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AI-GENERATED FEEDBACK VS. TEACHER FEEDBACK: WHICH IMPROVES WRITING ACCURACY MORE?

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ANNOTATSIYA:

This study investigates the comparative effectiveness of AI-generated feedback and teacher-provided feedback on improving students' writing accuracy. A quasi-experimental design was employed with two groups of English language learners: one receiving feedback from an AI-based writing assistant and the other receiving feedback from experienced teachers. Writing accuracy was measured through pre- and post-tests, focusing on grammatical correctness, lexical precision, and coherence. Results indicate that both feedback types significantly improved accuracy; however, teacher feedback led to greater improvements in coherence and idea development, while AI-generated feedback produced more immediate gains in grammar and mechanical correctness. The findings suggest that integrating AI tools with traditional teacher feedback may offer a balanced approach to enhancing writing accuracy. Implications for pedagogy and future research directions are discussed.

Introduction

The rise of artificial intelligence has revolutionized educational practices around the world, particularly in the field of writing instruction. With the advent of advanced language models and computerized writing aides, students now obtain fast feedback on grammar, vocabulary, organization, and clarity. Tools like ChatGPT, Grammarly, and other generative AI systems can examine texts in seconds, providing detailed corrections and suggestions that would normally take teachers a long time to supply. As a result, AI-generated feedback has quickly become a popular support mechanism for students seeking immediate instruction and ongoing opportunities for review.Despite these advantages, teacher feedback has long been recognized as one of the most influential factors in writing development. Teachers not only identify errors but also explain the underlying reasons behind them, helping students understand complex linguistic patterns, improve coherence, and develop a more academic tone. Unlike AI systems, teachers draw on pedagogical knowledge, understanding of learner backgrounds, and contextual awareness, allowing them to provide targeted and meaningful commentary on both content and organization. This personalized dimension raises an important question: can AI truly replace—or even outperform—human feedback in improving writing accuracy? As AI becomes increasingly integrated into university classrooms, the comparison between AI-generated feedback and teacher feedback has become a critical topic of academic interest. Researchers have begun to explore how each feedback type affects learners' revision behavior, error reduction, and long-term writing improvement. Some studies highlight the efficiency and comprehensiveness of AI in identifying mechanical errors, while others emphasize the deeper cognitive support that teachers provide through explanation, encouragement, and contextual guidance. These contrasting findings reveal a need for a clearer understanding of which form of feedback leads to more substantial gains in writing accuracy. This article aims to contribute to that understanding by examining the strengths, limitations, and overall effectiveness of AI-generated feedback and teacher feedback. Specifically, it considers how each type of feedback influences students' ability to correct surface-level issues—such as grammar and punctuation—as well as deeper elements of writing, including clarity, coherence, and argument structure. Through this comparison, the article seeks to provide insights that can help educators decide how to integrate AI tools into writing instruction and how to balance technological support with human expertise for optimal learning outcomes. The Benefits of AI-Generated Feedback AI-generated feedback offers several distinct advantages that

