Puzzles as a factor in the formation of elementary mathematical concepts in preschool education

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Abstract:
In this article, it is given the opportunity of preschool children to form and develop a number of qualities in a child, such as intelligence, attention, perception, memory, agility, attentiveness, diligence by solving puzzles and mazes.

Key words: didactic game, logical thinking, memory, attention

Introduction
The content of education for preschool children is selected in accordance with the educational requirements that determine the content and essence of continuing education, the factors and means, guidelines and concepts for the development of a harmoniously developed personality, which is the focus of education. The specific features of mathematics in preschool education are defined by emphasizing the composition of the qualities such as complex of mental, physical, spiritual and emotional development of a harmoniously developed person. Preschool mathematics education is essential factor which helps to develop the age-appropriate, systematic, and gradual formation of mental processes, the budding a special ability, demonstrating their potential while give an opportunity to develop and form number of qualities, such as intelligence, attention, perception, memory, agility, attentiveness, diligence. The analysis of the programs shows that the system of subject education, which emerged in the process of preschool education, has become increasingly complex in terms of its content and essence, it has become closer to primary school. As a result, the developmental process associated with the child's play activities was replaced by a complex educational process that was disproportionate to his mental development.

The content, essence of pre-school education formed in the years of independence in our country, it does not meet the modern nature of the demand and need for spiritual education, as well as the growing need for development and renewal in rapidly developing period. The growing need for development and renewal in the spirit of the rapidly evolving period has led to the need to reconsider the system of pre-school education in the light of modern requirements. In the context of traditional preschool education, which was formed in the 80s of the last century, there is a subject, unitary individual, that is, a direction aimed only at a specific purpose and this situation is reflected in educational programs. Subject-oriented educational programs have become more complex in terms of their essence so that they are closer to the primary school curriculum. As a result, it appeared a complex process which are disproportionate with developmental features of the child's play activities and mental development processes. Resolution of the President of the Republic of Uzbekistan SH. M Mirziyoyev dated December 29, 2016 number PQ-2707 "On measures to further improve the system of preschool education in 2017-2021" is of particular importance as an important stage. The resolution is aimed at improving the quality of pre-school education, the adoption of
material and technical base, the development of pre-school education systems, work with qualified teachers, and radical development of children's preparation for school education, modern educational programs and techniques in the educational process. Different forms of educational and pedagogical relations in preschool education, their coordination, the effectiveness of pedagogical processes organized there, changes in the worldview of students, the development of thinking are reflected in the formation and development of personal qualities.

Lack of necessary educational conditions, failure to take into account national and regional characteristics in determining the level of biological and physiological development of the child for providing full development of the child's age, desires, wishes, interests and genetic potential in preschool education caused to not meet modern requirements. There is an educational necessity to create modern preschool education which can provides with the proportionality with mental and spiritual development, in which the ability to learn, to awaken the desire to learn, the developmental features associated with play activities and mental.

The state pays special attention to the development of pre-school education, which is the first stage of the educational process. If the preschool child does not develop the first signs of independent and logical thinking, it is natural that in general secondary education there will be difficulties and problems in the acquisition of knowledge. Orienting children to independent thinking from an early age means accustoming them to conscious, self-controlled reasoning based on scientific and theoretical principles.

