

UTILIZING DIGITAL AND INNOVATIVE APPROACHES IN DEVELOPING ENVIRONMENTAL AWARENESS AMONG PRESCHOOL CHILDREN**Sultonova Nurxon Anvarovna**

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Abstract

This article analyzes the role of digital pedagogy and innovative approaches in fostering environmental awareness among preschool children. It highlights the effectiveness of digital technologies, interactive methods, and approaches such as STEAM education, game-based learning, project-based learning, and creative strategies in organizing environmental education. Furthermore, methodological approaches to developing environmental awareness, existing challenges, and their potential solutions are discussed on a scientific basis.

Keywords: digital pedagogy, preschool education, environmental awareness, innovative approaches, STEAM education, game-based learning, project-based learning, creative approach, environmental education, information and communication technologies.

Introduction. In the contemporary era, environmental problems have acquired a global character, posing urgent challenges for humanity. From this perspective, the formation of environmental awareness should begin in early childhood. In modern education systems, digital pedagogy and innovative approaches serve as effective tools for organizing this process.

Environmental education for preschool children is not limited to knowledge acquisition; it also involves fostering a careful attitude toward nature, developing ecological culture, and nurturing a sense of responsibility.

The Role of Digital Pedagogy. Digital pedagogy introduces new opportunities into preschool education. Through multimedia tools (videos, animations, interactive games), environmental concepts can be delivered in a simple and engaging manner. For example, knowledge about natural phenomena, flora, and fauna presented through visual materials enhances children's perception and understanding.

With the help of digital technologies, it is possible to:

- conduct virtual observations of nature;
- model environmental problems;
- organize interactive learning activities.

These practices contribute to the development of ecological thinking and observational skills in children.

Innovative Approaches to Environmental Awareness**1. STEAM Approach**

The STEAM (Science, Technology, Engineering, Art, Mathematics) approach represents an integrated model for developing environmental awareness in preschool education. It encourages children not only to observe natural phenomena but also to understand them scientifically. For instance, processes such as water evaporation, plant growth, or the environmental impact of waste can be explained through simple experiments.

This approach enables:

- understanding cause-and-effect relationships;
- developing problem-solving skills;
- modeling environmental issues in simplified forms;
- ensuring interdisciplinary integration.

For example, experiments on "Saving Water" help children practically understand the importance of water resources.

2. Game-Based Learning

Play is the leading activity in preschool age, and knowledge acquired through play is more effectively internalized. Environmentally themed games foster positive attitudes toward nature and promote ecological behavior.

Advantages include:

- increased motivation and engagement;
- development of social and communication skills;
- natural assimilation of ecological rules;
- strong knowledge retention through active participation.

For instance, in the game “Clean Environment,” children learn waste sorting, while in role-playing activities like “Protect Nature,” they assume the role of environmental defenders.

3. Project-Based Learning

Project-based learning is an effective method for developing environmental awareness through practical engagement. Children identify problems, explore solutions, and present outcomes through hands-on activities.

Its methodological significance includes:

- fostering independent thinking and decision-making;
- developing teamwork and collaboration skills;
- linking theoretical knowledge with practice;
- promoting responsibility and initiative.

Examples include projects such as “Planting Flowers” or “Waste Sorting,” which cultivate environmental responsibility and practical skills.

4. Creative Approach

Creative approaches enhance children’s understanding of environmental concepts by developing imaginative thinking. Activities include visual arts, crafts, dramatization, and role-playing.

Advantages include:

- development of imagination and creativity;
- formation of personal attitudes toward environmental issues;
- support of emotional and intellectual growth;
- deeper internalization of ecological values.

For example, creating objects from recycled materials (eco-design), drawing nature scenes, or staging performances on environmental protection strengthens ecological awareness.

Methodological Approaches to Environmental Education. Effective development of environmental awareness requires a systematic and integrated approach:

- Direct interaction with nature: excursions, observations, and outdoor activities enhance perception and emotional connection.
- Use of digital resources: videos and applications simplify complex ecological processes.
- Problem-based learning: encourages critical thinking through ecological scenarios.
- Integrated lessons: combining environmental topics with art, language, and mathematics.
- Parental involvement: strengthens ecological behavior through consistent practices at home.

Challenges and Solutions

Despite its benefits, implementing digital and innovative approaches involves several challenges:

- Insufficient digital competence of educators: many teachers lack methodological training in using digital tools.
- Limited technical resources: inadequate access to devices and internet connectivity.
- Health concerns: excessive screen time may negatively affect children’s physical and mental health.

- Quality and safety of digital content: lack of age-appropriate and pedagogically sound materials.

Addressing these issues requires systematic professional development, infrastructure improvement, and careful content selection.

Conclusion. Digital pedagogy and innovative approaches are effective tools for developing environmental awareness in preschool education. They promote conscious attitudes toward nature, foster ecological culture, and contribute to raising a responsible future generation.

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