

Integrating Ai Writing Assistants into EFL Composition Courses: Effects on Writing Quality and Learner Confidence

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Abstract: This paper examines the effects of integrating AI writing assistant tools into a university-level EFL composition course on students' writing quality and self-confidence as writers. A quasi-experimental study was conducted with 148 undergraduate students at New Uzbekistan University over 14 weeks. The experimental group (n=74) received instruction that embedded AI writing assistants — used for planning, drafting, and revision — alongside explicit strategy instruction; the control group (n=74) followed a conventional process-writing approach without AI support. Writing quality was assessed using an analytic rubric across four criteria: task achievement, coherence and cohesion, lexical resource, and grammatical range and accuracy. Learner confidence was measured using a validated self-efficacy writing scale administered at weeks 1, 7, and 14. Results showed statistically significant advantages for the experimental group across all four writing criteria ($p < .05$), with the greatest gains observed in coherence and cohesion ($\Delta = 0.79$) and task achievement ($\Delta = 0.77$). The experimental group also demonstrated substantially steeper growth in writing self-efficacy across the semester. Qualitative analysis of learner reflection journals highlighted the particular value of AI-generated structural templates, iterative feedback on draft coherence, and the reduction of "blank page" anxiety at the planning stage. Implications for writing pedagogy and AI tool design are discussed.

Keywords: AI writing assistant, EFL composition, writing quality, self-efficacy, process writing, higher education.

Introduction: Academic writing is widely recognised as one of the most demanding skills for EFL learners to develop (Hyland, 2003). Unlike spoken communication, writing in a foreign language requires simultaneous management of multiple cognitive demands: generating ideas, organising discourse, selecting appropriate vocabulary, constructing grammatical sentences, and monitoring the overall coherence of the text. These demands are compounded, for EFL writers, by limited lexical and syntactic resources in the target language and by unfamiliarity with the genre conventions of academic prose.

The emergence of AI writing assistants — tools that can provide real-time feedback on grammar, vocabulary, structure, and stylistic register — opens potentially significant possibilities for EFL writing pedagogy. These tools can reduce the cognitive load of lower-level

concerns such as spelling and grammatical form, freeing learners' attention for higher-order aspects of composition. They can provide immediate formative feedback that would otherwise require a teacher's time and attention. And they can model effective writing strategies by generating example texts, alternative phrasings, and structural templates.

Yet the integration of AI writing tools into composition courses also raises pedagogical questions. Does reliance on AI feedback reduce learners' development of independent writing ability? Does it support or undermine the reflective, metacognitive engagement with writing that process-writing approaches are designed to foster? This paper reports an empirical study designed to address these questions in the specific context of EFL composition instruction at New Uzbekistan University.

THEORETICAL FRAMEWORK

1 Process Writing and AI Mediation

Process approaches to writing instruction, which became dominant in the 1980s following the seminal work of Flower and Hayes (1981), emphasise writing as a recursive cognitive process involving planning, drafting, revising, and editing. The teacher's role shifts from evaluator of products to facilitator of process, with feedback provided formatively during the composing process rather than only summatively on final drafts. AI writing assistants are well positioned to extend and enrich this formative feedback loop: they can respond to draft texts instantly, at any hour, identifying specific weaknesses and generating targeted improvement suggestions in a manner analogous to — though not identical with — teacher conferencing.

2 Writing Self-Efficacy

Self-efficacy beliefs — learners' judgements about their capacity to perform specific tasks — have been shown to be strong predictors of academic achievement (Bandura, 1997). In the writing context, Pajares (2003) demonstrated that writing self-efficacy beliefs predict writing performance above and beyond ability measures alone. This relationship is particularly salient for EFL writers, many of whom enter university programmes with negative self-beliefs about their writing competence formed through previous experiences of teacher-corrected, error-focused

instruction. AI writing tools, by providing responsive, non-judgemental feedback and by demonstrating that improvement is possible through iterative revision, may contribute positively to learners' self-efficacy beliefs.

