified as to course was not rejected. This result indicates that reading comprehension skills are comparable across different academic programs. Hence, the null hypothesis is not rejected. The findings clearly demonstrate that course does not significantly influence the reading comprehension skills of the respondents.

Table 8

Kruskal–Wallis H Test Results on the Differences in the Reading Comprehension Skills among the Respondents when Classified as to Course

Category	N	Mean Rank	df	χ^2	Sig.
Course					
HRM	68	108.06	2	1.920	0.383
BEED	68	98.24			
BSIT	64	94.87			
Total	200				

Table 8 shows that respondents across HRM, BEED, and BSIT demonstrate comparable reading comprehension skills, indicating consistent literacy proficiency regardless of academic program.

The Relationship Between the Extent of Use of AI-Powered Learning Tools and Reading Comprehension Skills of the Respondents

The relationship between the extent of use of AI-powered learning tools and reading comprehension skills of the respondents is shown in Table 9. The Spearman rho correlation result revealed that there is no significant relationship ($p = 0.145$) between the two variables. The p-value is greater than .05. The null hypothesis which states that there is no significant relationship between the extent of use of AI-powered learning tools and reading comprehension skills was not rejected. This result indicates that the use of AI-powered tools does not significantly affect the reading comprehension skills of the respondents. Hence, the null hypothesis is not rejected. The findings clearly demonstrate that AI tool usage and reading comprehension skills are independent of each other.

Table 9

Spearman’s Rho Results on the Relationship Between the Extent of Use of AI-Powered Learning Tools and Reading Comprehension Skills of the Respondents

Correlated Variables	N	r	Sig.
Use of AI-powered Learning Tools	200	-0.103	0.145
Reading Comprehension Skills			

Table 9 shows that there is a weak negative correlation between the use of AI-powered learning tools and reading comprehension skills; however, this relationship is not statistically significant, indicating no meaningful association between the variables.

DISCUSSION

This study examined the extent of use of AI-powered learning tools and their relationship to reading comprehension skills among first-year students enrolled in Bachelor in Elementary Education (BEED), Bachelor of Science in Information Technology (BSIT), and Bachelor of Science in Hotel and Restaurant Management (BSHRM) at West Visayas State University – Calinog, Lambunao, Janiuay, and Pototan Campuses during the School Year 2025–2026. Anchored on Vygotsky's Constructivist Learning Theory and Davis' Technology Acceptance Model (TAM), the study addressed the following research concerns: (1) the extent of use of AI-powered learning tools, (2) the level of reading comprehension skills, (3) differences in AI tool usage when grouped according to sex and course, (4) differences in reading comprehension skills when grouped according to sex and course, and (5) the relationship between AI-powered learning tool usage and reading comprehension skills.

Using a descriptive-correlational research design, data were collected from officially enrolled college students through a researcher-made questionnaire measuring AI tool usage and a 30-item multiple-choice reading comprehension test. Descriptive statistics (mean) and inferential statistics (Mann-Whitney U Test, Kruskal-Wallis Test, and Spearman's rho) were used to analyze the data at a 0.05 level of significance.

Findings revealed that the respondents generally demonstrated a high extent of use of AI-powered learning tools. Female students exhibited a higher level of usage compared to male students, while BEED and BSIT students showed higher usage than BSHRM students. In contrast, respondents demonstrated a very high level of reading comprehension skills regardless of sex and course. Statistical analysis showed no significant difference in AI usage when grouped according to sex, but a significant difference was found when grouped according to course. Furthermore, no significant differences were observed in reading comprehension skills across sex and course. Most importantly, results indicated no significant relationship between the extent of AI-powered learning tool usage and reading comprehension skills. These findings suggest that while AI tools are widely utilized, their usage alone does not directly influence students' reading comprehension performance.

Conclusions

Based on the findings of the study, the following conclusions are drawn:

1. Students generally demonstrate a high extent of use of AI-powered learning tools, with variations observed across academic programs, indicating that course context influences technology utilization.

2. Respondents possess a very high level of reading comprehension skills, suggesting strong foundational literacy regardless of demographic or academic grouping.
3. Sex does not significantly influence AI tool usage, while course significantly affects the extent of use, highlighting the role of academic demands in shaping technology engagement.
4. Reading comprehension skills do not significantly differ when grouped according to sex and course, indicating consistency in students' comprehension abilities.
5. There is no significant relationship between the use of AI-powered learning tools and reading comprehension skills, implying that AI usage alone does not determine students' comprehension performance.
6. AI-powered learning tools function more effectively as supplementary resources rather than primary determinants of academic skill development, particularly in reading comprehension.

