

THE EFFECTIVENESS OF THE USE OF DIDACTIC GAMES AND INTERACTIVE
TECHNIQUES IN THE DEVELOPMENT OF MATHEMATICAL THINKING OF
ELEMENTARY STUDENTS

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Abstract. This article analyzes the theoretical and practical aspects of using didactic games and interactive methods in developing primary school students' mathematical thinking. During the study, games such as "Mathematical Domino," "Mosaic," "Quick Calculation," as well as interactive methods like "Brainstorming," "Cluster," and "Advertisement" were applied. The effectiveness of these approaches was identified through observations and comparative analysis. The findings indicate that didactic games and interactive methods foster students' independent thinking, quick calculation, and logical reasoning skills, while also significantly increasing their interest in mathematics.

Keywords: mathematical thinking, didactic game, interactive method, primary education, creative thinking.

Introduction. In the process of globalization today, new tasks are emerging before the educational system. In the process of primary education in particular, the formation of independent thinking, logical thinking and creative approach in students is one of the important issues. In this regard, the use of modern pedagogical technologies, in particular didactic games and interactive techniques, in the teaching of mathematics is an urgent issue.

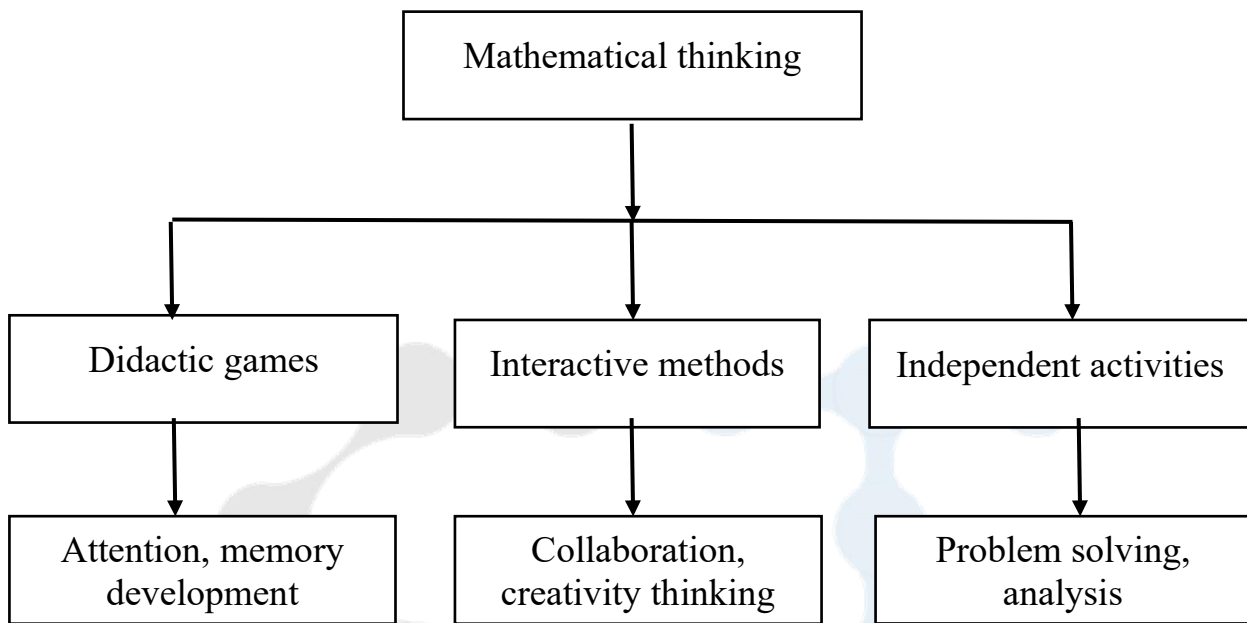
In international experience (research from leading universities such as Harvard, Stanford, Cambridge), game-based teaching in primary education has been noted to increase students' motivation to acquire knowledge, develop their creative thinking, and lead to the formation of solid knowledge [1,5].

In Uzbekistan, too, in recent years, the trend of modernizing education, studying advanced foreign experience and the widespread use of interactive techniques in the process of adaptation to national traditions has been increasing. Therefore, this article analyzes the scientific and theoretical and practical foundations of didactic games and interactive techniques in the development of Mathematical Thinking of Primary School students.

Theoretical part

The concept of Mathematical Thinking.

Mathematical thinking is the ability to draw logical conclusions based on numbers, forms, connections and laws. Psychologist scientists J. Piaget and L. Maathematical thinking is the ability to draw logical conclusions based on numbers, forms, connections and laws. Psychologist scientists J. Piaget and L.S. In the studies of the vygotskys, it was noted that the thinking of young ch.



The primary school period (7-10 years) is one of the most important periods in the development of children's thinking. At this stage, through didactic games and interactive techniques, it is possible to master mathematical concepts in an easier, more interesting and effective way.

Scientific basis of didactic games.

Didactic play is a method based on the form of play of teaching, which is of interest to the process of acquiring knowledge in children. Through games primary school period (7-10 years) is one of the most important periods in the development of children's thinking. At this stage, through didactic games and interactive techniques, it is possible to master mathematical concepts in an easier, more interesting and effective way.

