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METHODOLOGY FOR FORMING CHILDREN'S RESEARCH AND CREATIVE SKILLS ABOUT NATURE BASED ON SUBJECT MODELS

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Abstract

This article provides information on the appropriate use of subject models in the process of educational activities in preschool educational organizations, their role and importance in the educational activity of familiarization with the environment in preparatory groups for school, and the criteria for the formation of children's research and creative skills. In particular, it is shown that the process of using small experiments in educational activities sets itself the following tasks: intensive development of logical thinking in the process of familiarization with the environment, intensive use of real models in the process of educational activities, increasing the interest of students in conducting experiments in the process of educational activities, developing the desire to actively participate in small experiments conducted in the process of educational activities. The article also provides a review of scientific research conducted within the framework of the topic and their analysis.

Keywords: Subject, model, modeling, logical thinking, research, pedagogical modeling, component, approach, motivation.

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INTRODUCTION

In our country, in accordance with the words of our President, “From the moment a child is born, it is precisely at preschool age that mental activity increases, moral-aesthetic and physical qualities are formed. Therefore, our strategic goal in the development of preschool education in the coming years is to create the necessary conditions for the full coverage of this educational direction for every child of kindergarten age, regardless of their social status...”[1], the tasks of modernizing preschool educational organizations and implementing modern educational programs and technologies in educational processes, comprehensively developing children intellectually, spiritually, aesthetically, physically, and radically improving the quality of their preparation for school have been set. In particular, according to the teachings of Yusuf Khos Khojib, every person must mature in a way worthy of society. For this, he must receive the necessary education from the day of birth. The upbringing of children must begin as early as possible. Only then will they be prevented from engaging in inappropriate behavior. Alisher Navoi pays special attention to the power and strength of upbringing in the process of a child’s growth and development. He believes that as a result of upbringing, a child will grow up to be useful and mature. He believes that it is necessary to educate a young child from a very young age.

Another important issue is the development of advanced pedagogical methods and techniques that meet modern requirements in this area, the creation and publication of a new generation of educational and educational-methodical literature is also an extremely urgent task. In implementing these tasks, a correct and active approach to the process of educational activities, the organization of each type of activity on the basis of subject models, and strict adherence to the age and individual characteristics of the students in the process of educational activities are important.

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LITERATURE REVIEW

Today, in the modern educational process, the organization of educational activities in preschool educational organizations on the basis of modern pedagogical technologies and subject models is seen as an urgent pedagogical problem. In particular, the problems of introducing preschool children to nature, forming a responsible attitude to the environment and ecological concepts in our country are covered in the research works of F.R. Kadirova, D. Babayeva, Sh.A. Sodiqova, N.M. Kayumova, M.N. A'zamova, M.Kh. Umarova, M.R. Khalilova, M.A. Rasulkhaj'jayeva, T.L. Khurvaliyeva, A.Q. Aymatov, N.J. Isakulova, G.O. Komilova, N.N. Ravshanova, M.B. Kubayeva, Y.Sh. Turayev. The issues of research and creative activity in the educational process are covered by I.B. Askarov, R.Kh. Djuraev, B.Kh. Rakhimov, R.G. Safarova, M.Kh. Tokhtakhodzhayeva, K.T. Suyarov, N.N. Karimova, N.A. Muslimov, N.N. Narziyeva, J.R. Turmatov, Sh. Khasanova, M.A. Yuldasheva, Z.K. Ismailova, G.S. Alikhodzhayeva. Sh.U. Nurullayeva, N. Oripova conducted scientific research on the problem of modeling, in particular on pedagogical modeling.

In particular, the psychophysiological characteristics of preschool children require specific approaches to the formation of skills related to nature in them. Preschool children have a strong need for figurative thinking, the ability to imitate, and learning through direct observation and practical activities [2; 45]. Z.K. As Ismailova noted, "for preschool children, direct communication with natural objects, their feeling, observation and experimentation is one of the most effective ways to learn" [3; 78].

In the process of getting acquainted with nature, the child not only acquires new knowledge, but also forms an attitude towards the objects being studied, observation, curiosity, research skills and a sense of love for nature. M.A. Yuldasheva in her research emphasizes the need to take into account the age characteristics of children in the formation of their natural skills [4; 56].

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In the process of forming natural skills in preschool children, the following main areas can be distinguished:

Formation of knowledge about natural objects and phenomena;

Development of natural observation skills;

Formation of the ability to analyze changes in nature and draw conclusions;

Development of skills for conducting experiments with natural objects;

To cultivate a careful attitude towards nature.

