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INTRODUCING CHILDREN OF UPPER-KINDERGARTEN AGE TO THE SIZE OF OBJECTS AND MEASUREMENT THROUGH DIDACTIC GAMES

In the modern educational space, preschool education plays an important role in forming the foundations of future learning activities, as well as in the development of children's intellectual, sensory, speech, and social skills. One of the key areas is the formation of elementary mathematical concepts, particularly those related to the size of objects and methods of its measurement, which lay the groundwork for further acquisition of mathematical knowledge in school [1; 2].

Children of senior preschool age are capable not only of perceiving size as a property of an object, but also of comparing, classifying, and measuring it using both conventional and standard units. However, the effectiveness of this process largely depends on methodological approaches, forms of content presentation, and the level of children's motivation [3; 4].

The *aim of the study* is to theoretically substantiate and experimentally verify the effectiveness of didactic games as a means of forming ideas about the size of objects and methods of its measurement in senior preschool children.

To achieve this aim, the following *objectives* have been defined:

1. To analyze psychological, pedagogical, and methodological literature on the problem of forming elementary mathematical concepts in preschool children.
2. To clarify the essence and structure of children's understanding of size as a mathematical concept.
3. To identify the pedagogical potential of didactic games in the process of forming ideas about size and its measurement.
4. To develop and implement a system of didactic games aimed at improving children's understanding of size and measurement.
5. To experimentally test the effectiveness of the proposed methodology in the educational process of a preschool institution.

The *research hypothesis* is based on the assumption that the process of forming ideas about the size of objects and methods of its measurement in senior preschool children will be more effective if:

- didactic games are systematically integrated into the educational process;
- the content of the games reflects real-life situations and includes practical measurement activities;
- children are provided with opportunities for active exploration, comparison, and independent decision-making;
- the educational environment supports sensory experience and cognitive engagement.

One of the most effective means of introducing children to mathematical concepts is the didactic game—a form of organizing learning activities that combines cognitive engagement, emotional involvement, motor activity, and speech development. Through play, a child not only acquires knowledge but also learns to think, analyze, draw conclusions, and act independently [5; 6].

The relevance of the topic is defined by several factors:

- the need to update methods of mathematical development of preschool children in accordance with the Basic Component of Preschool Education [1];
- the necessity of integrating play-based forms into the educational process to ensure naturalness and accessibility [2];
- the importance of developing ecological and sensory competence through practical interaction with environmental objects [6];
- the focus on a competence-based approach, which implies not only knowledge acquisition but also the ability to apply it in real-life situations [1].

The experimental work aimed at verifying the effectiveness of using didactic games in forming senior preschool children's understanding of the size of objects and methods of its measurement was conducted in a preschool education setting and included three stages: ascertaining, formative, and control.

At the *ascertaining stage*, the initial level of children's understanding of size and measurement was diagnosed. The assessment focused on children's ability to compare objects by length, width, height, and volume; use comparative vocabulary (longer–shorter, wider–narrower, etc.); apply conditional measures; and demonstrate basic measurement skills. The results indicated that a significant number of children had a fragmented understanding of size as a property of objects, experienced difficulties in using measurement tools, and showed limited ability to apply their knowledge in practical situations. Most children relied on visual comparison rather than purposeful measurement and often lacked consistency in their reasoning.

During the *formative stage*, a system of specially designed didactic games was implemented. These games were aimed at developing children's ability to compare, classify, and measure objects using both non-standard (e.g., blocks, sticks, strings) and standard units. The game activities were organized in a gradual and systematic manner, moving from simple comparison tasks to more complex measurement situations integrated into plot-based contexts (e.g., "Build a bridge," "Help the tailor," "Measure for construction"). Special attention was paid to involving children in practical actions, encouraging independent decision-making, and fostering verbalization of their actions and conclusions.

The use of didactic games significantly increased children's engagement and motivation. They actively participated in problem-solving situations, demonstrated interest in measuring objects, and more frequently used appropriate mathematical vocabulary. The integration of sensory experience, movement, and communication within the game process contributed to deeper understanding and retention of mathematical concepts.

At the *control stage*, repeated diagnostics were conducted to assess changes in the level of children's mathematical development. The results demonstrated positive dynamics across all assessed indicators. Children showed improved ability to:

- consciously compare objects using specific parameters (length, width, height, volume);
- apply both non-standard and standard measurement units more accurately;
- explain their actions and justify conclusions;
- transfer acquired knowledge to new situations.

A noticeable increase was observed in the number of children demonstrating a high and sufficient level of understanding, while the proportion of children with a low level significantly decreased. This confirms the effectiveness of the proposed methodology.

The obtained results are consistent with modern pedagogical approaches that emphasize the importance of play-based learning in early childhood education. Didactic games create favorable conditions for integrating cognitive, emotional, and practical aspects of learning, which is particularly important for preschool children. The findings also support the idea that mathematical development at this stage should be closely connected with real-life experiences and active exploration.

Thus, the study confirms that systematic use of didactic games contributes to the formation of a holistic understanding of size as a measurable characteristic, enhances children's cognitive activity, and ensures better readiness for further mathematical learning at school.

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