



COMBINING TEACHER AND AI-GENERATED FEEDBACK TO ENHANCE STUDENTS' ACADEMIC WRITING SKILLS

Yangiboyeva Iroda Tulkin Kizi

Termez State University Faculty of Foreign Philology

Philology and Teaching Languages: English Language Education Program

E-mail: yangiboyevairoda7@gmail.com

ORCID: 0009 0008 7542 8729

ABSTRACT

This study examines the effectiveness of combining teacher feedback and AI-generated feedback in improving students' academic writing skills. While teacher feedback provides contextual and in-depth guidance, AI offers immediate and consistent corrections. The research was conducted using a mixed-methods approach with undergraduate English language learners over a four-week period. During the intervention, students received both types of feedback while completing academic writing tasks.

The results show that this combined approach significantly improves students' writing performance. AI contributed to better grammatical accuracy, while teacher feedback enhanced coherence, argumentation, and overall text quality. The findings suggest that integrating human and AI feedback creates a balanced and effective learning environment, supporting both accuracy and higher-order writing skills.

Keywords: *Academic Writing, Teacher Feedback, AI-Generated Feedback, Blended Feedback, Writing Skills, English Language Learning, Feedback Integration*

INTRODUCTION

Academic writing is a core component of language learning, particularly in higher education, where students are expected to produce structured and well-argued texts. Despite its importance, many learners face difficulties in mastering academic writing due to limited feedback, lack of practice, and insufficient individual support. Traditional



teacher feedback, although valuable, is often time-consuming and may not always meet the needs of every learner in large classroom settings.

With the rapid development of educational technologies, artificial intelligence (AI) has introduced new possibilities for providing instant and automated feedback. AI-based tools can identify grammatical errors, suggest vocabulary improvements, and support text organization. However, such systems may lack deeper contextual understanding and pedagogical sensitivity that human teachers provide.

This study addresses the need for a balanced approach by combining teacher feedback and AI-generated feedback in academic writing instruction. It aims to explore how the integration of these two feedback sources can enhance students' writing skills more effectively than relying on a single method.

LITERATURE REVIEW

Feedback plays a crucial role in developing academic writing skills. Hyland emphasizes that effective feedback should not only correct errors but also guide learners in understanding the purpose and structure of academic texts. Teacher feedback is particularly valuable because it provides contextualized and meaningful explanations that support deeper learning.

Swales' genre-based approach highlights that academic writing follows specific rhetorical conventions that students must learn over time. Teachers are essential in helping learners understand these conventions, especially in higher-level writing tasks.

At the same time, technological advancements have introduced AI as a tool for supporting language learning. Research shows that AI-generated feedback can provide immediate responses, allowing students to revise their work more frequently and independently. This immediacy is especially beneficial for improving grammar and surface-level accuracy.

However, studies also indicate that AI feedback alone may not be sufficient for developing higher-order writing skills such as argumentation and critical thinking. Therefore, combining AI with human feedback has been suggested as a more effective approach, where AI handles mechanical corrections and teachers focus on content and organization.



METHODOLOGY

This study adopted a mixed-methods research design to examine the effectiveness of combining teacher and AI-generated feedback in academic writing instruction. The participants were undergraduate students learning English as a foreign language, selected through purposive sampling.

The research was conducted over a four-week period and consisted of three stages: pre-test, intervention, and post-test. In the pre-test stage, students completed an academic writing task to assess their initial writing proficiency.

During the intervention phase, students participated in structured writing activities where they received two types of feedback: AI-generated feedback and teacher feedback. The AI tools provided immediate corrections related to grammar, vocabulary, and sentence structure, while teachers focused on coherence, argumentation, and overall writing quality.

Students were encouraged to revise their texts multiple times using both types of feedback. This iterative process allowed them to benefit from the speed of AI and the depth of teacher guidance.

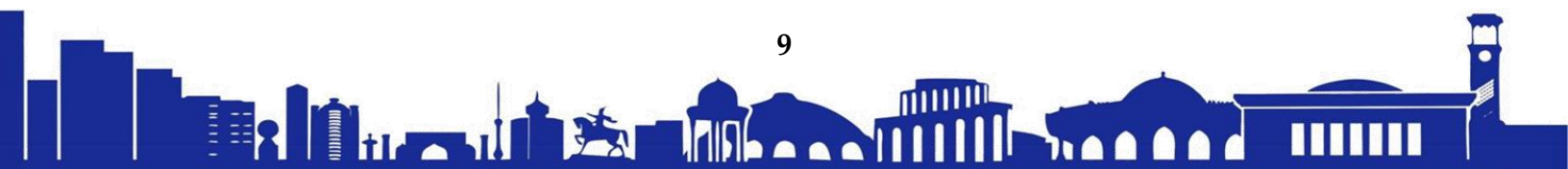
Data were collected through students' written assignments and evaluated using an analytic rubric covering grammar, coherence, vocabulary, and organization. Both quantitative improvements and qualitative observations were considered in the analysis.

RESULTS AND DISCUSSION

The findings of the study indicate that combining teacher and AI-generated feedback leads to significant improvements in students' academic writing skills. A comparison between pre-test and post-test results shows noticeable progress in multiple areas of writing.

Students demonstrated clear improvement in grammatical accuracy due to AI-generated feedback, which provided immediate error correction and suggestions. This allowed learners to identify patterns in their mistakes and correct them independently.

At the same time, teacher feedback contributed to the development of higher-level writing skills. Students improved their ability to organize ideas, develop arguments, and maintain coherence in their texts. This confirms that human feedback remains essential for deeper learning and critical thinking development.



The combination of both feedback types created a balanced learning environment. AI ensured efficiency and consistency, while teachers provided personalized and context-aware guidance. This synergy resulted in greater student engagement and more effective learning outcomes.

Moreover, students reported increased motivation and confidence in writing tasks. The opportunity to revise their work multiple times using AI feedback reduced anxiety, while teacher input helped them better understand their mistakes.

CONCLUSION

This study demonstrates that the integration of teacher feedback and AI-generated feedback significantly enhances students' academic writing skills. Each type of feedback contributes differently: AI improves accuracy and efficiency, while teachers support deeper understanding and critical thinking.

The findings suggest that a combined feedback approach is more effective than relying solely on either human or AI feedback. It allows students to benefit from both immediate correction and meaningful guidance.

However, AI should be viewed as a supportive tool rather than a replacement for teachers. Human interaction remains essential for addressing complex aspects of writing and fostering academic development. Future research may explore long-term effects of blended feedback and its application in different learning contexts.

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