F.R. Kadirova emphasizes the importance of the observation method in the formation of skills related to nature in preschool children [5; 123]. Through observation, children study the external signs, properties and changes of natural objects, determine the connections between them. The active participation of the child in this process is important.

According to M.Kh. Tokhtakhodzhaeva, "the use of visual materials in the formation of skills about nature allows children to clearly and fully understand the properties of natural objects" [6; 189]. Visual materials allow children to observe, analyze, compare and draw conclusions about natural objects.

The formation of skills about nature in preschool children as a pedagogical problem is distinguished by its complexity and versatility. When solving this problem, it is necessary to take into account the age characteristics of children, the laws of psychological development and modern pedagogical approaches. The peculiarity of the preschool period is that during this period children's cognitive processes, in particular, perception, attention, memory and thinking, intensively develop. As F.R. Kadirova noted, "the main type of activity of preschool children is the game, and it is through the game that they learn the world around them, learn to communicate and develop their abilities" [5; 78]. Therefore, the use of game elements in the process of familiarization with nature is also of great importance.

The use of real models is of particular importance in the process of forming skills related to nature in preschool children. Real models are natural objects

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themselves (plants, animals) or their models, samples, collections, which allow children to clearly and fully understand the properties of natural objects [6; 34]. For example, a collection of various leaves, samples of seeds, animal models, etc. L.M. Manevtseva and P.G. Samorukova divide real models into the following types [9; 112]:

Subject models - natural objects themselves or their models;

Graphic models - pictures, drawings, schemes;

Symbolic models - conditional signs, tables, diagrams.

The formation of skills related to nature on the basis of real models allows children to directly observe, analyze, compare and draw conclusions about natural objects. This activates their cognitive activity, develops research skills and forms creative thinking.

In the process of introducing children to the world around them, it is important to read and use literary and popular literature along with scientific literature. If a child hears, sees, involuntarily participates in an experiment on the topic being studied, or performs it independently, he can remember it for a lifetime.

RESEARCH METHODOLOGY

The criteria for the formation of research and creative skills of preschool children (rich imagination, high creative thinking, worldview, curiosity) were determined based on giving priority to such qualities of an individual approach to the child's personality as originality, mobility, sensitivity, agility;

The process-content and activity-oriented block of the model for the formation of children's research and creative skills was improved based on adapting it to such stages of the cognitive process of the child's personality as intuition, attention, perception, memory;

The process of forming children's research and creative skills based on real models is improved by integrating methods for developing children's research

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and creative skills with such forms of educational and gaming activities as experiments, excursions, and walks;

The methodology for forming preschool children's research and creative skills (didactic games and integrative exercises) is clarified by prioritizing the principles of educational and gaming activities to direct the child's creative activity towards independence, a creative and creative approach to completing tasks, motivating the child in education, and freely organizing any activity.

Results and Discussions

Modeling activities greatly help preschool children understand the world around them.

Modeling in kindergarten is a joint activity of the educator and preschool children, aimed at creating and using models.

Although the main source of children's knowledge of the environment is sensory knowledge, children cannot directly perceive many natural phenomena. The use of models in this process is of great importance. Models are a means of transition from visible-practical and visible-depictive knowledge to schematic, creative knowledge, allowing children to indirectly master the process of knowing the environment.

There are many approaches to interpreting the concept of "model". Below we will consider the most commonly used definitions in the practice of preschool education.

A model is a material tool that replaces really existing objects, natural phenomena, and reflects their signs, structure, structural parts or the relationships between individual components.

Another definition: A model is an object, graphic or moving image of something, and the process of creating a model is called modeling activity. For example, a globe is an object model of the Earth, and its preparation by the educator together with the children is called modeling activity. The use of model material is of great

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importance in developing children's thinking, increasing their ability to think abstractly about the important features of objects and phenomena in the environment.

The main feature of the model is that it reflects and includes important features of nature, reproduces the most important aspects and properties of the modeled object in a convenient form.

The use of the modeling method in working with preschool children allows you to solve the following problems:

- develops children's mental activity, intelligence, observation, ability to compare;
- teaches to identify the main features of objects, classify objects and distinguish contrasting properties of an object;
- clearly see and understand the connections and relationships in the surrounding world;
- helps to develop speech skills, mental processes and, in general, the intellectual development of a preschool child.

