

The Role of AI – Powered Writing Assistants on Improving EFL Learners' Writing Accuracy and Self - Confidence

Thanh Nhan Nguyen

Dai Nam University

ABSTRACT: This study investigates the role of AI-powered writing assistants, such as Grammarly and ProWritingAid, in enhancing the writing accuracy and self-confidence of English as a Foreign Language (EFL) learners. While existing research on AI in language learning has explored its impact on writing skills, there is limited understanding of its influence on both writing accuracy and learners' self – perception. Using a quantitative research design, the study employs a pretest – posttest approach with 120 EFL tertiary learners who completed an IELTS – style argumentative writing task before and after six weeks of using AI writing assistants. A rubric based on error types and severity is used to assess writing accuracy, while a pre – and post – intervention questionnaire measures self – confidence through Bandura's Self – Efficacy Scale. The results indicate a significant improvement in writing accuracy, with learners making fewer errors in grammar, punctuation, and spelling. Additionally, learners reported that increased usage of AI tools was positively correlated with greater improvements in both writing accuracy and self- confidence.

KEYWORDS: AI – powered writing assistants, writing accuracy, self – confidence, English as a Foreign Language (EFL), writing skills, self – perception

I. INTRODUCTION

In recent years, the integration of Artificial Intelligence (AI) into language education has transformed the ways English as a Foreign Language (EFL) learners approach writing. Among various AI tools, AI-powered writing assistants such as Grammarly, ProWritingAid, and QuillBot have gained wide acceptance due to their ability to provide instant feedback on grammar, punctuation, style, and coherence. These tools act as supplementary writing tutors that promote learner autonomy and encourage self-correction.

While a growing body of research (e.g., Li & Hegelheimer, 2013; Ranalli, 2018) has explored the pedagogical potential of automated writing evaluation systems, most studies have primarily focused on *writing accuracy* or *general writing improvement*. However, less attention has been given to how the use of AI tools simultaneously affects both writing performance and learners' psychological constructs, particularly *self-confidence* in writing. Self-confidence, often operationalized as self-efficacy (Bandura, 1997), plays a crucial role in learners' willingness to engage in writing and persist through challenges.

Therefore, this study aims to bridge this gap by examining the impact of AI-powered writing assistants on EFL learners' writing accuracy and self-confidence. Specifically, it addresses the following research questions:

1. Does the use of AI-powered writing assistants improve EFL learners' writing accuracy?
2. Does the use of AI-powered writing assistants enhance learners' self-confidence in writing?
3. Is there a correlation between the extent of AI tool usage and improvements in writing accuracy and self-confidence?

II. METHOD

1. Participants

The participants in this study comprised 120 tertiary-level EFL learners enrolled in an English writing course at a public university in Vietnam. All participants demonstrated intermediate English proficiency, corresponding to an IELTS band range of 5.0–6.0, and were between 18 and 22 years of age. Participants were randomly assigned to one of two groups: an experimental group (n = 60) that received AI-assisted feedback through *Grammarly* and *ProWritingAid*, and a control group (n = 60) that received conventional teacher feedback. Participation was voluntary, and informed consent was obtained from all participants prior to data collection.

2. Research Design

The study employed a quantitative pretest–posttest quasi-experimental design to examine the effects of AI-powered writing assistants on learners' writing accuracy and self-confidence. Both groups completed a standardized IELTS-style argumentative

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writing task at the beginning (pretest) and conclusion (posttest) of a six-week instructional intervention. During the intervention, the experimental group utilized *Grammarly* and *ProWritingAid* to revise their written work, whereas the control group relied exclusively on feedback provided by their course instructor.

3. Instruments

3.1. Writing Tasks

Two IELTS-style argumentative essays were administered as the pretest and posttest writing tasks. The topics were distinct yet comparable in terms of difficulty, structure, and genre. Each essay was limited to 250 words and completed within a 40-minute time frame.

3.2. Rubric for Writing Accuracy

Writing accuracy was evaluated using an analytic rubric adapted from Ferris (2006), which assessed four dimensions: grammar, vocabulary, punctuation, and spelling. Each essay was independently scored by two experienced EFL writing instructors. Inter-rater reliability, calculated using Cohen's kappa, was 0.87, indicating a high level of agreement between raters.

3.3. Self-Confidence Questionnaire

Learners' self-confidence in writing was measured using a 10-item questionnaire adapted from Bandura's (1997) *Self-Efficacy Scale*. Items were rated on a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The questionnaire was administered both before and after the intervention. The internal consistency of the instrument, as measured by Cronbach's alpha, was 0.89 for the pretest and 0.91 for the posttest, indicating strong reliability.

3.4. AI Usage Log

For the experimental group, data on tool usage were automatically recorded on a weekly basis. The log included the total time spent using AI tools, the number of corrections made, and the types of feedback applied (e.g., grammar, punctuation, or style). These data were used to examine the relationship between frequency of AI use and learning outcomes.