Scientific basis of didactic games.

Didactic play is a method based on the form of play of teaching, which is of interest to the process of acquiring knowledge in children. Through games:

- attention and memory develops;
- fast thinking skills are formed;
- * mathematical knowledge is strengthened through life examples.

For example, "mathematical domino", "which number is large?", Games like "fast computing" develop the skill of working on numerical expressions in younger students [2,3].

Advantages of interactive techniques.

Interactive methods are a set of methods aimed at increasing student activity, ensuring active participation in the lesson. Their advantages include:

- directs knowledge to independent search and analysis For example, "mathematical domino", "which number is large?", Games like "fast computing" develop the skill of working on numerical expressions in younger students [2,3].

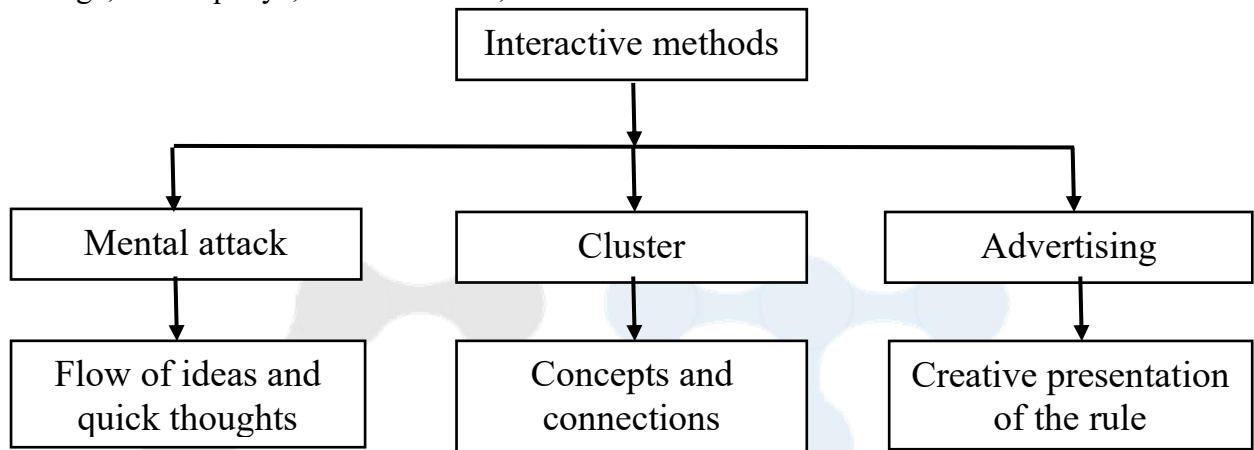
Advantages of interactive techniques.

Interactive methods are a set of methods aimed at increasing student activity, ensuring active participation in the lesson. Their advantages include:

- directs knowledge to independent search and analysis;
- develops teamwork skills;

- develops creative thinking.

Interactive techniques widely used in elementary education include “mental attack”, “cluster”, “advertising”, “blitz-query”, “Zinama-zina”, etc.



Practical part.

Application of didactic games.

"Mathematical domino" -students Place Number cards based on the sequence. This exercise increases their ability to apply the things in order.

"Mosaic" - imagination and spatial thinking develop by making various figures using geometric shapes.

"Quick calculation" - students solve examples in a short time. Ractical part.

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"Mosaic" - imagination and spatial thinking develop by making various figures using geometric shapes.

"Quick calculation" - students solve examples in a short time. This game develops quick thinking and concentration.

Application of interactive techniques.

"Mental attack" - when solving a specific issue, students make their own proposals, and the most optimal solution is chosen.

By branching out "cluster" – mathematical concepts, students understand their interdependence.

"Advertising" - readers prepare "advertising" in a creative way about a mathematical concept or rule.

Results of the experiment.

Observations in elementary grades showed that:

In classes where didactic games were regularly used, 78% of students were able to perform math tasks quickly and accurately [6,7].

In classes using interactive methods, 65% of students expressed an independent opinion, while in traditional classes this figure was 32%. Results of the experiment.

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It has been observed that the level of interest in mathematics increased from 40 percent to 75 percent over a period of 2 months.

Analysis and discussion.

The effectiveness of the game and interactive techniques is that they involve students in the course of the lesson as an active participant, not just a learner. The child, who is more of a listener in traditional lessons, switches to an active search in game and interactive methods [9].

Comparative analysis shows that in classes where interactive methods are used:

- the student concentration indicator is 1.5 times higher effectiveness of the game and interactive techniques is that they involve students in the course of the lesson as an active

Conclusions and recommendations.

It was observed that the use of didactic games and interactive techniques in the development of Mathematical Thinking of elementary students has high efficiency. Therefore, the following recommendations can be put forward:

Using at least one didactic game or interactive method in each math lesson.

The use of simple and fun games, suitable for the age characteristics of readers.

Organization of methodological manuals and seminars for teachers.

Develop independent thinking and creative approach in students through game and interactive techniques.

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