ON THE PROBLEM OF DEVELOPING MATHEMATICAL COMPETENCIES IN THE CONTEXT OF FORMING CHILDREN'S COGNITIVE ABILITIES

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Abstract*. To implement the educational field "Cognitive Development" through the process of forming elementary mathematical concepts, entertaining mathematics centers are organized in preschool groups. The center for entertaining mathematics should be equipped with materials and attributes that allow children to develop skills and competencies in independent activities, consolidate existing knowledge, and discover new things in the field of mathematics through unique children's activities: gaming, search and research, constructive, speech.*

Keywords*: preschool organization, development centers, mathematical concepts and competencies, play activities, preschool children, developmental environment.*

Introduction. Modern research by psychologists and educators proves that the period up to the fifth year of life is of key importance for human development. What happens in the first years of life influences and is reflected in his educational, professional, family and social achievements and successes. The first few years of a child's life are of unsurpassed importance for the formation and development of the personality of preschool children: there is an intensive development of innate skills; strong internal motivation for action and learning is formed; there is a growing need for action and the development of cognitive abilities; the need for knowledge, search, research, experience, discovery and formulation of conclusions is formed; opportunities open up for leveling disharmony and developmental disorders and correcting dysfunctions; leveling out environmental deficiencies. The influence of a modern preschool organization on the subsequent education and career growth of a young person is enormous: • A child's participation in a preschool group provides him with access to a wide variety of stimuli that allow him to develop his social, intellectual and emotional skills, as well as creativity. • Allows you to more easily and quickly overcome educational and social shortcomings, as well as neutralize the negative influence of the environment

Main part. The program and Concept, adopted in order to improve this area, noted the place of preschool education as the primary link in the system of lifelong education in the formation of legal literacy of children of preschool educational organizations, as well as the main priority direction of state policy in the republic on issues of education and upbringing of a harmoniously developed generation. State policy in the field of training teachers for the preschool education system, first of all, provides for the formation of a person as a comprehensively developed personality through a system of continuous education aimed at mental and spiritual education. And this poses the task of pedagogy to develop and implement in practice modern preschool educational organizations (hereinafter preschool educational institutions) effective forms, means and methods of moral education of youth [1].

Students' mastery of a variety of knowledge and skills is a human ability based on knowledge and skills that successfully achieve their goals and objectives. When developing basic mathematical concepts and terms, it is important to develop other knowledge and skills that shape independent thinking in children. Mathematical concepts arise as a result of the generalization of the vast experience accumulated by humanity and reflect the fundamental essence of the material world, but are formed as a result of their idealization, abstracting from many other properties of real objects. The formation of elementary mathematical concepts and ideas in the process of preparing preschool children for school education is recognized as one of the most important areas in the education and development of children. Basic mathematical knowledge and skills of preschoolers for children 6-7 years old, reflected in the area “Development of the cognitive process”: shows an active interest in acquiring knowledge; independently finds and uses information for educational and gaming activities; understands the simple connection between objects, events and phenomena and perceives them as an integral unity; knows numbers, counting and applies it in practical activities; acts according to space, form and time; carries out basic mathematical calculations; observes events and phenomena in the surrounding space, and also explores them; shows caution and concern for the environment [1, 2].

One of the main tasks of the theory and methodology for the formation of mathematical concepts is to develop the didactic foundations for the formation of mathematical concepts in children. This task involves the selection and use of methods and techniques for comprehensive knowledge of the world around us through mathematical components, as well as the development of the foundations of mathematical thinking. Theoretical aspects of the formation of mathematical concepts in children are based on psychological and pedagogical approaches in the process of studying basic mathematical categories and mathematical activities. Today, the problem of forming mathematical concepts has a scientifically based methodological system. Their main elements are closely interrelated with the purpose, content, methods, forms and techniques of organizing work [3]. The main tasks for the formation and development of mathematical concepts in children consist of the following: • justify the plan for creating the necessary conditions for organizing a developing mathematical environment in the junior, middle, senior and preparatory groups of preschool educational organizations from the point of view of the level of development of mathematical concepts in children; • develop ways and optimal conditions for the development of mathematical concepts in children; • develop guidelines and recommendations to ensure the development of children's mathematical concepts. When teaching elements of mathematics to preschool children, the following leading factors must be taken into account: 1) developing children’s interest, knowledge and skills in learning; 2) increasing activity in the process of cognition and research; 3) instilling confidence in one’s strengths and abilities; 4) development and understanding that mathematics is a necessary basis for the next stage of learning and development [4].

When forming mathematical concepts, the following components are distinguished: development of versatile concepts; the ability to choose the main thing, to think abstractly; understanding how to move from a precise question to a mathematical expression; knowledge of how to analyze, divide into specific cases; knowledge of how to work with scientific conclusions on specific material; be persistent when solving a mathematical problem, develop deductive thinking skills; knowledge of how to ask (formulate) new questions.

