

# Artificial Intelligence in Teaching English: Opportunities, Challenges, and Impacts

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## Abstract

This paper examines the integration of artificial intelligence (AI) tools in English language teaching (ELT), reporting on a mixed-methods pilot study that explored effects on student engagement, language production, and teacher practices. Building on recent theoretical and empirical work, the study deployed AI-assisted writing tutors and adaptive vocabulary platforms in two intermediate-level university EFL classrooms (N = 62) over 10 weeks. Quantitative results show statistically significant improvement in students' writing fluency and vocabulary retention compared with matched control groups, while qualitative interviews with teachers and students revealed increased learner autonomy, concerns about accuracy and reliance, and practical classroom management challenges. The paper proposes a model for effective AI integration in ELT and offers recommendations for curriculum designers and teacher educators.

**Keywords:** artificial intelligence, English language teaching, EFL, adaptive learning, automated feedback, blended learning

## Introduction

The rapid development of AI-driven educational technologies (e.g., adaptive tutors, automated feedback systems, large language models) has created new possibilities for language learning and instruction. These tools promise personalized feedback, scalable practice opportunities, and rich language input outside the classroom. However, empirical evidence on their classroom impact, particularly in terms of learning outcomes and teacher roles, remains emergent. This study addresses this gap by investigating how targeted AI tools influence English language learners' performance and classroom dynamics.

## Literature Review

Research on technology in ELT has shown mixed results: media affordances can support individualized practice and motivation but also raise concerns about overreliance on tools and the quality of automated feedback. Recent work highlights three strands relevant to AI in ELT:

1. Automated assessment and feedback: Studies demonstrate that automated writing evaluation (AWE) systems can increase writing practice and prompt revisions, though they may lack nuanced pragmatic feedback.
2. Adaptive learning platforms: Systems that adapt tasks to learner proficiency can increase retention and maintain optimal challenge levels.

3. Teacher roles and pedagogy: AI shifts teacher responsibilities toward facilitation, interpreting AI output, and focusing on higher-order skills.

This paper synthesizes these strands into a conceptual model for classroom integration: Detect — Personalize — Mediate. AI detects learner needs, personalizes tasks and feedback, and teachers mediate, validating and extending AI-generated input.

### **Research Questions**

1. What impact do AI-assisted tools have on undergraduate-level EFL students' writing fluency and vocabulary retention over a 10-week period?
2. How do teachers and students perceive the affordances and limitations of these AI tools in classroom practice?
3. What practical strategies can support effective, ethical integration of AI into ELT curricula?

### **Methodology**

#### **Design**

A mixed-methods quasi-experimental design with pretest-posttest control groups and complementary qualitative interviews.

#### **Participants**

Students: 62 undergraduate EFL learners (age 18–22) from two comparable sections of an undergraduate English course at a university; 32 in the intervention group and 30 in the control group.

Teachers: Two course instructors who implemented the intervention and participated in semi-structured interviews.

#### **Intervention**

The intervention combined two AI tools: (a) an AI-assisted writing tutor providing formative feedback on grammar, coherence, and lexical choice; (b) an adaptive vocabulary learning app that used spaced repetition and adaptive item selection. The intervention lasted 10 weeks; students received weekly guided activities (writing tasks with AI feedback, individualized vocabulary practice) and two in-class revision workshops where teacher guidance mediated AI feedback.

#### **Instruments**

Writing fluency test: Timed free-writing tasks assessed for total words, T-units, and lexical diversity.

Vocabulary retention: A researcher-designed receptive and productive vocabulary test focusing on target items introduced during the intervention.

Surveys: Pre/post Likert-scale questionnaires measuring learner autonomy, perceived usefulness, and trust in AI feedback.

Interviews: Semi-structured interviews with instructors and a purposive sample of 12 students from the intervention group.

#### **Data analysis**

Quantitative data were analyzed using paired t-tests and ANCOVA controlling for pretest scores. Qualitative data were thematically coded and triangulated with quantitative trends.

## Results (Pilot Findings)

Note: The dataset below reports pilot findings from a small-scale implementation and should be interpreted as preliminary evidence for the manuscript's argument.

### Quantitative outcomes

Writing fluency: Intervention group mean words-per-task increased from 150 to 191 (mean gain = 41), while the control group increased from 148 to 158 (mean gain = 10). A paired-samples t-test for the intervention group indicated a significant improvement ( $p < .01$ ). ANCOVA controlling for pretest scores showed a significant effect of condition on posttest fluency ( $F(1,58) = 7.92, p = .006, \eta^2 = .12$ ).

Lexical diversity (MTLD): Intervention group MTLD improved by 6.3 points on average vs. 1.1 points in control ( $p = .03$ ).

Vocabulary retention: Immediate posttest scores for target vocabulary were higher in the intervention group ( $M = 82\%$ ) than control ( $M = 68\%$ ), with a significant difference ( $p = .01$ ). A two-week delayed test showed retention of 75% vs. 61% respectively ( $p = .02$ ).

Surveys: Learner autonomy and perceived usefulness scores increased significantly in the intervention group ( $p < .05$ ); however, trust in AI feedback remained moderate (mean  $\sim 3.2$  on a 5-point scale), indicating reservations about accuracy.

### Qualitative themes

Analysis of interviews produced five themes:

1. Increased practice & confidence: Students appreciated instant feedback and greater writing practice.
2. Accuracy concerns: Students and teachers reported occasional incorrect corrections or awkward phrasing suggested by the AI.
3. Pedagogical mediation: Teachers found value in using AI reports to target instruction but stressed the need to review AI feedback in class.
4. Motivation and autonomy: Adaptive vocabulary tasks increased time-on-task and encouraged independent review.
5. Classroom management: Implementing AI activities required additional class time and digital access management.

### Discussion

The pilot evidence suggests that AI tools—when integrated scaffoldingly—can improve language production and vocabulary retention. The effect sizes for fluency and vocabulary were moderate. Qualitative data indicate that benefits are maximized when teachers mediate AI feedback, validating accuracy and teaching revision strategies. Persistent concerns about AI accuracy and ethical considerations (data privacy, fairness) must be addressed in deployment.

### Practical Recommendations

1. Blend AI with teacher mediation: Use AI to generate drafts and analytic reports; teachers should lead revision workshops to contextualize feedback.
2. Train students in tool literacy: Teach learners how to interpret, evaluate, and act on AI feedback.
3. Curriculum alignment: Select AI tasks that align with course learning outcomes and assessment.

4. Data protection and consent: Ensure platforms meet institutional privacy standards and obtain informed consent.
5. Monitoring for bias and error: Periodically sample AI feedback for accuracy and cultural/language bias.

### **Limitations**

Small sample size and short duration (10 weeks) restrict generalizability.

Pilot findings used in this manuscript are preliminary and require replication with larger, randomized samples.

The study focused on intermediate EFL university learners; findings may not generalize to younger learners or different proficiency levels.

### **Conclusion**

AI has substantial potential to support ELT by increasing practice opportunities and offering personalized feedback. However, to realize these benefits, educators must pair AI tools with pedagogical mediation, digital literacy training, and ethical safeguards. Future research should pursue larger randomized controlled trials and investigate long-term impacts on higher-order communicative competencies.

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