THE IMPACT OF ARTIFICIAL INTELLIGENCE–POWERED LANGUAGE LEARNING TOOLS ON STUDENTS' SPEAKING AND WRITING SKILLS: AN EMPIRICAL STUDY IN HIGHER

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ANNOTATSIYA:

Artificial Intelligence (AI) technologies are transforming the landscape of language education by offering personalized learning, adaptive feedback, and automated performance assessment. This study investigates the impact of AI-powered language learning tools on students' speaking and writing skills in higher education settings. Using a quasi-experimental mixed-methods design, the research examines 180 undergraduate English majors from three universities who utilized AI-based applications—including speech recognition software, automated writing evaluation systems, and conversational chatbots—over one academic semester. Data were collected through pre- and post-tests, surveys, classroom observations, and semi-structured interviews. Results indicate that students who engaged with AI tools demonstrated significant improvement in pronunciation accuracy, fluency, vocabulary usage, and writing coherence. Students also reported increased motivation and autonomy in language practice. Nevertheless, challenges such as over-reliance on AI feedback, limited contextual awareness in writing assessment, and privacy concerns were observed. The study concludes with pedagogical and policy

recommendations for integrating AI technologies into communicative English curricula in higher education.

Introduction

Artificial Intelligence (AI) has emerged as one of the most influential forces in reshaping educational practices in the 21st century. In language education, AI-powered applications are now capable of analyzing learners' speech and writing, providing instant feedback, and simulating interactive conversation. These technologies enable individualized learning paths that respond dynamically to each learner's strengths and weaknesses (Woolf, 2010).

In higher education, English proficiency is a key determinant of academic success and employability. Traditional approaches to teaching speaking and writing often rely on classroom interaction and teacher feedback, which may be constrained by time and class size. AI tools can mitigate these constraints by offering continuous, data-driven feedback beyond the classroom (Godwin-Jones, 2017).

This paper explores the effects of AI-powered language learning tools on the development of speaking and writing skills among university students. The study situates itself within the framework of computer-assisted language learning (CALL) and second language acquisition (SLA) theories, emphasizing how technology mediates learner engagement and performance.

Literature Review

AI in Language Learning. AI in education encompasses systems capable of perceiving, reasoning, and adapting based on learner data. In language learning, such systems include speech recognition engines, automated writing evaluators (AWE), and intelligent tutoring systems. Research shows that AI enhances motivation and retention through personalization and adaptive sequencing (Kulik & Fletcher, 2016).

AI and Speaking Skill Development. AI-based speech recognition and pronunciation tools (e.g., ELSA Speak, Google Speech, or Duolingo Max) help learners improve pronunciation accuracy and fluency by providing immediate phonetic feedback. Studies by Kannan and Atwell (2019) and Li (2020) found that learners using chatbots developed higher speech confidence and communicative competence compared to control groups.

AI and Writing Skill Development. Automated Writing Evaluation (AWE) systems—such as Grammarly, Criterion, or Write & Improve—analyze grammar, cohesion, and lexical richness, giving detailed suggestions for revision. Balfour (2019) demonstrated that AWE enhances students' syntactic accuracy and stylistic awareness. However, critics argue that AWE lacks semantic understanding and may encourage formulaic writing (Shermis & Burstein, 2013).

Theoretical Framework. This study is grounded in Vygotsky's Sociocultural Theory and Swain's Output Hypothesis, which emphasize meaningful feedback and language production as key components of learning. AI tools serve as mediational artifacts, scaffolding learner interaction and reflection through constant corrective input.

Research Gap. Despite growing global research, limited empirical evidence exists from Central Asian or Uzbek higher education contexts, where infrastructure and pedagogical readiness vary. This study contributes original data on the effectiveness of AI in improving productive language skills in a developing educational ecosystem.

Methodology

Research Design. A quasi-experimental mixed-methods design was adopted, combining quantitative and qualitative data. Two groups were compared: Experimental group (n = 90): students who used AI-powered tools. Control group

(n = 90): students taught with traditional communicative methods.

Participants

The participants were 180 English major students (aged 18–23) from three Uzbek universities: Tashkent State University of Languages, Samarkand State University, and Urgench State University. All participants had an intermediate (B1–B2) English proficiency level based on CEFR standards.

Instruments

1. Pre- and Post-Tests: Speaking and writing assessments rated using CEFR descriptors (fluency, coherence, lexical resource, grammatical range, and pronunciation).
2. AI Tools Used: ELSA Speak (pronunciation), Grammarly Premium (writing), and ChatGPT (conversation practice).
3. Surveys: Likert-scale questionnaire on motivation, perceived usefulness, and autonomy.
4. Interviews: Conducted with 10 teachers and 20 students to explore experiences with AI.
5. Observations: Documented classroom integration and interaction patterns.

Procedure

The experimental group used AI tools for 12 weeks as part of blended English courses. Speaking tasks included pronunciation drills and chatbot interactions, while writing assignments were completed using Grammarly with teacher supervision.

Data Analysis

Quantitative results were analyzed using paired t-tests and ANOVA. Qualitative data underwent thematic analysis, identifying key patterns such as learner autonomy, anxiety reduction, and perceived feedback quality.

Results

Speaking Skill Improvement. Post-test results revealed significant gains in pronunciation accuracy ($p < .01$) and fluency ($p < .05$) among AI tool users. Students attributed their improvement to real-time corrective feedback and repetitive practice without fear of embarrassment.

"The AI corrects my mistakes instantly and politely; I can repeat until I sound natural," said one participant.

Writing Skill Improvement. Students' post-test essays showed improved grammatical accuracy and lexical diversity. Mean writing scores increased from 72.4 to 82.7 (10.3-point gain), while the control group improved by only 3.2 points. Grammarly's feedback on coherence and conciseness was cited as particularly useful.

Motivation and Autonomy. Survey responses showed high learner satisfaction ($M = 4.3/5$). Students reported that AI tools encouraged independent practice and reduced reliance on teacher correction. 82% said they practiced more frequently outside class due to AI accessibility.

Discussion

Pedagogical Implications. Findings confirm that AI tools can effectively complement traditional teaching by offering scalable, individualized feedback. The combination of human instruction and AI assistance created a hybrid learning environment fostering continuous language output.

Cognitive and Affective Benefits. AI feedback provided cognitive scaffolding (error detection and correction) and affective support (low-anxiety practice). These results align with Krashen's Affective Filter Hypothesis, suggesting that anxiety reduction facilitates more natural output.

Critical Reflection and Teacher Mediation. Without pedagogical mediation, AI risks reinforcing mechanical correctness over creative expression. Teachers must guide learners in interpreting feedback, emphasizing meaning and discourse-level cohesion rather than surface accuracy.

Ethical and Educational Considerations. AI-driven writing tools raise issues of authorship and originality. Institutions should establish academic integrity policies that define acceptable use and promote digital ethics education.

Conclusion

This study demonstrates that AI-powered language learning tools significantly improve university students' speaking and writing skills, enhancing accuracy, fluency, and confidence. While challenges remain—particularly regarding over-reliance and ethical use—AI has clear potential to complement human instruction and promote autonomous learning.

To maximize benefits, higher education institutions should develop comprehensive policies, invest in teacher training, and design curricula that integrate AI technologies with

communicative, learner-centered pedagogy. Future research should explore long-term effects, cross-cultural applicability, and AI's role in formative assessment.

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