



ENHANCING SPEAKING PROFICIENCY OF ESL STUDENTS IN HIGHER EDUCATION THROUGH AI-BASED FEEDBACK SYSTEMS

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Abstract: *The integration of Artificial Intelligence (AI) into higher education has significantly transformed English language teaching, particularly in the development of speaking skills among ESL learners. Oral academic communication remains one of the most challenging competencies due to limited individualized feedback, speaking anxiety, and insufficient opportunities for authentic interaction. AI-driven feedback systems provide innovative solutions by utilizing automated speech recognition, natural language processing, and adaptive learning analytics to deliver real-time, personalized evaluation of speaking performance. This paper examines the pedagogical potential of AI-mediated feedback systems in enhancing oral communication among ESL students in higher education. It discusses their impact on pronunciation development, learner autonomy, engagement, and assessment practices, while also addressing challenges related to technological accessibility and ethical considerations. The study concludes that AI-based feedback tools offer transformative opportunities for improving speaking instruction, though they should complement rather than replace human pedagogical interaction.*

Keywords: *Artificial Intelligence; ESL speaking skills; higher education; AI feedback systems; oral academic communication; language learning technology*

In contemporary higher education, effective oral communication has become a critical academic competency for ESL students. University learners are expected to actively participate in seminars, deliver presentations, engage in academic discussions, and collaborate in multilingual environments. Despite its importance,



speaking remains one of the most difficult language skills to develop due to cognitive complexity, affective barriers, and limited opportunities for individualized practice.

Traditional classroom approaches to speaking instruction often struggle to address the diverse linguistic needs of large student groups. Limited feedback time, performance anxiety, and insufficient authentic communication contexts frequently result in low learner confidence and uneven skill development. Consequently, educators increasingly seek innovative pedagogical solutions capable of providing personalized, scalable, and interactive speaking support.

Recent advances in Artificial Intelligence have introduced new possibilities for addressing these challenges. AI-driven feedback systems integrate automated speech recognition, natural language processing, and adaptive analytics to provide real-time evaluation of oral performance. These technologies represent a significant shift toward learner-centered, data-driven speaking instruction in higher education (Chen et al., 2022).

AI-mediated speaking tools play a crucial role in enhancing oral communication competence by providing continuous and personalized learning opportunities. Automated speech recognition technologies enable learners to receive immediate feedback on pronunciation accuracy, fluency, stress patterns, and intonation. Such instant corrective feedback allows students to identify errors and engage in targeted practice, significantly improving speech intelligibility (Zhang, Y., Fauzi, W. J., Kassim, H., 2025).

AI systems also support repeated practice in low-anxiety environments, which encourages learners to take risks and participate more actively in speaking tasks. Research indicates that reducing performance anxiety is a key factor in improving oral proficiency among ESL learners (Warschauer & Kern, 2020).

Adaptive Learning and Personalized Feedback. One of the most significant advantages of AI-driven feedback systems is their ability to provide adaptive and individualized learning support. By analyzing extensive performance data, AI platforms can identify recurring linguistic challenges and recommend specific practice activities tailored to learners' needs (Ouyang, F., Jiao, P., 2021).



This adaptive capability supports differentiated instruction in heterogeneous classrooms, ensuring that students with varying proficiency levels receive appropriate support. Moreover, AI analytics enable educators to monitor progress effectively and implement data-informed instructional strategies.

Impact on Learner Autonomy and Engagement. AI technologies significantly enhance learner autonomy by allowing students to practice speaking independently beyond classroom boundaries. Interactive AI platforms enable continuous self-assessment, encouraging students to monitor their progress and take responsibility for their learning.

Additionally, AI-mediated environments increase learner engagement by providing interactive and personalized communication experiences. Students often perceive AI-based practice as less intimidating than traditional classroom speaking tasks, which reduces anxiety and promotes greater participation.

Challenges and Ethical Considerations. Despite their pedagogical benefits, AI-driven speaking tools present several challenges. Limited access to digital infrastructure and insufficient technological literacy may hinder effective implementation in certain educational contexts. Ethical concerns related to data privacy, algorithmic bias, and transparency also require careful consideration (Chen et al., 2022).

Furthermore, AI systems cannot fully replicate human interaction, which remains essential for developing pragmatic competence, emotional communication skills, and intercultural awareness. Therefore, AI should be viewed as a complementary instructional tool rather than a replacement for teacher-guided communication.

Artificial Intelligence-driven feedback systems represent a transformative innovation in enhancing oral academic communication among ESL students in higher education. By providing real-time, personalized, and data-informed feedback, these technologies address longstanding limitations of traditional speaking instruction.



AI-mediated speaking tools improve pronunciation accuracy, promote learner autonomy, and increase engagement while supporting scalable and efficient assessment practices. However, their successful implementation requires balanced integration with pedagogical expertise, ethical safeguards, and institutional support. As AI continues to evolve, its role in speaking instruction will become increasingly significant in preparing students for effective participation in global academic and professional environments.

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