Recommendations

In light of the findings and conclusions of the study, the following recommendations are proposed:

1. Campus Administrators should develop clear institutional policies and guidelines to ensure ethical, responsible, and effective use of AI-powered learning tools. They are also encouraged to implement training programs for both faculty and students and design course-specific strategies to ensure equitable AI integration across disciplines.
2. Teachers are encouraged to integrate AI-powered tools as supplementary instructional materials while continuing to emphasize evidence-based reading strategies and critical thinking activities. They should also guide students in evaluating AI-generated content critically to prevent overreliance.
3. Students should use AI-powered tools responsibly as support for learning rather than substitutes for active reading and comprehension. Continuous practice of reading strategies and independent learning habits should remain a priority.
4. Parents are encouraged to monitor and guide students' use of AI tools at home and promote a reading culture that strengthens comprehension skills and supports balanced technology use.
5. Future Researchers may explore other variables that influence reading comprehension, such as motivation, study habits, and digital literacy. They are also encouraged to conduct experimental or mixed-method studies and replicate the research across different institutions and larger populations.
6. Further studies may investigate the impact of AI-powered tools on other academic domains such as writing skills, critical thinking, and overall academic performance, as well as assess the effectiveness of structured AI-based interventions.

Compliance with Ethical Standards

The study strictly adhered to ethical standards and the provisions of Republic Act 10173, otherwise known as the Data Privacy Act of 2012. Necessary authorizations were secured from university officials prior to data gathering. Informed consent was obtained from all respondents, ensuring that participation was entirely voluntary. Confidentiality and anonymity were strictly maintained throughout the research process, and all collected data were utilized solely for academic purposes. Furthermore, academic integrity was upheld through proper citation and rigorous plagiarism checks.

Acknowledgments

The researcher wishes to express profound gratitude to all those whose support and guidance made the completion of this study possible.

Deepest appreciation is extended to Dr. Liela C. Buenviaje, Thesis Adviser and Dean of the College of Education, for her invaluable mentorship, unwavering patience, and expert direction that shaped this work.

Sincere thanks are also conveyed to the Research Committee Panel: Dr. Jesusa P. Tisoy, Chairman and Content Specialist; Dr. Joahna F. Tibus, Member and Methodology Specialist; and Ms. Nevelle Grace V. Alite, External Expert. Their insightful comments and constructive recommendations were instrumental in refining this research.

Gratitude is likewise expressed to Dr. Ronel P. Amorin, Statistician, for his expertise and assistance in ensuring the accuracy and reliability of the findings.

The researcher acknowledges the administration, faculty, and staff of the College of Education – Graduate School, West Visayas State University–Calinog Campus, and the participating campuses (Lambunao, Janiuay, and Pototan), for providing an environment conducive to academic growth.

Special thanks are dedicated to Sir Harry for his technical guidance, and to Mr. Hee Seong Seo, Manager at Daewoo Engineering and Construction Company, Limited, for his understanding and flexibility in accommodating academic commitments alongside professional responsibilities. Gratitude is also extended to the entire Heavy Equipment Department—particularly Sir Paul Dennis, Sir Olegario, Ma’am Jinky, Sir Rex, Sir Leo, and Ma’am Jessica—for their support and willingness to assume additional duties when required.

Appreciation is also extended to fellow graduate students and friends, especially Realyn L. Sarabia, for their encouragement and camaraderie throughout this journey.

Heartfelt gratitude is given to the researcher’s beloved parents, Nanay and Tatay, and siblings, whose unconditional love, sacrifices, and prayers served as the foundation of strength. To Denzelle, thank you for the endless patience, encouragement, and unwavering faith in helping achieve this milestone.

Above all, the highest praise and thanksgiving are offered to Almighty God for the wisdom, strength, and divine providence granted every step of the way. To Him be all glory and honor.

REFERENCES

- Clinton, V. (2019). Reading on paper and screen: Implications for reading comprehension and learning. *Journal of Research in Reading*, 42(2), 214–233.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Delgado, P., Vargas, C., Ackerman, R., & Salmerón, L. (2018). Don't throw away your printed books: A meta-analysis on the effects of reading media on reading comprehension. *Educational Research Review*, 25, 23–38.
- Dwivedi, Y. K., et al. (2023). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 67, 101994.
- Holmes, W., & Tuomi, I. (2022). The impact of AI on education: A review of emerging evidence. *Journal of Educational Technology & Society*, 25(3), 1–18.
- Kasneci, E., et al. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Republic Act No. 10173. (2012). Data Privacy Act of 2012. Official Gazette of the Republic of the Philippines. <https://www.officialgazette.gov.ph/2012/08/15/republic-act-no-10173/>
- Silor, A. C., & Silor, F. S. C. (2025). Boosting reading comprehension through AI-based learning tools. *International Journal of Learning, Teaching and Educational Research*, 24(9), [insert page numbers]. [https://doi.org/\[insert DOI if available\]](https://doi.org/[insert DOI if available])
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education. *International Journal of Educational Technology in Higher Education*, 16(1), 39. <https://doi.org/10.1186/s41239-019-0171-0>

APA Citation:

Gallaza, E. M. C., & Buenviaje, L. C. (2026). AI-POWERED LEARNING TOOLS ON STUDENT READING COMPREHENSION SKILLS. *Ignatian International Journal for Multidisciplinary Research*, 4(4), 218–249. <https://doi.org/10.5281/zenodo.19498523>

gallazaellenmae223@gmail.com
liela.buenviaje123@wvsu.edu.ph