

INNOVATIVE PEDAGOGICAL TECHNOLOGIES FOR CORRECTING SPEECH DEFECTS BASED ON DEVELOPMENTAL GAMES IN SPEECH THERAPY CLASSES

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Abstract

In this article innovative pedagogical technologies for correcting speech defects based on developmental games in speech therapy classes are analyzed on a scientific basis. Motivational, psychological and linguistic mechanisms of developmental games, their role in modern speech therapy practice, as well as their interaction with digital and multimodal interactive tools are studied. The proposed technologies serve to increase the effectiveness of the process of eliminating speech defects, to attract children's activity to speech therapy classes and to develop communicative competencies.

Keywords: Speech therapy, speech defects, educational gameplay, innovative technology, multimodal approach, interactive techniques.

Introduction

One of the urgent scientific and pedagogical problems is the in-depth analysis of the psycholinguistic development of children with speech defects in the field of modern special pedagogy and speech therapy, the improvement of scientifically based correction and pedagogical approaches and the introduction of modern innovative technologies. A multidisciplinary approach to working with children with developmental defects - integration of speech therapy, neuropsychology, defectology, psycholinguistics, neuropedagogy and information technology - is an important factor that significantly increases the effectiveness of the correctional process.

Speech defects are manifested in various manifestations such as phonetic-phonematic developmental disorders, alalia, confusion, rhinolalia, severe generalized speech disability (OOO), dysargia, and have a complex impact on children's communicative functioning, cognitive processes, social adaptation, and personal development. In such cases, the enrichment of speech therapy classes with innovative technologies, the organization of game activities and the conduct of multimodal approaches will give impetus to the gradual formation of psycholinguistic systems.

In recent years, Uzbekistan has carried out large-scale reforms to ensure the right of children with disabilities to education, social integration, development of systems of early detection and early intervention. Including:

The Rights of Persons with Disabilities Act 2020; **Concept for the development of inclusive education for 2021-2025; Presidential Decree No. PP-41 of December 13, 2021** - Expansion of assistive technologies, rehabilitation services and special pedagogical assistance to children with disabilities; Expanding the network of **"Early Intervention Centers for Children with Developmental Disabilities"** across the country ; Increasing the **number of inclusive classes and groups in the preschool and school education system, expanding the** staff of speech therapists, typhlopedagogues, surropedagogues; **Introduction of digital special educational platforms** (psychological and pedagogical diagnostics, distance speech therapy services, etc.). These reforms contribute to the transformation of the sphere of special pedagogy in the country, the introduction of innovative technologies and the rise of speech therapy care to a qualitatively new level.

In today's speech therapy practice, game-based classes - gamification, multimodal sensor systems, virtual reality technologies, digital platforms with automatic pronunciation analysis, interactive speech therapy applications - intensify the correctional process. Since play activities correspond to the child's natural developmental mechanisms, they provide a high motivational background, emotional stability and active participation in the formation of speech systems.

From a psycholinguistics perspective, developmental games naturally support the gradual formation of phonematic hearing, articulatory motorics, lexical-semantic system, grammar model, verbal communication, and pragmatic speech components. Innovative play-based technologies visualize this process, enhance sensory-motor coordination, trigger active types of child perception, and provide an individual differential approach.

In this sense, the organization of logopedic classes on the basis of educational games improves not only the quality of the pedagogical process, but also directly corresponds to the strategic directions of such as inclusive education reforms, digitalization of education, strengthening innovative competencies in the activities of special educators being carried out in Uzbekistan.

Developmental games in speech therapy are manifested not only as a didactic tool, but also as a complex correctional method that activates psycholinguistic mechanisms of speech processes. Their functional tasks are multifaceted, and for each type of play, individual components of a child's speech develop consistently.

