INTERACTIVE PLATFORMS AND TECHNOLOGIES IN LOGOPEDIC TRAINING AND CORRECTIVE EDUCATION

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Abstract

The rapid advancement of digital technologies has significantly influenced the field of logopedic training and corrective education. Interactive platforms provide innovative and effective tools for speech therapy, allowing for personalized and adaptive learning experiences. This paper explores the role of interactive technologies, including artificial intelligence (AI), virtual reality (VR), and mobile applications, in enhancing logopedic interventions. The impact of these technologies on speech therapy outcomes, engagement levels, and accessibility for individuals with speech and language disorders is analyzed in detail.

Keywords: logopedic training, corrective education, interactive platforms, artificial intelligence, virtual reality, speech therapy applications, gamification, accessibility.

Logopedic training and corrective education are designed to address speech and language disorders through systematic and targeted interventions. Traditional approaches rely on in-person therapy sessions led by specialists, which may be time-consuming and limited by geographical constraints. The integration of interactive platforms and digital technologies has transformed speech therapy by providing more accessible, engaging, and effective solutions for individuals with communication disorders. This study examines the role of interactive technologies in logopedic training and their effectiveness in corrective education.

Several researchers have significantly contributed to the integration of interactive technologies in speech therapy and corrective education. At Johns Hopkins University, the Speech and Language Technologies lab focuses on extracting diverse information from human voices, including linguistic messages, speaker characteristics, and emotional states, to enhance human-machine interactions.

Su-hua Wang at the University of California, Santa Cruz, studies young children's use of interactive technologies to understand their effects on communication, learning, and development.

Additionally, a systematic literature review by Chinmoy Deka and colleagues examines AI-based automated speech therapy tools for individuals with speech sound disorders, highlighting the growing attention to AI applications in this field. These efforts, among others, underscore the evolving landscape of speech therapy through technological innovation.

In Uzbekistan, researchers have been actively exploring the application of interactive technologies in speech therapy and corrective education. A study published in the *International Journal of Innovative Technology and Exploring Engineering* analyzed algorithms for processing Uzbek speech signals and proposed a structure for recognizing children's speech pronunciation using neural networks. This research aimed to develop effective speech therapy systems tailored to the Uzbek language [2].

Additionally, efforts have been made to create intelligent systems for teaching the Uzbek language to non-native speakers. One such system utilizes phonemic speech recognition technology to identify challenging phonemes for learners, thereby enhancing language acquisition through interactive methods.

Furthermore, during the COVID-19 pandemic, educators in Uzbekistan have adopted interactive technologies and methods in online practical lessons to continue effective teaching practices. This approach has facilitated the continuation of education in challenging times, highlighting the adaptability of interactive methods in the Uzbek educational context.

These initiatives reflect Uzbekistan's commitment to integrating interactive technologies into education and speech therapy, aiming to improve learning outcomes and accessibility.

Cianfanelli, Crescenzi, Goretti, Terenzi (2019) note that playful learning through digital systems offering "playful interaction" is quite effective [3]. For children with special educational needs during learning, this approach is a very effective andflexible means of support and does not create additional psychological and social discomfort. Du, Tekinbas (2020) point out that "the

use of mobile technology for children enables new design methods to be found to facilitate communication and learning with disabilities" [9]. This is also reflected in the improvement of children's communicative interaction with the people around them.

Recent developments in digital platforms have introduced a range of tools to support logopedic training, including (1-drawing):
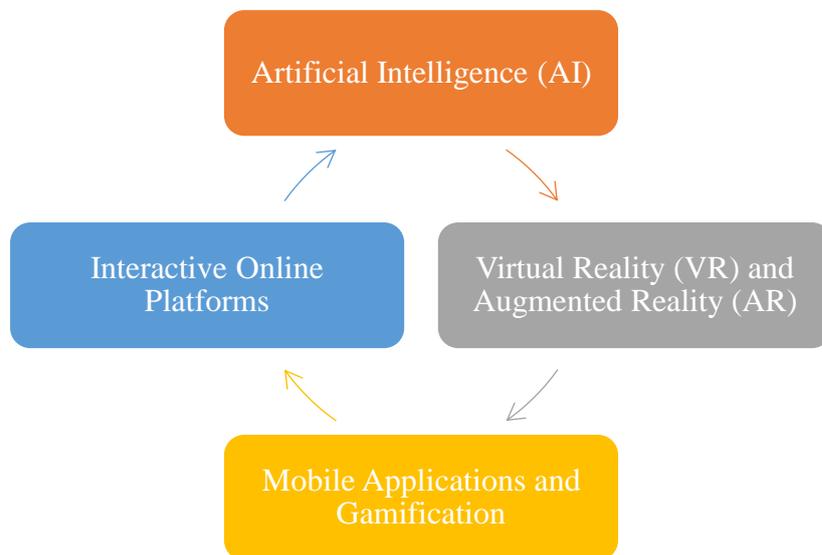
AI-driven applications analyze speech patterns and provide real-time feedback, enabling customized therapy sessions tailored to individual needs. AI-powered virtual assistants assist users in practicing pronunciation and fluency with precision.

These immersive technologies create engaging learning environments where users can practice speech exercises in simulated real-life situations, thereby improving confidence and communication skills.

Speech therapy apps incorporate gamification elements, such as rewards and interactive exercises, to enhance motivation and engagement. Popular applications like Speech Blubs, Articulation Station, and Voice Dream Reader support various aspects of speech development.

Web-based speech therapy programs allow therapists to conduct remote sessions, offering real-time monitoring and progress tracking. These platforms facilitate

access to speech therapy for individuals in remote areas or those with mobility limitations.

There are more benefits of interactive technologies in corrective education, for example, AI-driven platforms adapt exercises based on users' progress, ensuring targeted and effective therapy. Gamification elements make therapy enjoyable, reducing resistance and improving participation rates.

Online platforms and mobile applications provide speech therapy services to individuals with limited access to traditional therapy. Interactive technologies collect and analyze speech data, allowing therapists to make informed decisions about treatment plans. While interactive technologies offer significant advantages, challenges such as the digital divide, data privacy concerns, and the need for professional oversight must be addressed. Ensuring that digital tools complement rather than replace traditional speech therapy is essential for maximizing their effectiveness.

The integration of interactive platforms and digital technologies in logopedic training and corrective education has revolutionized speech therapy. By leveraging AI, VR, and mobile applications, therapists can provide more effective and accessible interventions. Future research should focus on evaluating the long-term impact of these technologies and developing evidence-based guidelines for their implementation in speech therapy.

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