Mathematics has a number of functional opportunities in the formation of social skills for the involvement of young school-age children in the educational process, which develops in line with the development of society, to obtain positive results, to acquire knowledge based on the requirements of state educational standards and their implementation. Through the formation of mathematical concepts, figurative logical thinking, which is a simpler form of abstract logical thinking, teaches children to think, give wise decision. It also develops the ability to think independently and draw conclusions. Teaching problem-solving in the form of puzzles in preschool education provides a worthy opportunity for these processes to be effective and efficient. The role of logical problems and puzzles is especially important in the targeted implementation of educational processes. Puzzles, due to their playful nature, can attract the child's attention, at the same time they develop the skills of mental observation, identification of laws, grouping objects and features according to their properties and characteristics. In the process of logical thinking, students try to plan their actions, think carefully, look for answers and find solutions to problems. By solving puzzles, they develop self-confidence, independent thinking, sensitivity, inquisitiveness; develop the skills of diligent work, a sense of responsibility. This is the purpose of educational purposes. The puzzles are presented in groups, taking into account the age characteristics of children in terms of content and essence. The main purpose of the puzzles is to strengthen mathematical concepts, to formulate problems for implementation, to master the material and to teach the child to think, generalize, analyze and draw conclusions. A special place is given to issues that determine the capabilities, abilities and talents of children increase the expected outcome of education and encourage children to think independently. Such problems include puzzles or logical tasks, mazes. In the process of solving the tasks, the child has the opportunity to test their abilities, to remember what they know by analyzing them one by one, to open the organic connections between concepts. The main thing is to encourage the child to try, to find solutions. There are
no clear ways to solve such tasks. Such issues can be called non-typical or irregular. This does not mean that mathematical rules are not used in the process of solving it, but it does mean that there is no general law for them in the process of solving the above problems. The child tries once, moves, when he fails, comes to the solution from the other side, thinks a little; tries again and again. Therefore, solving puzzles is called the process of "trial and error", "attempts and error". In each attempt, the student moves to a new, different type of thinking, thinks about what he knows and chooses the best of them, if the problem is not solved, the process is repeated, and new attempts are made. That is the purpose of teaching how to solve such problems. To teach a child to think, try, move on a problem, to develop logical thinking by developing the ability to understand mathematical problems, to solve problems, to understand the essence of the problem independently and to draw the necessary conclusions is the key teaching a child to explore. In the words of the great Russian scientist KD Ushinsky, "the purpose of every teacher should cover matter of teaching the child to do mental work, which is more important than giving material on the scale of each subject. Indeed, knowledge becomes real knowledge when it is acquired independently; the knowledge acquired through memorization cannot be real knowledge, because after a certain time it disappears from memory. Only the concepts acquired through reading and thinking, it becomes knowledge. Only when the child is able to work with concepts, to use them where necessary, that is, to pass them independently, it becomes real knowledge. By this we do not mean to reduce the essence of memory, recollection, or memorization, because memory is an integral part of the cognitive process. An analysis of the literature on teaching children to solve non-standard problems shows that first of all it is necessary to direct children to mental activity. To do this, it is necessary to look for factors that tend to solve a problem or draw attention to a problem with their own desires. It is impossible to motivate any child to solve a problem given as a task or on the instructions, requests, and suggestions of the educator. This requires a factor, a source that directs it to this process. One such source is the interest of the child. It is easy to arouse interest in a child, but it is a problem to keep it moderate. One of the sources of interest is to amaze the child. To amaze a child is the beginning of this interest. This process is relevant not only in the teaching of mathematics or solving puzzles, but also in the teaching of other subjects. Problems in the form of puzzles, in contrast to the typical problems, attract the attention of the child; children develop interest in getting to the heart of the problem. Of course, the non-standard problems offered in preschool mathematics education should be based on the material covered, clear, composed of elements known to himself and the child. In order to find the connections between the concepts known to the child and those given in the problem, that is, between the known and the unknown, the child must have formed the qualities of intelligence, ingenuity. In order to keep the child’s interests in balance, the educator can tell them solutions that are closer to the puzzle response. There is a positive side to this - if a child has to do something several times, of course, it helps him to be strong-willed.

There are labyrinths for children. All parents want their children to grow up intellectually and harmoniously. But how can this be achieved? It is also possible to use mazes, which are among the puzzles, to achieve this goal. Below are examples of game-like labyrinths in which the heroes of fairy tales take part. Labyrinths not only encourage children to think, but also teach them to do useful activities without getting bored. Labyrinths develop logic, memory, attention in children.
1. Help the boy find his car. Do this according to the colors. If the children are willing to complete such tasks, they can be given the task to create a similar maze independently.

2. Help the characters in the cartoon “Masha and the Bear”. Masha hid from the bear. Help the bear find the Masha.

3. The heroes of the cartoon “Smesharik” want to give Nyusha stars. They get one more star a day. Help them collect more stars.

4. Help the boy escape the bear and wolf and get home.
As a conclusion, we can say that children perform mental operations such as comparing, contrasting, clarifying, generalizing, and drawing appropriate conclusions in the process of solving puzzles. This process plays a very important role in the formation of mental qualities in the child. In turn, it makes a worthy contribution to the formation of the qualities of perfection.

References

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