Phonetic-phonematic development. Developmental games are used as the main tool for enhancing phonematic hearing, differentiation of sounds, phonematic analysis and formation of synthesis processes. Games based on separation, comparison, and generalization of sounds activate the selective activity of the children's auditory analyzer,

strengthen the phonematic system, and lay the foundation for future reading and writing skills. This process has a significant impact on the development of cognitive processes — attention, memory, and classification — as well as a child's auditory perception.

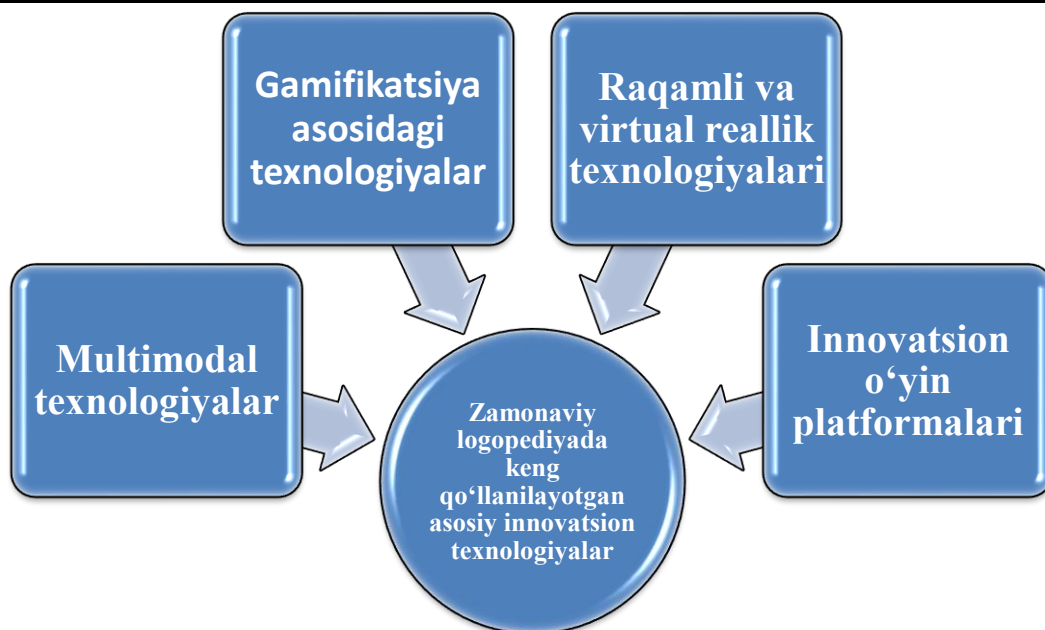
Activation of articulation apparatus. Special games that enhance facial expressions and articulatory motor skills provide coordination of the activities of speech organs - tongue, lip, jaw, soft palate. Thanks to these games, the elasticity of the articulatory apparatus increases, the positions necessary for the correct pronunciation of speech sounds are automated. Articulatory exercises organized in the form of games allow the child to repeat and consolidate motor movements in a tense-free, natural way, which gives a high motivational effect compared to traditional exercises.

Lexical and grammatical development. Through subjective, role-playing and situational games, the child expands his vocabulary, actively assimilates grammatical forms, gets used to the conscious use of speech constructions. As the game process creates natural communicative situations, the child's need to use words and sentences increases, which leads to the activation of the semantic system. These games serve to form complex language units such as syntactic skills, connected speech, logical sequence, and the expression of cause-and-effect relationships.

Development of communication skills. Dialogical and polylogical games encourage the child to engage in dialogue, to initiate speech, to express his opinion clearly, to perform social roles. In the process of play, the child acquires socio-communicative skills, such as taking turns, question-answering, mastering the social rules of communication. This develops the pragmatic aspects of the child's speech, that is, the ability to control whom, for what purpose and in what way the speech is directed.

Compliance with natural mechanisms of development. Since play activity is the most natural form of the child's psyche, speech therapy classes organized on the basis of developmental games allow speech processes to be formed in a natural, not artificial, way. During the game, the child learns the learned units of speech not compulsively, but voluntarily, motivatingly, and emotionally. Thanks to this, phonetic, lexical, grammatical and communicative skills are developed in a more solid, stable and functional form.

