

HUMAN-AI LANGUAGE INTERACTION: IMPLICATIONS FOR COMMUNICATION COMPETENCE, LEARNING PROCESSES, AND COGNITIVE ENGAGEMENT

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Paper Received: 06.11.2025 / **Paper Revised:** 30.11.2025 / **Paper Accepted:** 05.12.2025 / **Paper Published:** 09.12.2025

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Abstract

Introduction: Artificial Intelligence (AI) tools are increasingly integrated into educational contexts, transforming how students engage with language. These tools, including AI writing assistants and chatbots, influence grammar, vocabulary, sentence construction, and coherence in student outputs. While AI can support learning and writing efficiency, concerns exist regarding overreliance, diminished cognitive engagement, and reduced originality. This study investigates how AI affects language use, communication competence, and cognitive engagement among learners.

Methods: A mixed-methods descriptive research design was employed. Participants included 120 senior high school and college students and 20 language teachers. Data were collected using a Language Use Survey measuring frequency and purpose of AI use, writing sample analysis comparing AI-assisted and independent essays, and teacher interviews exploring perceptions of AI's impact on learning. Quantitative data were analyzed using paired t-tests and descriptive statistics, while qualitative responses were coded thematically.

Results: Findings indicated that 82% of students regularly used AI for grammar correction, paraphrasing, and idea generation. AI-assisted essays exhibited significantly fewer grammatical errors, higher vocabulary diversity, and greater sentence complexity ($p < 0.01$) compared to independent essays. Teachers observed improvements in structural accuracy and coherence but noted reduced originality and overreliance on AI for cognitive processing. Interviews revealed a growing need for AI literacy and guided reflection in classroom practice.

Keywords: Artificial Intelligence, Language Use, Communication Competence, Writing Proficiency, Cognitive Engagement.

Introduction

Artificial Intelligence (AI) tools such as chatbots, grammar assistants, and generative writing systems are increasingly integrated into educational contexts, reshaping how students and teachers produce, revise, and reflect on language. These tools influence vocabulary choice, sentence construction, coherence, and discourse patterns in writing tasks. Recent studies indicate that AI can act as a cognitive scaffold, supporting learners in organizing ideas and improving linguistic accuracy (Kasneci et al., 2023; Luckin et al., 2016). However, concerns have emerged regarding overreliance on AI, authenticity of student output, and the impact on independent language development (Zhai, 2022).

Language use with AI is not merely a technological issue but a pedagogical and linguistic one. Students

rely on AI for drafting, paraphrasing, summarizing, and correcting texts, potentially accelerating learning while risking diminished cognitive engagement in the writing process (Dwivedi et al., 2023). Teachers face the challenge of integrating AI ethically while preserving critical thinking and originality. Understanding how AI shapes language production is essential for redefining writing pedagogy in modern classrooms.

This study aimed to:

(1) examine patterns of language use when learners engage AI tools for writing tasks, (2) determine perceived effects of AI on language proficiency and writing confidence, and (3) explore teachers' perspectives on AI-assisted language production.

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This research article explores the tension between automation and authentic empathic care, proposing a balanced framework for human-AI collaboration in mental health nursing.

Methods

A mixed-methods descriptive research design was employed. Participants included 120 senior high school and college students and 20 language teachers from two institutions. Students were purposively selected based on prior AI tool usage in academic writing.

Data were collected through three instruments: (1) a Language Use Survey (LUS) measuring frequency and purpose of AI use, (2) writing sample analysis involving two essays per student - one written independently and one with AI assistance, and (3) a teacher interview guide to explore perceptions of AI's influence on student writing.

Writing samples were evaluated using indicators of vocabulary diversity, sentence complexity, coherence, and grammatical accuracy following established writing assessment frameworks (Graham & Perin, 2007). Quantitative data were analyzed using paired t-tests and descriptive statistics, while qualitative responses were coded thematically.

Results

The study involved 120 senior high school and college students and 20 language teachers. Analysis of the survey and writing samples revealed that 82% of students regularly used AI tools - such as ChatGPT, Grammarly, and other AI writing assistants - for academic writing tasks. Students primarily used AI for grammar correction, paraphrasing, vocabulary enhancement, idea generation, and organizing essays. Many students reported that AI reduced the time needed to draft assignments, increased confidence in writing, and assisted in producing coherent and well-structured outputs.