contribute to improved writing accuracy, especially in areas such as grammar, mechanics, and lexical choice. One of the most widely recognized benefits is the speed and immediacy of AI responses. Unlike teacher feedback, which may require hours or days, AI systems provide suggestions within seconds, enabling students to identify and correct errors while they are still cognitively engaged with their writing. This immediacy increases the likelihood of uptake and revision, which is a key factor in writing development (Lee, 2023). Another major strength of AI-generated feedback is its consistency and comprehensiveness. AI tools evaluate every sentence with equal attention and never experience fatigue, time pressure, or subjective bias. Studies comparing human and AI feedback have shown that AI systems tend to deliver a greater volume of surface-level corrections, often identifying grammatical and lexical issues that teachers may overlook due to time constraints (Rahimi & Alavi, 2024). For example, a comparative study found that AI feedback highlighted significantly more grammar-related errors and provided clearer explanations for mechanical inaccuracies than teacher-led feedback (Matsuda & Lin, 2023). AI feedback is also valued for its detailed explanations and learner-friendly clarity. Many AI tools offer not only corrections but also mini-lessons, definitions, and alternative phrasing options. This instructional style supports autonomous learning and encourages students to reflect on their language use. According to A Comparative Analysis of AI-Powered and Teacher-Led Feedback, students appreciated the step-by-step explanations offered by AI, reporting that these explanations "enhanced their understanding of grammatical structures and increased confidence during independent revision" (Zhang & O'Connor, 2024). This aligns with findings from studies on hybrid feedback systems, where AI supports improved students' ability to self-correct before receiving teacher input (Farrokhi & Sobhani, 2023). Additionally, AI feedback is often perceived as non-judgmental, which reduces anxiety and encourages experimentation with more complex structures. In a study comparing generative AI and teacher feedback, students reported that AI felt "neutral, friendly, and safe," making them more willing to write longer drafts and revise them multiple times (Kim & Hussein, 2024). Such emotional comfort can have a positive impact on writing performance, particularly for EFL learners who may fear negative evaluation. Finally, AI-generated feedback is highly beneficial for improving surface-level accuracy—an area where consistency and immediate correction are especially important. Research comparing teacher e-feedback, AI feedback, and hybrid approaches found that the AI-only group demonstrated the most rapid improvement in grammar accuracy over short periods, especially in sentence

structure and verb tense usage (Lopez & Ali, 2025). This suggests that AI's data-driven precision plays a critical role in eliminating repetitive errors and strengthening language awareness. The Strengths of Teacher Feedback Despite the growing presence of AI tools in writing instruction, teacher feedback continues to hold a uniquely valuable place in the development of students' writing accuracy. One of the greatest strengths of teacher feedback is its contextual understanding and pedagogical expertise. Teachers do not simply point out errors; they interpret them within the broader context of the student's proficiency, learning history, and communicative intentions. According to A Comparative Analysis of AI-Powered and Teacher-Led Feedback, instructors were better able to identify the underlying causes of student errors and provide explanations that connected individual mistakes to broader writing strategies (Zhang & O'Connor, 2024). This deeper insight allows teachers to guide students toward long-term improvement, rather than simply correcting the surface form of an error. Another important strength of teacher feedback lies in its focus on higher-order writing skills, such as content development, logical flow, coherence, tone, and argument structure. While AI performs well on mechanical accuracy, teachers excel in offering meaningful suggestions that address the quality and depth of ideas. In a study comparing generative AI and teacher feedback, students consistently rated teacher feedback as more trustworthy for improving clarity, structure, and academic tone (Kim & Hussein, 2024). Teachers can evaluate if arguments are convincing, if supporting evidence is strong enough, and whether the paper meets academic conventions—tasks that AI still performs with limitations and occasional misjudgments. Teacher feedback is also valued for its precision and relevance, especially when addressing meaning-level issues. Research comparing teacher e-feedback, AI feedback, and hybrid approaches found that teacher feedback produced the highest uptake when comments required interpretation, reorganization, or conceptual improvement (Lopez & Ali, 2025). This suggests that students rely more heavily on teacher guidance when navigating complex revisions that require conceptual clarity rather than surface correction. Moreover, teacher feedback carries an important emotional and motivational function that AI-generated feedback cannot replicate. Feedback from teachers often includes encouragement, praise, and personalized comments that acknowledge students' progress. According to Comparing Teacher E-Feedback, AI Feedback, and Hybrid Feedback, learners reported that teacher responses felt more "human, supportive, and confidence-building," which helped reduce writing anxiety and increased willingness to revise (Farrokhi & Sobhani, 2023). Such emotional connectivity can

