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Digital Games as A Means of Development and Education of Preschool Children

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Abstract: This article examines the role and importance of digital games in the care and education of preschool-aged children, as well as methods for their effective use. The positive and negative effects of digital games on child development are also analyzed. Educational digital games are considered as an engaging way to explore complex subjects that typically hold little interest for students.

Keywords: Digital games, teamwork, training, development, goal achievement.

Introduction: Today, information technologies are rapidly developing and deeply penetrating the education system. Particularly in preschool education, digital games are widely used as an effective pedagogical tool. Children perceive the world through play; therefore, digital games make the learning process engaging and effective.

In the context of globalization and digitalization, the integration of modern information and communication technologies (ICT) into the education system has become one of the key priorities. The rapid advancement of ICT significantly influences education, including the field of early childhood education. Alongside traditional teaching methods, educational games based on digital technologies enable a more engaging and effective learning process. For preschool children, digital games are especially important as a modern and convenient educational tool. In particular, the use of digital games, taking into account children's age and psychological characteristics, contributes to increased learning efficiency.

According to researchers, the preschool period is a critical stage in a child's intellectual, social, and emotional development (Vygotsky, 2005). Many children and adolescents enjoy playing video and computer games, which have become an integral part of modern life. They spend considerable time engaging with games and improving their skills. This phenomenon has prompted educators to reflect on, investigate, and clarify the relationship between education and games. However, research in this area remains relatively limited [1].

Nature and Types of Digital Games

Digital games are a form of interactive activity that combines elements of play and education through electronic devices. These include didactic games, logical puzzles, multimedia educational programs, and simulation games. Digital games are interactive applications played on computers, tablets, or smartphones that contain educational and developmental components.

For preschool children, digital games are primarily designed to teach colors, shapes, numbers, letters, sounds, and basic logical concepts. These games are developed in accordance with children's age characteristics and facilitate knowledge acquisition through play. They also contribute to language development and the formation of basic logical thinking.

Pedagogical Significance of Digital Games

From a pedagogical perspective, digital games enhance

children's intrinsic motivation to learn. Presenting educational material in an engaging and accessible format promotes effective knowledge acquisition. Research shows that game-based learning plays a significant role in developing children's attention and memory (Prensky, 2010).

The main advantage of digital games lies in their ability to increase children's interest in learning. During gameplay, children perceive learning not as an obligation but as an enjoyable activity, which contributes to better knowledge retention. Furthermore, digital games positively influence cognitive development by enhancing memory, attention, thinking, and problem-solving skills. While completing tasks, children learn to think independently, make decisions, and analyze their mistakes.

Psychological Impact of Digital Games

Psychologically, digital games foster independent thinking and problem-solving abilities. During gameplay, children analyze errors and search for correct solutions. At the same time, excessive screen time may have negative consequences. Therefore, experts emphasize the importance of regulating screen time for preschool children (American Academy of Pediatrics, 2016).

Digital games also allow for individualized learning, enabling children to progress at their own pace, repeat difficult tasks, and strengthen their knowledge. This approach promotes self-confidence and independence.

Methods of Using Digital Games

The following methods are recommended when using digital games in preschool education:

- Didactic games – aimed at teaching specific knowledge and skills;
- Developmental games – enhance thinking and creativity;
- Interactive activities – involve children as active participants;
- Individual approach – selection of games according to each child's abilities.

Digital games support a learner-centered approach by allowing children to complete tasks according to their abilities and pace.

Conditions for Effective Use

To ensure the effectiveness of digital games in the educational process, the following conditions should be met:

- Games must correspond to the child's age and developmental level;
- Continuous supervision by parents or educators is required;
- Screen time should remain within recommended limits;
- Digital games should complement, not replace, traditional teaching methods.

For preschool children, screen time is generally recommended to be limited to 15–30 minutes per day. Excessive exposure may negatively affect both physical and psychological health.

Key Aspects of Digital Game Use

Digital games contribute to:

- Development of memory, logical thinking, attention, and speech;
- Creation of an engaging learning environment through visual and interactive elements;
- Active participation via interactive content;
- Comprehensive development, including communication and cognitive skills.

Advantages and Disadvantages

Advantages:

- Makes learning engaging;
- Facilitates rapid learning through visual and auditory perception;
- Encourages independent learning.

Disadvantages:

- Excessive use may harm health;
- May reduce real-life social interaction;
- Inappropriate content may have negative effects.

Recommendations for Application

Games for preschool children should have a simple, intuitive interface, minimal distractions, and moderate animation speed. It is important to maintain a balance and not fully replace traditional physical play with digital activities.

Educational games can be classified into three

categories:

- Non-digital games;
- Digital games;
- Team-based digital games.

Historical Context and Theoretical Foundations

The first digital games appeared in the United States approximately three decades ago. With the global spread of the Internet, digital games quickly became a common form of entertainment among children and adolescents [2]. By the early 2000s, digital games had become an integral part of children's lives.

In 1987, researchers proposed key guidelines for educational games [3], including:

1. Clear and meaningful goals, appropriate difficulty levels, and supportive feedback to foster competence;

2. Stimulation of emotional and cognitive curiosity through visual and auditory elements;

3. Promotion of autonomy and control through choice and interaction;

4. Integration of imagination with educational content.

Digital games also encourage risk-taking, experimentation, and learning from failure, as players can retry tasks and develop new strategies. Problem-solving tasks ("quests") are central to gameplay, fostering analytical thinking.

Games promote continuous memory use, skill development, and achievement-oriented competencies. Multiplayer games enhance teamwork, communication, and knowledge sharing among players.

CONCLUSION

In conclusion, digital games represent a modern and effective tool in preschool education. They increase children's interest in learning and positively influence their cognitive, emotional, and creative development. However, their use must be moderate, purposeful, and pedagogically guided.

Educators and parents should carefully select age-appropriate games and ensure that digital tools complement rather than replace traditional learning methods. When these conditions are met, digital games significantly contribute to improving the quality of preschool education.

Overall, the integration of digital games into early childhood education demonstrates substantial potential. When applied rationally and systematically, this method can achieve a high level of educational effectiveness.

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