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METHODOLOGY OF USING PLAY-BASED TECHNOLOGIES IN DEVELOPING DIGITAL COMPETENCIES IN PRESCHOOL CHILDREN

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Abstract; This article explores the role of play-based technologies in developing digital competencies in preschool-aged children. It presents methodological approaches to their application, practical examples, and recommendations for educators. The psychological and pedagogical foundations of digital literacy development through play are also analyzed.

Keywords: digital competencies, preschool age, play-based technologies, methodology, interactive learning, STEAM approach, information technologies.

Introduction

In the 21st century, digital technologies have become deeply integrated into all spheres of life, and the education system is no exception. Digital literacy is one of the essential competencies that must be developed starting from early childhood education. Early childhood is the foundation for personality development, and forming digital skills at this stage prepares children for future educational and social success.

Therefore, developing digital competencies in preschool children, especially through play-based approaches, is not only effective but also engaging and enjoyable for young learners.

Understanding Digital Competency and Its Components

Digital competency is the ability to effectively use modern digital tools and technologies to search, analyze, create, and share information, while navigating the digital environment safely and ethically.

For preschool children, digital competencies include:

- Becoming familiar with simple digital devices (e.g., tablets, interactive boards);
- Learning letters, numbers, and shapes through digital games;
- Developing independent learning through interactive apps;
- Receiving information through visual and audio materials;
- Learning digital etiquette (e.g., sharing devices, waiting their turn).

The **DigComp framework**, developed by the European Union, outlines five core components of digital competence: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. This framework serves as a model for many educational systems globally. The Importance of Play-Based Technologies in Preschool Education

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Play is the leading activity for young children. Through play, children explore the world, communicate, and develop cognitively and socially. When used in education, play-based technologies:

- Facilitate easy acquisition of learning content;
- Encourage curiosity and self-directed learning;
- Promote creativity and collaboration;
- Support social-emotional development;
- Simplify complex concepts through engaging visuals and actions.

Pedagogically, play-based technologies refer to a system of methods that utilize educational games, interactive platforms, visual aids, audiovisual materials, digital apps, and elements of robotics to enhance learning.

Methodology for Developing Digital Competencies through Play-Based Technologies

1. Pedagogical Principles

The application of play-based technologies is grounded in the following educational principles:

- Age appropriateness;
- Interactivity;
- Individual approach;
- Stimulating and safe learning environment;
- Motivation and encouragement.

2. **Methodological Stages**

a) **Preparation Stage**

- Identifying children's interests in technology;
- Selecting appropriate interactive tools;
- Defining clear educational objectives;
- Designing the game-based learning scenario.

b) Implementation Stage

- Conducting lessons using digital devices;
- Using didactic games (e.g., Lightbot, ABCmouse, Scratch Jr) for interactive tasks;
- Introducing basic coding concepts through block-based programming;
- Engaging in digital drawing, voice recording, and animation creation.

c) Assessment and Feedback Stage

- Analyzing children's learning outcomes;
- Gathering their feedback and reflections;
- Providing encouragement and positive reinforcement;

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- Evaluating digital competency development through discussions and practical tasks.

Practical Examples 1. Using Scratch Junior for Algorithmic Thinking:

Children select a character and create a sequence of movements, which develops their understanding of cause-effect relationships, sequencing, and the basics of programming logic.

2. Interactive Quizzes with Kahoot:

Quizzes on numbers, shapes, and colors promote fast thinking, digital communication skills, and healthy competition.

3. STEAM Corners with Robotics Kits:

Children use educational robots (e.g., BeeBot, Lego WeDo) to build and control moving objects, fostering problem-solving skills, teamwork, and creativity.

Methodological Recommendations for Educators

1. Each play-based activity should serve a clear educational purpose.
2. Activities must be age-appropriate and consider children's psychological development.
3. Visual, auditory, and kinesthetic methods should be integrated for holistic development.
4. Reflective conversations should be held after activities to consolidate learning.
5. Ensure physical health is maintained—provide movement breaks and eye relaxation exercises after screen time.

Conclusion

The development of digital competencies in preschool-aged children is a crucial component of modern education. Integrating play-based technologies makes the learning process more effective and enjoyable for young learners. When interactive games, digital tools, and STEAM components are thoughtfully implemented, they not only build foundational digital skills but also enhance cognitive, creative, and social development.

Educators play a vital role in creating engaging, safe, and developmentally appropriate digital learning experiences. Continued professional development and innovation are essential in adapting to the evolving digital landscape in early childhood education.

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