METHODOLOGY

1 Participants and Design

One hundred and forty-eight undergraduate students at New Uzbekistan University were assigned to experimental (n=74) and control (n=74) conditions. Pre-test equivalence on writing ability was confirmed statistically ($T = 0.08, p > .05$). Both groups received the same 14-week composition curriculum; the experimental group additionally received structured instruction in AI-assisted writing process techniques.

2 Assessment Instruments

Writing quality was assessed using four analytic criteria scored on a 5-point scale by two trained raters (inter-rater reliability $\kappa = 0.85$). The Writing Self-Efficacy Scale (WSES; Pajares, 2003) was adapted for the EFL context and administered at weeks 1, 7, and 14. Post-intervention reflection journals were coded thematically using NVivo.

RESULTS

Pre-test scores confirmed group equivalence. Post-test results showed clear and statistically significant advantages for the experimental group across all writing criteria.

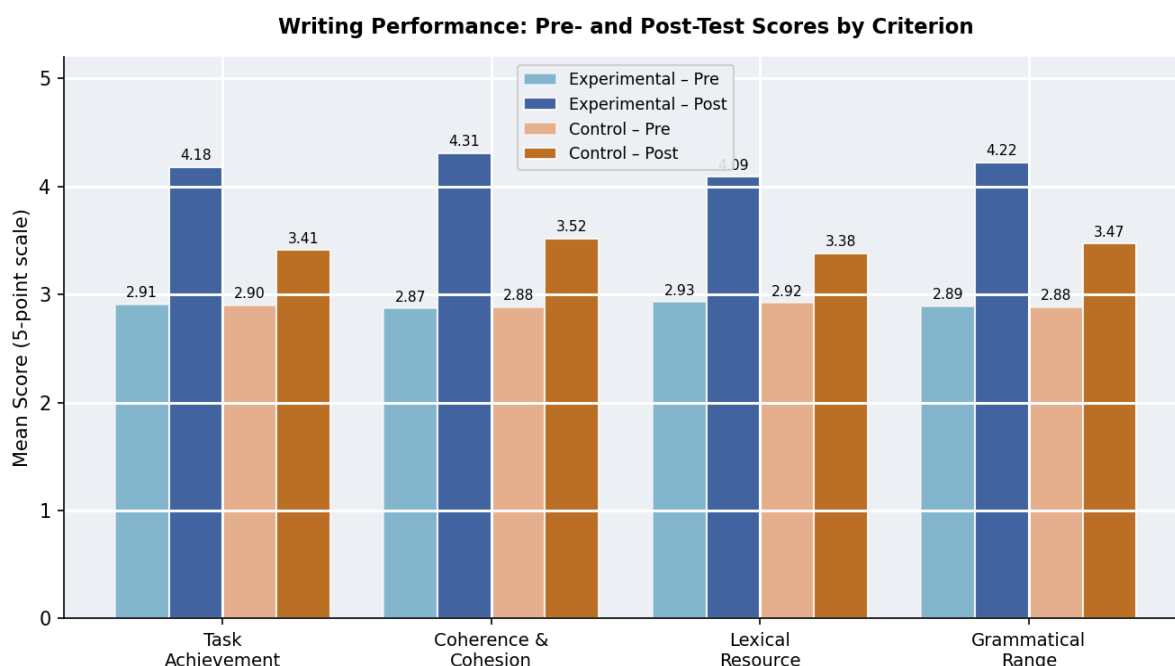


Figure 1. Writing performance by criterion: pre- and post-test scores for experimental and control groups.

The most striking pattern in Figure 1 is the magnitude of the experimental group's gains in coherence and cohesion (pre: 2.87 → post: 4.31, $\Delta = 1.44$) and task achievement (pre: 2.91 → post: 4.18, $\Delta = 1.27$). These are precisely the criteria most directly supported by the AI tool's structural scaffolding features — outline

generation, paragraph-level coherence feedback, and discourse marker suggestions. Grammatical range showed more modest gains ($\Delta = 1.33$), consistent with the research literature showing that syntactic complexity develops more slowly than textual organisation.

