Exploring the Role of AI and Human Feedback in Enhancing English Writing Skills: A Comparative Study

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ABSTRACT

This study explores the role of artificial intelligence (AI) and human feedback in improving English writing skills, with a focus on comparing their effectiveness. With the growing use of AI tools in education, students increasingly rely on automated systems for writing support, including grammar correction, vocabulary suggestions, and structural improvements. However, human feedback remains essential for addressing deeper aspects of writing, such as coherence, creativity, and critical thinking. This research examines how both AI-based and human feedback contribute to the development of writing skills among English language learners. By analyzing student writing before and after receiving feedback from both sources, the study highlights the strengths and limitations of each approach. The findings suggest that AI feedback is useful for immediate, surface-level corrections, while human feedback provides more meaningful guidance on content, organization, and expression. The study also discusses how combining AI and human feedback can create a more balanced and effective learning experience.

KEYWORDS: *Artificial Intelligence, Human Feedback, Automated Writing Evaluation, Natural Language Processing, Educational Technology, ESL/EFL Learning.*

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Introduction:

In recent years, artificial intelligence (AI) has significantly transformed the field of education, particularly in language learning and teaching. In English language education, AI-powered tools such as writing assistants, grammar checkers, and automated feedback systems are increasingly being used to support students in developing their writing skills. These tools provide immediate feedback on grammatical errors, vocabulary usage, sentence structure, and even stylistic elements. As a result, they help learners revise their work quickly and independently, making the learning process more efficient and accessible.

However, writing is a complex skill that goes beyond correcting surface-level errors. It involves organizing ideas logically, maintaining coherence, expressing creativity, and demonstrating critical thinking. In this context, human feedback-especially from teachers-plays a vital role. Human evaluators can understand the writer's intention, context, and tone, and provide personalized suggestions that address deeper aspects of writing. They can also motivate learners and guide them in developing their unique voice, which AI systems often struggle to achieve.

With the increasing integration of AI in educational settings, it is important to examine how effective AI-based feedback is compared to traditional human feedback. While AI offers speed and consistency, human feedback provides depth and contextual understanding. Therefore, this study aims to explore and compare the role of AI and human feedback in enhancing English writing skills. By analyzing their strengths and limitations, the study seeks to identify how a balanced use of both approaches can improve students' overall writing performance and learning experience.

Research Objectives:

The following objectives are the key aspects of this research study:

- To examine the effectiveness of AI-based feedback in improving English writing skills among learners.

- To analyze the role of human feedback in enhancing the quality of students' writing, particularly in terms of content, coherence, and creativity.
- To compare the strengths and limitations of AI-based and human feedback in the development of English writing proficiency.
- To explore the potential of integrating AI and human feedback for a more effective and balanced approach to teaching English writing.

Literature Review:

In recent years, the integration of artificial intelligence (AI) in English language teaching and learning has attracted considerable attention among researchers. Many studies have focused on the role of AI-based tools, particularly automated writing evaluation systems, in improving students' writing skills. These tools are designed to provide instant feedback on grammatical errors, spelling, punctuation, and sentence structure. Research findings suggest that such immediate feedback helps learners identify and correct their mistakes quickly, thereby improving their writing accuracy. In addition, AI tools promote learner independence, as students can revise their work without constant teacher assistance.

Despite these advantages, several researchers have highlighted the limitations of AI in addressing higher-level writing skills. While AI systems are effective in identifying surface-level errors, they often struggle with more complex aspects such as coherence, organization, tone, and creativity. Studies indicate that AI lacks a deep understanding of context, cultural nuances, and the writer's intention. As a result, the feedback generated by AI may sometimes be incomplete or not fully relevant to the content of the writing.

In contrast, human feedback continues to play a crucial role in the development of writing skills. Teachers are able to provide detailed, personalized, and context-sensitive feedback that addresses both linguistic and conceptual aspects of writing. Research shows that human feedback helps students improve their ability to organize ideas, develop arguments, and express

themselves clearly. Furthermore, teacher feedback often includes encouragement and constructive suggestions, which can motivate learners and enhance their confidence.

Recent literature emphasizes the importance of combining AI-based and human feedback for better learning outcomes. Studies suggest that while AI offers speed, consistency, and accessibility, human feedback provides depth, critical insight, and emotional support. Therefore, a blended approach that integrates both AI and human feedback is considered more effective in enhancing English writing skills. However, there is still a need for further research to explore how this integration can be implemented effectively in different educational contexts.

Research Gap:

Although a considerable amount of research has been conducted on the use of artificial intelligence in English writing, most studies focus primarily on the effectiveness of AI-based tools in correcting grammatical and surface-level errors. While these studies highlight the benefits of instant feedback and improved accuracy, they often overlook the limitations of AI in addressing higher-order writing skills such as coherence, creativity, critical thinking, and contextual understanding.

Similarly, existing research on human feedback emphasizes its importance in developing deeper aspects of writing. However, many of these studies examine human feedback in isolation, without comparing it directly with AI-based feedback. As a result, there is limited understanding of how both forms of feedback differ in their impact on students' writing development.

