

Analyzing the Relationship Between College Freshmen’s Punctuation Literacy and their Use of AI Writing Tools

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Abstract

This study examined the relationship between college freshmen’s punctuation literacy and their use of AI writing tools, drawing on data from 168 first-year students enrolled in Reading and Writing courses. Using a sequential exploratory mixed-method design, the research analyzed students’ error patterns, revision practices, and perceptions of AI-assisted writing. Results showed that semicolons, colons, commas, and apostrophes were the most challenging punctuation marks, with difficulties largely stemming from rule confusion, cognitive overload, informal digital writing habits, and limited prior instruction. Quantitative findings revealed a weak but significant negative correlation between punctuation literacy and AI tool usage, suggesting that higher dependence on AI is associated with lower independent mastery of punctuation rules. Qualitative data further indicated that while AI tools enhance efficiency and surface-level accuracy, overreliance reduces mindfulness and cognitive engagement during revision. Students primarily used AI applications such as Grammarly, QuillBot, and ChatGPT for editing, often prioritizing automated corrections over reflective learning. The study highlights the need for balanced pedagogy that integrates explicit punctuation instruction, guided editing strategies, and responsible AI use to strengthen both mechanical accuracy and autonomous writing skills.

Keywords: AI writing tools, cognitive engagement, punctuation literacy, revision practices, writing proficiency