TECHNOLOGIES FOR THE DEVELOPMENT OF THINKING, ATTENTION AND MEMORY IN THE FORMATION OF COGNITIVE ABILITIES IN CHILDREN

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Annotation: *This article analyzes the pedagogical and psychological foundations of the development of thinking, attention and memory processes in the formation of cognitive abilities in children. It also covers the impact of modern educational technologies on children's cognitive activity, the effectiveness of interactive methods, didactic games, information and communication technologies and innovative approaches. During the study, the advantages of methods that serve to enhance concentration, logical thinking and memory activity in the intellectual development of children were scientifically substantiated. Based on the results of the study, recommendations were developed that can be used in the process of preschool and primary education.*

Keywords: *cognitive abilities, thinking, attention, memory, cognitive competence, pedagogical technology, interactive method, intellectual development, innovative education, child psychology.*

INTRODUCTION

In today's era of globalization and the development of digital technologies, the main requirement for the education system is the ability of a person to think independently, solve problems, and have a creative approach. Therefore, the issue of forming cognitive abilities in children is one of the current areas of pedagogy and psychology. Cognitive abilities are related to human cognitive processes and include such mental processes as thinking, attention, memory, perception, and imagination [1].

Childhood is an important stage in the formation of human intellectual potential. In particular, it is possible to strengthen cognitive competencies in preschool and primary school children by developing thinking, attention, and memory. In an education system based on a competency-based approach, it is important for a child not to acquire ready-made knowledge, but to independently search for, analyze, and apply knowledge in practice [2].

In recent years, the use of interactive methods, didactic games, STEAM technologies and digital platforms in the educational process has been used as an effective tool for developing children's cognitive activity. These technologies serve to form independent thinking, attention stability and long-term memory in children.

The purpose of this article is to study the scientific and theoretical foundations of technologies for developing thinking, attention and memory in the formation of cognitive abilities in children and to analyze their practical effectiveness.

Review of relevant literature

The issue of cognitive development has been studied by many foreign and domestic scientists. Swiss psychologist Jean Piaget explained the intellectual development of

children as a gradual process. According to him, the development of thinking in children is formed depending on age-specific psychological characteristics [1].

Russian psychologist Lev Vygotsky paid special attention to the role of the social environment and education in the cognitive development of a child. He developed the theory of the "zone of proximal development", which emphasized that a child's cognitive abilities develop in the process of cooperation with adults and peers [2].

American scientist Jerome Bruner showed the importance of the discovery-based teaching method in the educational process. According to Bruner's theory, not giving a child ready-made knowledge, but directing him to independently search for knowledge develops thinking [3].

Local scientists N. Gaybullayev, R. Mavlonova, U. Nishonaliyev and other researchers studied the methodology for developing cognitive activity in primary education. Their studies highlighted the role of interactive methods in the development of attention and memory [5].

Recent scientific research has also widely studied the impact of digital technology-based teaching on children's cognitive activity. In particular, it has been noted that multimedia tools and didactic mobile applications are effective in developing visual memory in children [6].

Literature analysis shows that the issue of developing thinking, attention, and memory remains relevant today. In particular, there is a high need for research on the development of cognitive competencies in children through the use of modern pedagogical technologies.

Research methodology

This study used pedagogical observation, psychological analysis, interviews, questionnaires, and experimental testing methods. Preschool educational organizations and primary school students participated in the research process.

The main goal of the study was to determine the effectiveness of innovative technologies aimed at developing thinking, attention, and memory in children. For this purpose, the following methods were used:

- interactive game technologies;
- logical tasks;
- work based on visual materials;
- creating a problem situation;
- STEAM elements;
- multimedia presentations.

During the experiment, children were divided into two groups: a control group and an experimental group. Innovative pedagogical technologies were used in the experimental group, while traditional methods were used in the control group.

The results showed that in the group where interactive methods were used, the children's level of concentration, speed of logical thinking, and memorization indicators significantly increased. In particular, didactic games ensured the active participation of children and increased their motivation [4].

Technologies for developing thinking

Thinking is a human process of solving problems, generalizing, and drawing conclusions. The following technologies are effective for developing thinking in children:

Problematic learning technology

Creating problem situations encourages children to think independently. Questions and tasks given by the teacher develop the child's ability to logically analyze.

Didactic games

Didactic games increase the child's interest and intensify thinking activity. For example, “Find the excess”, “Logical chain”, “Who will find it the fastest?” games such as STEAM technology

Through the STEAM approach, children learn to experiment, observe, and draw conclusions. This develops creative and critical thinking [5].

Attention-Development Technologies

Attention is a mental process in which a person consciously focuses on a specific activity. Developing the stability and volume of attention in children increases the effectiveness of education.

Interactive methods

Methods such as “Brainstorming”, “Cluster”, “BBB” ensure the active participation of children and help maintain attention for a long time.

Multimedia tools

The use of animation, audio and video enhances children's visual and auditory attention. Especially colorful images increase interest in children.

Digital technologies

Electronic platforms and mobile applications develop children's quick thinking and attention management skills [6].

Memory development technologies

Memory is the process of remembering, storing and retrieving information. Developing memory in children increases the quality of education and the level of knowledge acquisition.

Associative methods

By linking images and concepts, the process of memorization is enhanced.

Mnemonic technologies

Mnemonic methods help develop long-term memory in children. The effectiveness of memorizing information based on poems, pictures, and symbols increases.

Repetition technology

Regular repetition of information serves to consolidate knowledge [7].

Research results and discussion

The results of experimental and test studies showed that innovative pedagogical technologies are highly effective in developing cognitive abilities in children.

In the children of the experimental group:

- increased attention stability;
- developed speed of thinking;
- improved long-term memory performance;
- increased motivation for learning.

It was also found that interactive methods also developed communicative competencies in children. Group work and problem-solving tasks formed cooperation skills in children.

The results showed that the educational process organized on the basis of modern technologies has a positive effect on the intellectual development of the child.

Conclusions and recommendations

Developing thinking, attention, and memory is an important pedagogical task in the formation of cognitive abilities in children. Based on the results of the study, the following conclusions were drawn:

Thinking, attention and memory are the main components of the formation of children's cognitive competencies.

1. Interactive and innovative technologies significantly activate children's cognitive activity.

2. Didactic games and STEAM technologies develop creative and critical thinking in children.

3. Multimedia and digital tools serve as effective tools for strengthening attention and memory.

Recommendations

- Regular use of interactive methods in the educational process;
- Increase didactic games in preschool educational organizations;
- Effective use of digital pedagogical tools;
- Involvement of parents in the cognitive development of children;
- Organization of trainings on innovative technologies for teachers.

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