3.5. Data Collection and Analysis

Data collection was conducted in three sequential phases:

1. **Pretest Phase:** Both groups completed the initial writing task and self-confidence questionnaire to establish baseline measures.
2. **Intervention Phase:** Over six weeks, the experimental group engaged in weekly writing assignments using AI tools, while the control group received only teacher feedback.
3. **Posttest Phase:** Both groups completed the posttest writing task and the self-confidence questionnaire under identical conditions to those of the pretest.

Quantitative data were analyzed using SPSS version 26. Paired-sample t-tests were employed to compare pretest and posttest results within groups, and independent-sample t-tests were used to examine differences between groups. Pearson correlation coefficients were calculated to determine the relationship between AI tool usage and improvements in writing accuracy and self-confidence. Statistical significance was established at $p < .05$.

4. Results

4.1. Writing Accuracy

Analysis of the writing tasks revealed a statistically significant improvement in writing accuracy among participants in the experimental group. The mean number of errors per 250-word essay decreased from 14.2 (SD = 3.7) in the pretest to 8.5 (SD = 2.9) in the posttest, $t(59) = 8.42, p < .001$. By contrast, the control group exhibited a smaller and statistically non-significant reduction in errors, from 13.9 (SD = 3.5) to 12.8 (SD = 3.4), $t(59) = 1.92, p = .07$.

A closer analysis of error types indicated that the largest improvements in the experimental group occurred in grammatical and punctuation accuracy, followed by spelling. Vocabulary-related errors showed a modest but positive reduction.

4.2. Self-Confidence

Learners' self-confidence scores, measured by the writing self-efficacy questionnaire, also demonstrated notable gains among the experimental group. The mean score increased from 3.31 (SD = 0.64) at pretest to 4.10 (SD = 0.52) at posttest, representing a statistically significant enhancement, $t(59) = 6.28, p < .001$. In contrast, the control group reported only marginal improvement (pretest: 3.28, posttest: 3.39), which was not statistically significant, $p > .05$.

4.3. Correlation between AI Usage and Learning Gains

Pearson correlation analysis revealed a moderate positive relationship between the extent of AI tool usage and learners' improvement in writing accuracy ($r = .54, p < .01$), as well as between AI usage and self-confidence gains ($r = .49, p < .01$). This suggests that higher engagement with AI-powered feedback was associated with greater learning benefits.

III. DISCUSSION

The findings provide empirical evidence that AI-powered writing assistants significantly enhance both writing accuracy and self-confidence among EFL learners. The marked reduction in grammatical and mechanical errors aligns with previous research

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highlighting the corrective and formative feedback potential of AI systems (Li & Hegelheimer, 2013; Ranalli, 2018; Zhang & Hyland, 2023). The tools' ability to deliver instant, individualized feedback may have enabled learners to notice and internalize recurring language errors more effectively than through delayed teacher correction.

Beyond linguistic improvement, the significant increase in learners' self-confidence underscores the affective dimension of AI-assisted writing. Consistent with Bandura's (1997) theory of self-efficacy, the immediate and non-judgmental nature of AI feedback likely fostered a sense of control and competence among learners, thereby reinforcing their confidence in writing. These findings echo research suggesting that digital feedback environments can reduce anxiety and promote learner autonomy (Hyland & Hyland, 2019; Lee, 2017).

Moreover, the positive correlation between AI usage and performance gains indicates that frequency and quality of engagement with AI tools are crucial in maximizing learning outcomes. Learners who actively interacted with feedback were more likely to self-correct and internalize accurate language forms, supporting the role of self-regulated learning in computer-assisted writing contexts (Sun & Zhang, 2022).

Nevertheless, several limitations should be acknowledged. The study's six-week duration may not fully capture long-term retention or transfer effects. Additionally, heavy reliance on AI-generated feedback could lead to over-dependence on automated systems if not supplemented by teacher mediation. Future research should consider employing mixed-methods designs to explore learners' perceptions, feedback literacy, and sustained development across longer time frames

V. CONCLUSION

This study investigated the impact of AI-powered writing assistants on EFL learners' writing accuracy and self-confidence. The results demonstrated that sustained use of tools such as *Grammarly* and *ProWritingAid* led to significant improvements in both linguistic performance and affective outcomes. Learners who engaged more frequently with AI feedback exhibited greater reductions in grammatical and mechanical errors and reported stronger confidence in their writing abilities.

The findings highlight the pedagogical potential of integrating AI feedback systems into EFL writing instruction. AI-powered tools can serve as valuable supplements to teacher feedback, offering continuous, personalized, and non-threatening support that enhances both skill development and learner autonomy. Educators are encouraged to integrate these tools strategically, ensuring that automated feedback complements rather than replaces teacher input.

Future research could extend the present study by including longitudinal data, comparing different AI tools, and examining the transferability of AI-assisted writing gains to other genres and proficiency levels.

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