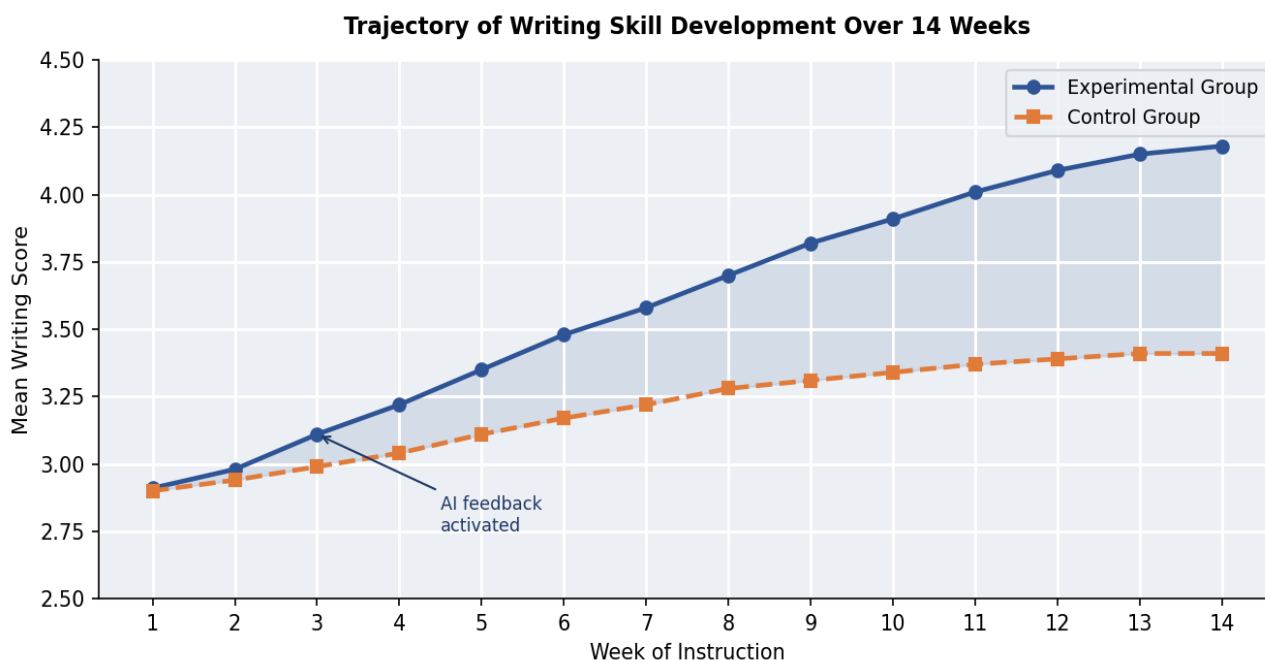


Figure 2. Trajectory of mean writing score across 14 weeks of instruction.

Figure 2 reveals an important temporal pattern. In weeks 1–2, both groups show similar rates of progress. From week 3 onwards — coinciding with the introduction of AI-assisted drafting and revision cycles in the experimental condition — the two trajectories diverge steadily and increasingly. By weeks 12–14, the

gap stabilises, suggesting the experimental group has reached a performance plateau near the ceiling of the B2 level. This pattern is consistent with a stage-model account of writing development in which AI scaffolding accelerates progress through intermediate stages without eliminating the need for continued practice at higher levels.