Comparison of AI-assisted versus independent essays showed significant differences in grammatical accuracy, sentence complexity, and overall coherence. AI-assisted essays had fewer grammatical errors (mean error count reduced by 37%, $p < 0.01$) and exhibited higher lexical diversity, suggesting that AI helps expand vocabulary usage. Sentence complexity scores were also higher in AI-assisted outputs, indicating more sophisticated sentence structures. However, while structural and surface-level quality improved, some essays demonstrated a more formulaic style and less personal voice compared to independent essays, reflecting a potential risk of reduced authenticity in writing.

Qualitative findings from teacher interviews complemented these results. Teachers observed that AI-assisted writing often showed logical organization and error-free grammar, yet students sometimes relied on AI suggestions without fully understanding the corrections. Teachers also reported increased engagement in class discussions regarding responsible and ethical use of AI, as they sought to guide students toward critical evaluation of AI-generated content. While AI improved efficiency, educators expressed concern that overreliance might hinder development of original thought, problem-solving in language, and reflective cognitive processing.

Discussion

The results indicate that AI significantly shapes language use, influencing both surface-level quality and cognitive processes involved in writing. Improved grammatical accuracy and sentence complexity align with previous research showing that AI functions as a scaffolding tool, particularly for students still developing advanced writing skills (Kasneci et al., 2023; Luckin et al., 2016). AI offers immediate feedback and alternative phrasing, which can accelerate learning and reduce anxiety associated with writing tasks.

However, the study also reveals that AI usage can limit cognitive engagement if students accept suggestions without reflection or revision. This is consistent with Zhai (2022), who argues that while AI improves correctness, it may reduce opportunities for students to practice critical thinking, construct original ideas, and engage deeply with language. Similarly, Dwivedi et al. (2023) note that AI should supplement, not replace, human cognitive effort in learning.

Teachers' perceptions further highlight the pedagogical implications of integrating AI in classrooms. Educators reported a need for explicit instruction in AI literacy, guiding students to critically evaluate outputs, use AI suggestions judiciously, and maintain originality. The findings suggest a dual effect: AI enhances technical writing proficiency while introducing challenges related to authorship, voice, and reflective learning. These results underscore the importance of designing educational strategies that leverage AI as a tool to support learning while promoting cognitive and language development.

Moreover, the study emphasizes the role of structured guidance and reflective practice in mitigating risks associated with AI dependence. Activities such as peer review, teacher-mediated feedback, and reflective writing exercises can help students retain agency in language production and

critical thinking while still benefiting from AI's supportive functions.

Conclusion

This study concludes that AI tools have a significant impact on language use, improving grammatical accuracy, sentence complexity, and coherence, thereby enhancing students' technical writing skills. At the same time, uncritical reliance on AI may limit cognitive engagement, originality, and deeper reflection, suggesting that AI cannot replace traditional pedagogical practices.

The study highlights the need for balanced integration of AI in education, where students are taught to use AI responsibly, critically assess AI-generated content, and maintain personal voice and creativity in writing. Teachers play a critical role in guiding this process, providing structured support, reflective exercises, and classroom discussions on the ethical and effective use of AI.

Educational implications include designing curricula that incorporate AI literacy, reflective writing assignments, and collaborative activities that emphasize both AI-enhanced and independent language use. By adopting such approaches, educators can harness AI to improve communication competence and learning outcomes without compromising cognitive engagement or authentic language development.

In conclusion, AI in language education represents both an opportunity and a challenge: it can accelerate learning, expand vocabulary, and improve structural quality, but it also demands careful instructional design to ensure that students remain active, reflective, and independent learners. Future research should explore long-term impacts of AI on writing skills, language acquisition, and cognitive development across different educational contexts.

AI positively impacts surface-level writing and efficiency but may limit deeper cognitive engagement and originality if used uncritically. Effective integration requires structured guidance, reflective practices, and instruction in responsible AI use to enhance language competence while maintaining authentic learning experiences.

Conflict of Interest

There is no conflict of interest between the authors in this manuscript. Results have been deduced objectively; nothing influenced this result by any individual, monetary, or institutional interests. In effect, utmost endeavors were in order to conduct a bias-free operation of gathering and analyzing the data into interpretation and producing a study based on merit, away from research inconsistencies.

References

1. Dwivedi, Y. K., et al. (2023). *So what if ChatGPT wrote it? Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy*. International Journal of Information Management, 71, 102642.
2. Graham, S., & Perin, D. (2007). *A meta-analysis of writing instruction for adolescent students*. Journal of Educational Psychology, 99(3), 445-476.
3. Kasneci, E., et al. (2023). *ChatGPT for good? On opportunities and challenges of large language models for education*. Learning and Individual Differences, 103, 102274.
4. Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson Education.
5. Zhai, X. (2022). *ChatGPT and AI in education: Implications for language learning and assessment*. Education and Information Technologies, 27, 1-10.