In the process of solving assigned problems in class, each child can achieve mathematical knowledge, special educational skills and abilities that provide the opportunity to develop independent thinking, leading them to a certain level of development and education.

The teacher-educator, with the help of a question, must stimulate the child, create problematic situations, organize free creative classes or activities. When carrying out such work, it is necessary to follow the following conditions: maintain the speed of the lesson, which does not allow accidental "emptiness"; before starting work, it is necessary to specify explanations, clarifications and instructions; the teacher (educator), in his explanations and individual responses of children, must systematically intensify the mental activity of children; do not distract children with unnecessary words while studying; forms and types of mathematical activities in the classroom should be varied; When analyzing the material under discussion, use various methodological techniques [3].

Experience in the preschool group of a preschool educational institution confirms that the oral solution of one problem, using different techniques, increasingly develops and forms logical thinking, ingenuity, and the ability to quickly find the right way to complete or resolve a problem situation. And this makes it possible to conditionally divide children into separate groups:

1. a group of children who need specific instructions when solving a problem;

2. a group of children who need general instructions (topic, section, solution) when solving a problem;

3. a group of children who do not need instructions when solving a problem. By gradually complicating such tasks, you can develop the ability to quickly obtain practical results. Work of such content, carried out with students, arouses interest in mathematics, various types of activities, ensures responsibility for interests, etc. [5, 6].

Let us outline some of the requirements for the developmental mathematical activities of children:

1. The number, along with the numeral section, should occupy the main place in the planning of other sections of the program material, and in all types of activities and stages in the implementation of the tasks of the State Program "Ilk Kadam".

2. At each stage, two or three tasks of the program of the "Mathematics" section are planned. The first is new, the subsequent ones are repeating.

3. It is recommended that after six to eight lessons, classes should be conducted in the form of repetition and consolidation of the material covered.

4. The most basic method of teaching in mathematics is the method of visual learning. In the process of teaching the elements of mathematics, outdoor games, didactic games with entertaining and educational mathematical material occupy a special place.

5. During mathematics classes, the content of the State Program "Ilk Kadam" is explained to children on the basis of visual materials.

6. At the end of classes in junior and middle groups, the teacher summarizes the content of the program using accessible words. In senior and preparatory groups, preschool education is generalized with the participation of the children themselves [1,2].

Basic conditions for organizing developmental mathematical activities for children:

1. Know the basics of the characteristics of the psychological and pedagogical development of a preschool child at each age stage.

2. Use a scientific system for developing a child's mathematical concepts.

3. Rely on the content of work with elementary mathematical concepts in the previous age group of preschool education.

4. Know methodological techniques for teaching children, that is, know how to expediently carry out work on the formation of mathematical concepts.

5. Know the material of the State Program “Ilk Kadam”, know what is carried out in specially organized classes or in different types of mathematical activities.

6. Know how to plan teaching mathematical concepts and terms at each stage (counting, quantity, shape, environment, time).

7. Structure developmental activities based on the implementation of didactic principles of education.

8. Widely use various tasks aimed at developing children’s visual, auditory, and kinesthetic analyzers.

9. Know that the widespread use of various visual materials is one of the main conditions for the successful learning and development of preschool children [1, 2].

Conclusion. Thus, initial mathematical abilities are expressed through such human characteristics that create the opportunity for high creativity in mathematical activity and education.

The development of mathematical concepts in children depends on a number of conditions: firstly, it is important that the child has previously acquired knowledge and skills; secondly, the content of mathematical concepts must be consistent; thirdly, the child, having studied the process of mastering mathematical ideas and concepts, must know the resulting conclusions.

The completion of these tasks depends on the degree of development of the child’s knowledge and abilities. Therefore, at the first stage, the teacher (educator) must offer tasks that do not require mental strength and perseverance. A child can learn simple mathematical concepts, and then you can complicate the tasks assigned to the child until he develops the skill of independent work, gradually developing mathematical concepts. The expediency of using the process of mastering mathematical concepts also depends on the content of this concept. The information in each concept is a mathematical logical circle of its concept and ideas, which must be actively learned and processed to the end [5,6,7].

Early learning outcomes and development of children's mathematical understanding and knowledge contribute to:

• skills acquired in a preschool organization are prerequisites for achieving better results in school;

• functioning in a group of peers is the basis for the development of language and communication skills, the development of the entire range of cognitive abilities of children;

• functioning with a group of peers prepares for teamwork and lifelong learning;

• functioning in a group provides the opportunity to try out different ideas and creatively approach problem solving.

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