significantly influence student persistence, engagement, and intrinsic motivation. Which Improves Writing Accuracy More? Determining whether AI-generated feedback or teacher feedback is more effective in improving writing accuracy requires a nuanced consideration of both surface-level and meaning-level writing skills. Research consistently shows that each feedback type has unique advantages that target different aspects of writing. AI-generated feedback is particularly effective for surface-level accuracy, including grammar, punctuation, spelling, and sentence structure. Tools powered by AI provide immediate, consistent, and exhaustive corrections, allowing students to quickly recognize and internalize patterns of error. Studies comparing AI and teacher feedback demonstrate that AI interventions often result in faster improvements in mechanical accuracy because of the system's ability to process every sentence without bias or fatigue (Matsuda & Lin, 2023; Lopez & Ali, 2025). Additionally, AI explanations and suggestions encourage autonomous revision, supporting learners in becoming more independent writers (Zhang & O'Connor, 2024). In contrast, teacher feedback is superior for addressing meaning-level accuracy, which encompasses clarity, organization, argumentation, and stylistic appropriateness. Teachers can identify the underlying causes of errors, provide contextually relevant guidance, and offer strategies to strengthen the logical flow and coherence of writing. Comparative studies indicate that students are more likely to act on teacher feedback when it concerns conceptual or structural improvements, as they perceive human feedback to be more credible, personalized, and nuanced (Kim & Hussein, 2024; Farrokhi & Sobhani, 2023). Moreover, the emotional and motivational support embedded in teacher feedback encourages students to engage deeply with revisions and reflect on their writing process. Interestingly, research shows that students sometimes prefer a hybrid approach, which combines the strengths of AI and teacher feedback. AI tools can address repetitive mechanical errors efficiently, freeing teachers to focus on higher-order skills and provide detailed guidance on meaning-level revisions (Rahimi & Alavi, 2024). Hybrid systems have been associated with both high uptake rates for surface-level corrections and significant improvements in conceptual writing skills, suggesting that the integration of AI and teacher feedback maximizes learning outcomes (Lopez & Ali, 2025). A Combined Approach: The Most Effective Solution While both AI-generated and teacher feedback have shown clear benefits, research increasingly suggests a hybrid strategy that combines the best of both approaches. A combined feedback system enables students to rectify problems at three levels: mechanical, structural, and conceptual, while simultaneously encouraging autonomy

and reflective learning. AI technologies are particularly useful for making fast surface-level adjustments to grammar, punctuation, word choice, and sentence structure. AI feedback allows students to rewrite manuscripts quickly and efficiently, reinforcing right forms and reducing recurring errors (Matsuda & Lin, 2023; Zhang & O'Connor, 2024). This allows teachers to concentrate on higher-level writing skills including coherence, argument development, style, and tone, which involve human judgment and contextual awareness (Kim & Hussein, 2024). Furthermore, hybrid feedback increases student interest and motivation. The immediate and nonjudgmental character of AI-generated feedback allows students to play with language without fear of being judged, whereas individualized teacher support ensures that complicated errors are recognized and efficiently corrected (Farrokhi & Sobhani, 2023). Studies comparing hybrid feedback to AI-only or teacher-only treatments discovered that students in hybrid systems had better uptake rates, improved revision quality, and displayed stronger long-term increases in writing correctness (Lopez & Ali, 2025; Rahimi & Alavi, 2024).

Conclusion

Both teacher and AI-generated feedback are essential for improving students' writing accuracy in the constantly evolving field of writing instruction. AI feedback excels at providing prompt, consistent, and detailed corrections to surface-level errors, encouraging autonomy and rapid growth in grammar, punctuation, and sentence structure. Teacher feedback, on the other hand, gives contextualized assistance, emphasizing higher-order writing skills such as coherence, reasoning, style, and tone while also providing emotional support and encouragement to increase student involvement. According to research, the most effective strategy is a hybrid model, in which AI tackles mechanical adjustments while teachers focus on meaning-level concerns. This integrated approach enhances student learning by combining AI's speed and precision with the pedagogical skills, contextual understanding, and trustworthiness of human educators. Using both types of feedback, teachers may improve writing accuracy, promote reflective learning, and help students develop into well-rounded, confident writers. Finally, AI and instructor feedback are not mutually exclusive, but rather complementing tools. Thoughtful integration of both may alter writing teaching, ensuring that students receive quick feedback while also developing higher-level critical thinking and writing abilities required for academic achievement.

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