The following types of models are used in preschool educational institutions:

Thematic models. They reproduce the structure and properties of real objects and phenomena, their external and internal relationships. A typical example of the use of thematic models in research and creative work with children on nature is an aquarium that models the ecosystem of a reservoir (in miniature). This type of model also includes a toy fish, with the help of which children can form an idea of the appearance and movement of fish; With older children, the educator can make a globe (from papier-mâché on a sword or a balloon or in another way). This globe allows the child to gradually and in small parts learn about the Earth: sticking out the continents during the school year, somehow marking the states, cities, seas that have come into the children's field of vision, and printing their names.

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Thematic-schematic models. In them, important properties, connections and relationships are presented in the form of model objects. The problem of using this type of model in ecological work with children was revealed in the study of N.I. Vetrova. In the study, she proposed using paper strips of different green colors to abstract a plant property, such as the color of leaves; Paper strips of different textures (smooth, uneven, rough, etc.) to abstract a plant property, such as the nature of the leaf surface, etc. Speaking about the use of thematic-schematic models, S. N. Nikolaeva proposed using them to introduce children to such a concept as "mimicry" (protective coloring of animals to protect them from enemies).

In preschool educational institutions, models of objects and processes play an important role in making the educational process more interesting and effective. These models help children to more easily understand various concepts and develop their investigative and creative thinking. Below we will consider examples of models of objects and processes.

Object Models:

1. Toy Cars - Using these models, children can learn about vehicles. They will have the opportunity to drive cars, learn about their parts, and understand the importance of transportation. With the help of toy cars, children will develop their skills in competing with each other, playing team games, and solving problems.
2. Animal Models - Using various animal models, children can learn about the animal world. They will learn more about the habitats, eating habits, and behaviors of animals. Using these models, children will have the opportunity to depict animals, reproduce their sounds, and learn about their interactions.
3. Plant Models - Using models designed to show the structure of plants helps children understand the life and growth process of plants. They will study the roots, stems, leaves, and flowers of plants. With the help of plant models, children

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can understand the process of photosynthesis in plants and how they absorb water and nutrients.

Process Models:

1. Water Cycle - Models designed to demonstrate the process of water collecting, evaporating, and falling back to the earth as rain. This process helps children understand the natural water cycle. They learn how water collects in rivers, lakes, and oceans, then evaporates, rises into the atmosphere, and returns as rain.
2. Plant Growth - The process of seed growth teaches children more about the life and development of plants. This process includes the stages of a seed being planted in the soil, receiving water and sunlight, and developing a plant's roots and stem. Children develop patience and caring skills by observing the growth of plants.
3. Agricultural Processes - Planting and harvesting processes help children learn about agricultural life. They learn the processes of planting crops, caring for plants, harvesting and preparing products. These processes help children understand the importance of agriculture, the process of food production and interaction with nature.

Here are examples of wall-mounted, table-mounted and floor-mounted models in preschool education according to their location:

Wall-mounted models:

1. Magnetic wall-mounted board: Children can play with magnetic letters, numbers and pictures. Very convenient for saving space in the classroom.
2. Wall-mounted game panel: Panels with various interactive elements (e.g. gears, mazes, shapes) develop children's fine motor skills and problem-solving skills.
3. Wall-mounted bookshelf: Convenient for storing and displaying children's books.

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4. Wall-mounted puppet theater: Children can create their own stories and role-play.
5. Wall-mounted weather station: Children can observe and learn about weather conditions.

Table-mounted models:

1. Table-mounted sandbox: Children can play with sand, make shapes and build various structures.
2. Table-mounted color boxes: For learning, classifying and mixing colors.
3. Table-mounted mosaic: Children can create various pictures from mosaic elements.
4. Table-mounted constructors: Lego, wooden constructors, magnetic constructors, etc. develop children's spatial thinking and engineering skills.
5. Tabletop microscope: Children can magnify and study small objects.

Floor-mounted models:

1. Floor-mounted soft constructors: Children can build various structures from large blocks.
2. Floor-mounted maze: Children can navigate the maze and solve problems.
3. Floor-mounted dollhouse: Children can play with dolls, create stories, and role-play.
4. Floor-mounted highway: Children can play with cars, build roads, and learn traffic rules.
5. Floor-mounted children's kitchen: Children can feel like a chef, prepare meals, and play role-playing games.

These models provide opportunities for the comprehensive development of children in preschool institutions. With their help, children can learn through play, develop their creative abilities, and acquire social skills.

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CONCLUSION

In conclusion, the problem of forming children's research and creative skills related to nature is not only one of the urgent problems of modern education today, but also in ancient times this issue has been the focus of attention of scholars and thinkers. In particular, their ideas that "education should be carried out in harmony with nature" have not lost their relevance for today. Therefore, teaching such ideas to the younger generation and developing their research and creative skills related to nature is one of the important tasks of pedagogy

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