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THE ROLE OF TECHNOLOGY-ENHANCED INSTRUCTION IN DEVELOPING ENGLISH PRONUNCIATION SKILLS AMONG UZBEK HIGH SCHOOL STUDENTS

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Abstract

Mastering pronunciation is one of the most challenging aspects of English language learning for Uzbek high school students, particularly due to structural differences between the two languages and limited exposure to authentic English input. Recent advancements in educational technology, including artificial intelligence supported learning systems, have created new opportunities to improve pronunciation instruction. This study examines how technology-enhanced teaching methods support the development of English pronunciation, analyzes the typical difficulties faced by Uzbek learners, and evaluates the effectiveness of digital and AI-driven tools in comparison with traditional instruction. The findings suggest that the thoughtful integration of technology, particularly AI-based pronunciation feedback systems, can substantially improve learners' intelligibility, confidence, and communicative competence.

Keywords: Technology-enhanced learning, pronunciation pedagogy, Uzbek high school students, artificial intelligence, automated speech recognition, digital feedback systems, segmental and suprasegmental features, learner autonomy, L2 phonology, computer-assisted language learning.

Introduction

English continues to gain importance in Uzbekistan due to increasing international educational programs, global labor mobility, and economic integration. While vocabulary and grammar instruction have long dominated English education, pronunciation is now recognized as a foundational element of

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communicative competence, contributing directly to intelligibility and successful interaction (Munro & Derwing, 2011). Yet many high school students struggle with English sounds, rhythm, stress, and intonation because these features differ significantly from Uzbek phonology.

In recent years, digital instruction, mobile learning applications, and AI-based speech technologies have become more accessible in Uzbekistan. These tools offer personalized learning opportunities and exposure to authentic English pronunciation, which are often unavailable in traditional classroom settings. Considering the potential of technology to transform pronunciation teaching, this article aims to explore its role and effectiveness for Uzbek high school learners.

Methods

This article is based on a qualitative review and synthesis of current literature on technology-enhanced pronunciation instruction, second language phonology, and comparative phonetic studies between English and Uzbek. Key theoretical findings from Celce-Murcia et al. (2010), Derwing and Munro (2015), and Levis (2018) are used as the conceptual foundation. Additionally, studies on AI-supported pronunciation training, including automated speech recognition (ASR) and intelligent feedback systems, were examined to understand their pedagogical implications (Neri et al., 2008; Li, 2022). The aim of this study is interpretive rather than empirical, focusing on contextualizing global research within the specific educational environment of Uzbekistan.

Results

Analysis of the literature reveals several major challenges in English pronunciation for Uzbek learners. The absence of certain English phonemes, such as the interdental fricatives and the schwa sound, creates persistent substitution errors. Prosodic features, including stress timing and intonation patterns, also remain difficult because Uzbek is syllable-timed whereas English is stress-timed. These structural differences affect learners' rhythm and overall intelligibility.

The review further shows that technology-enhanced learning environments significantly improve pronunciation outcomes. Digital pronunciation tools provide immediate corrective feedback, visualizations of pitch and articulation, and repeated practice opportunities elements that traditional classrooms often lack. Mobile applications such as Elsa Speak, Rosetta Stone, and Oxford

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Pronunciation Coach have demonstrated measurable success in improving segmental (individual sounds) and suprasegmental (stress and intonation) features. AI-powered systems, in particular, adapt to learners' errors and offer intelligibility-focused feedback, which research identifies as more effective than native-like imitation (Levis, 2018; Li, 2022).

Discussion

Findings from global and regional studies highlight the potential of technology to transform pronunciation learning for Uzbek students. Traditional teaching approaches often rely on teacher modeling, repetition, and limited phonetic explanation. While these methods are valuable, they cannot provide continuous, individualized feedback, especially in large classrooms. Technology, however, allows learners to practice independently, receive instant error correction, and track their progress over time.

AI-based pronunciation tools hold particular promise. Automated speech recognition technology analyzes learners' pronunciation in real time, identifying specific phonetic inaccuracies and suggesting targeted exercises. Research by Neri et al. (2008) demonstrates that ASR-based instruction significantly enhances both accuracy and confidence in speaking. For Uzbek students, who frequently have limited access to native English speakers, AI tools serve as an accessible and reliable model of natural pronunciation.

Moreover, the use of technology encourages learner autonomy, increases motivation, and creates a low-anxiety learning environment. Students practice without the fear of making mistakes in front of peers, which is especially helpful in collectivist cultures where face-saving is important.

However, technology is most effective when integrated thoughtfully into the curriculum. Teachers must guide learners in selecting appropriate tools, interpreting feedback, and applying phonetic principles. Technology should support, not replace, pedagogical expertise.

Conclusion

Pronunciation development remains a central challenge for Uzbek high school learners, but advancements in educational technology especially AI-driven pronunciation systems offer promising solutions. Technology provides individualized feedback, extensive practice opportunities, and exposure to

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authentic English input that many classrooms cannot deliver. When combined with explicit phonetic instruction and communicative practice, technology-enhanced methods can significantly improve learners' intelligibility, confidence, and communicative competence. For Uzbekistan, integrating these tools into the national curriculum could greatly strengthen English language education and better prepare students for participation in global academic and professional spheres.

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