Today, the use of innovative pedagogical technologies in speech therapy practice significantly increases the quality and effectiveness of the correctional process. These technologies are distinguished by the compatibility of the natural features of the child's psyche, activation of speech processes through multimodal stimuli, and provide an individual-differential approach. The main innovative technologies widely used in modern speech therapy are:



Multimodal technologies are based on the integration of audio, visual, and kinesthetic stimuli, activating different components of speech activity simultaneously. This approach has been confirmed in psycholinguistics and neuropsychology studies that the harmonious functioning of several sensory channels accelerates the process of receiving and processing speech information in children.

In practice, the following means of multimodal technology is used:

- Interactive Touch Panels - Combining sound, graphic, and tactile stimuli are effective in performing phonematic perception, sound discrimination, logorhythmic exercises.
- Digital Pronunciation Correction Modules - programs that automatically process or model sounds, the child will be able to hear, compare and independently correct his speech.
- Articulatory Animations - facilitate visual perception of articulatory apparatus activity through 3D model of mouth, tongue, lip and jaw movements.

Multimodal technologies are particularly important in improving the efficiency of speech sample, reproduction, differentiation, and automation processes.

Gamification is a pedagogical approach that aims to stimulate the learning process through game mechanisms and significantly increase motivation and learning activity in speech therapy classes. When the gamification elements are organized in a way that is appropriate to the child's personal experience, the logopedic tasks are perceived as a fun, voluntary play process rather than as a compulsory activity.

Gamification-based technologies will help achieve the following results:

- increased learning motivation;
- the formation of skills for independent performance of speech tasks;
- enhance active participation through positive competition;
- not to be afraid of mistakes, to increase the readiness to repeat.

This technology gives a particularly noticeable result when working with children with phonetic-phonematic developmental disorders, deafness and articulation difficulties.

Digital tools and virtual reality elements allow for in-depth modeling of speech processes in modern speech therapy. A flexible sensory environment maximizes the child's concentration and ensures high emotional interaction in the acquisition of speech skills.

These technologies allow you to:

- Articulation exercises in a virtual space - viewing and repetition of complex articulatory positions in 3D format.
- 3D sound modeling - the analysis of the correct pronunciation of sounds by means of visual graphics, to see the spectrum of a speech signal.
- Digital logorhythmic programs are game exercises that enhance the combined coordination of rhythm, movement, and speech.

Since these technologies attract the maximum attention of the child, the effectiveness in the training process will be higher compared to traditional methods.

In speech-language practice, innovative play platforms create learning environments based on a variety of sensory, tactile, and visual stimuli. At the same time, game technologies are integrated in a way that matches the structure and content of logopedic tasks.

These platforms include:

- Interactive whiteboards - used to develop speech differentiation and phonematic perception using sound, color and movement materials.
- Mobile speech therapy applications - individual-trajectory games that allow the child to independently practice and track the results.
- Tactile Play Devices – Reinforce the interplay between hand motor skills and speech motor skills, especially important for children with alalia, general speech underdevelopment and phonetic-phonematic development disorders.

With the help of innovative play platforms, the learning process is simplified, visualized, and the child's interest in speech activity increases.

The organization of speech therapy classes on the basis of educational games has a comprehensive effect on the psychological and linguistic development of children with speech defects. Innovative pedagogical technologies – multimodal, gamification, digital and virtual reality tools – make the speech therapy process more efficient, engaging and person-centered. The proposed game-based technological model enhances the natural formation of speech processes, develops speech activity, auditory perception, articulatory motor skills and communicative competencies in children.

In this regard, the use of educational games in speech therapy classes not only ensures effectiveness, but also fully meets the requirements of modern requirements of special pedagogical practice and global innovative trends.

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