Furthermore, only a few studies have explored the combined use of AI and human feedback in a systematic and comparative manner. There is a lack of empirical research that investigates how integrating both approaches can enhance writing skills more effectively than using either method alone. Additionally, variations in learners' responses to AI and human feedback across different educational contexts remain underexplored.

Therefore, this study seeks to fill this gap by providing a comparative analysis of AI-based and human feedback, as well as

examining the potential benefits of integrating both approaches to improve English writing skills.

Methodology:

This study adopts a comparative research design to examine the effectiveness of AI-based feedback and human feedback in improving English writing skills. The research focuses on identifying differences in how each type of feedback contributes to learners' writing development.

The participants of the study consist of undergraduate students learning English as a second language. A sample of approximately 30–40 students is selected using a simple random sampling method. The participants are divided into two groups: one group receives AI-based feedback, while the other group receives human (teacher) feedback.

To collect data, students are asked to complete writing tasks, such as essay or paragraph writing, on given topics. Initially, a pre-test is conducted to assess the students' existing writing skills. After that, both groups are provided with feedback on their written work. The first group uses an AI-based writing tool to receive automated feedback on grammar, vocabulary, and sentence structure. The second group receives detailed feedback from a teacher, focusing on content, coherence, organization, and overall expression.

The intervention is carried out over a period of 1–2 weeks, during which students complete multiple writing tasks and revise their work based on the feedback received. At the end of the study, a post-test is conducted to measure improvement in writing skills.

The collected data is analyzed using both quantitative and qualitative methods. Quantitative analysis includes comparing pre-test and post-test scores using statistical techniques such as mean and percentage. Qualitative analysis involves examining the nature of feedback and students' responses to it.

Ethical considerations are maintained by obtaining consent from participants and ensuring confidentiality of their data. This methodology helps to provide a clear comparison of

the impact of AI-based and human feedback on English writing skills.

Data Analysis:

The data collected in this study is analyzed using both quantitative and qualitative methods to compare the effectiveness of AI-based feedback and human feedback in improving English writing skills.

For the quantitative analysis, the scores obtained from the pre-test and post-test are compared. The mean scores of both groups are calculated to measure the overall improvement in writing performance. Percentage analysis is also used to identify the level of progress made by each group. These comparisons help in determining whether there is a significant difference between the two types of feedback. Simple statistical tools such as mean, percentage, and graphical representation (like charts or tables) are used to present the results clearly.

In addition to quantitative analysis, qualitative analysis is conducted to examine the nature and quality of feedback provided by AI and human evaluators. Sample student writings are reviewed to understand how feedback influenced revisions. Special attention is given to aspects such as grammar correction, vocabulary improvement, coherence, organization, and creativity.

Furthermore, students' responses and experiences with both types of feedback are considered to understand their preferences and learning outcomes. This helps in identifying the strengths and limitations of each feedback method.

Findings and Discussion:

The findings of this study reveal that both AI-based feedback and human feedback play important roles in improving English writing skills, but their effectiveness differs in several ways. The quantitative analysis of pre-test and post-test scores shows that both groups demonstrated improvement in their writing performance after receiving feedback. However, the nature of improvement varied between the two groups.

Students who received AI-based feedback showed

noticeable progress in grammatical accuracy, spelling, and sentence structure. The immediate and consistent feedback provided by AI tools helped learners quickly identify and correct their errors. This supports earlier studies that highlight the efficiency of AI in handling surface-level aspects of writing. However, the improvement in higher-level skills such as idea development, coherence, and creativity was limited in this group.

On the other hand, students who received human feedback showed significant improvement in content quality, organization, and overall expression. Teacher feedback provided detailed explanations, contextual understanding, and personalized suggestions, which helped students refine their ideas and improve the clarity of their writing. Additionally, human feedback appeared to motivate students and increase their engagement in the writing process.

The qualitative analysis further indicates that AI feedback is more mechanical and limited to pattern recognition, whereas human feedback is more interpretive and holistic. However, AI tools were appreciated for their speed and accessibility.

Conclusion:

This study explored the role of AI-based and human feedback in improving English writing skills through a comparative approach. The findings show that both types of feedback are useful, but they support different aspects of writing. AI-based feedback was effective in helping students improve grammar, spelling, and sentence structure. Its quick and consistent responses allowed learners to correct errors immediately and work more independently.

However, AI tools were less effective in addressing deeper elements of writing, such as idea development, coherence, organization, and creativity. In contrast, human feedback played a significant role in improving these higher-level skills. Teachers provided detailed, personalized, and context-based suggestions that helped students express their ideas more clearly and effectively.

The study concludes that relying only on AI or only on

human feedback may not be sufficient for complete writing development. A combination of both approaches can provide better results. Integrating AI tools with human guidance can create a more balanced and effective learning environment, helping students achieve overall improvement in their English writing skills.

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