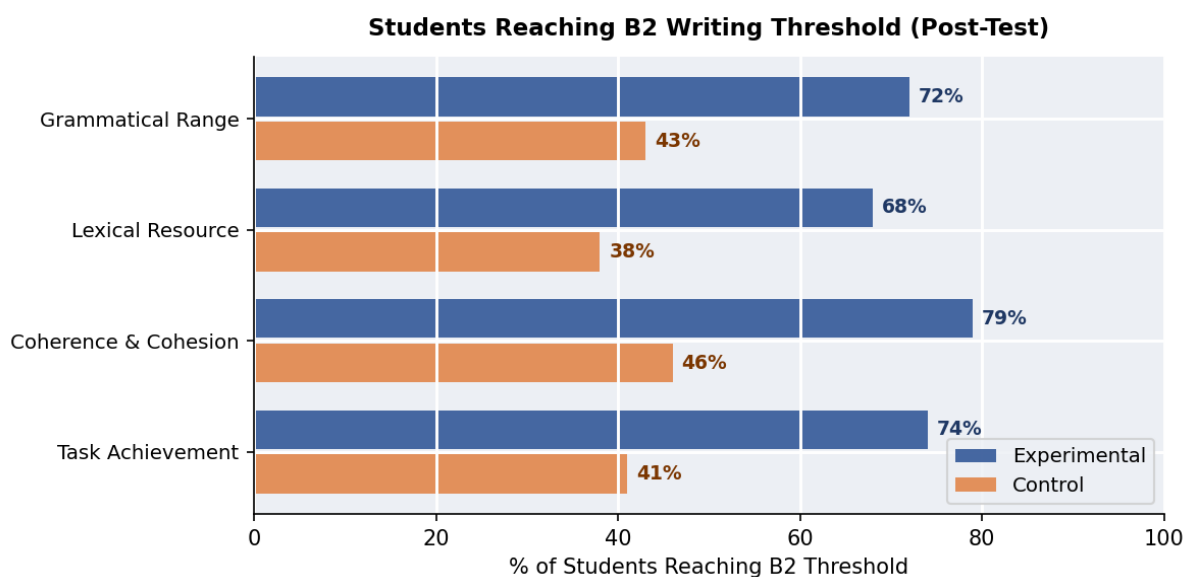


Figure 3. Percentage of students reaching B2 writing threshold by criterion (post-test).

The distribution of scores across writing criteria (Table 1) confirms statistical significance of group differences.

| Criterion | Exp. Pre | Exp. Post | Con. Pre | Con. Post | T-value | p-value |
|----------------------|----------|-----------|----------|-----------|---------|---------|
| Task Achievement | 2.91 | 4.18 | 2.90 | 3.41 | 5.21 | < .001 |
| Coherence & Cohesion | 2.87 | 4.31 | 2.88 | 3.52 | 5.88 | < .001 |
| Lexical Resource | 2.93 | 4.09 | 2.92 | 3.38 | 4.97 | < .001 |
| Grammatical Range | 2.89 | 4.22 | 2.88 | 3.47 | 5.41 | < .001 |
| Overall Mean | 2.90 | 4.20 | 2.90 | 3.45 | 5.37 | < .001 |

Table 1. Descriptive statistics and inferential test results for writing criteria (n=148).

DISCUSSION

The results provide strong empirical support for the integration of AI writing assistants into EFL composition courses. The experimental group's superior performance on all four criteria suggests that AI-mediated feedback, when embedded within a principled process-writing pedagogy, produces genuine quality improvements rather than surface-level compliance with AI suggestions. The pattern of gains — strongest in discourse-level criteria (coherence, task achievement) rather than sentence-level accuracy — is particularly noteworthy, as it challenges the assumption that AI writing tools benefit learners primarily by correcting grammatical errors.

Learner reflection journals provided insight into the mechanisms driving these gains. Forty-one percent of experimental group participants mentioned AI-generated outlines and paragraph plans as the most valuable feature, enabling them to devote cognitive resources to content and argument rather than global organisation. Thirty-three percent highlighted AI feedback on inter-sentence and inter-paragraph connections as transformative for their understanding of English academic discourse coherence norms. Only nineteen percent mentioned grammar correction as the primary benefit.

CONCLUSION

AI writing assistants, integrated thoughtfully within a process-writing framework, can significantly accelerate the development of EFL writing quality and writing self-efficacy at the university level. The findings suggest that AI is most valuable for its discourse-level scaffolding — structural planning support, coherence feedback, and

argumentation modelling — rather than simply for error correction. Future research should investigate the long-term retention of AI-supported writing gains and the effects of withdrawing AI scaffolding once learners have achieved B2 proficiency.

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