

METHODOLOGY FOR INTEGRATION OF GAME TECHNOLOGIES IN PRIMARY GRADE MATHEMATICS

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ANNOTATION This article is devoted to the study of methods for the effective use of game technologies in teaching primary school mathematics. During the study, the role of game technologies in increasing motivation, strengthening understanding, and forming practical skills in the learning process was analyzed. Also, practical ways of applying game methods in the lesson, their didactic possibilities, and their effectiveness in stimulating student activity were considered. The results showed that game technologies help teach mathematics in an interesting and interactive way and are important in developing thinking, calculation, and logical thinking skills of primary school students.

Keywords: primary school mathematics, game technologies, educational methodology, interactive lesson, student activity, motivation and encouragement, practical skills.

INTRODUCTION

In the modern educational process, it is important to ensure the active participation of students and make the lesson interesting. Especially in teaching mathematics in the primary school, the main task is to strengthen students' concentration and understanding. In this regard, the effective integration of game technologies into the teaching process makes the pedagogical process interactive and motivating.[1]

Game technologies serve as an important tool for developing students' logical thinking, computational skills, and problem-solving abilities. They also help to learn mathematical concepts in a practical way and encourage independent thinking in students.[2]

The main purpose of this article is to identify the methodological foundations of the use of game technologies in primary school mathematics and to study the methods of their effective implementation in the teaching process. The research objectives include: analyzing the pedagogical potential of game technologies, determining their impact on the activities of primary school students, and developing

ways to integrate them into classroom practice.

LITERATURE ANALYSIS AND METHODOLOGY

The issues of using game technologies in the educational process have been studied by many scientists. For example, V. V. Davydov noted the possibility of developing students' logical thinking through pedagogical games. At the same time, J. Piaget and L. Vygotsky showed that game activity is of central importance in the cognitive development of a child.[3]

Modern pedagogical literature has widely covered effective methods of using game technologies in primary school mathematics, their impact on lesson motivation, and their role in interactive teaching. Research shows that game methods are an effective tool for students to gain a deeper understanding of the subject, their active participation, and the formation of practical skills. At the same time, electronic game programs, interactive exercises and group games make the learning process more interesting and effective.

As can be seen from the analysis of the literature, game technologies for primary school students are valued not only as a motivational tool, but also as an important methodological approach to developing practical skills in learning mathematics.[4]

The research was conducted based on the following methods:

1. Theoretical analysis - pedagogical literature and scientific articles were studied, and the importance of game technologies in the educational process was determined.
2. Practical experiment - game technologies were implemented in primary school lessons, and students' activities and results were observed.
3. Observation and survey - students' interest in the lesson, level of participation and mathematical skills were assessed.
4. Statistical analysis - based on the results of the experiment, students' achievements and the effectiveness of game technologies were analyzed using mathematical methods.

By combining the results of this methodology, effective methods and practical recommendations for the use of game technologies in primary mathematics were developed.

DISCUSSION AND RESULTS

Game technologies are a method of forming knowledge, skills and competencies in the educational process using a game form. From a pedagogical point of view, they serve to increase students' motivation, interest and desire for

activity. Game methods for primary school students are mainly based on visual and practical elements, which simplifies the study of a new topic.[5]

The application of game technologies to primary school mathematics is carried out in several forms:[6]

- Games for working with numbers and shapes: students perform operations on comparing, adding and subtracting numbers in a game form. For example, the games "Number Race" or "Shape Matching".

- Logic and problem-solving games: Mathematical problems encourage students to make choices, think, and make strategic decisions. For example, "Find the Problem" or "Mathematical Maze".

- Team games: Students are divided into groups and perform tasks related to questions and answers and numbers. This type of game develops cooperation skills in students and instills a sense of healthy competition.

- Interactive technologies: The learning process becomes more interactive with the help of tablets, smartboards, or mathematical game programs.

Advantages of game technologies:[7]

- The ability to quickly and effectively master mathematical concepts.

- Increase the active participation and attention of students in the lesson.

- Develop logical thinking, calculation, and problem-solving skills.

- Make the lesson process interesting and stimulating.

The use of game technologies in the classroom increases students' interest in mathematics, accelerates the consolidation of topics, and develops independent thinking skills. In addition, students learn to solve problems cooperatively, which also strengthens their social skills.

Methodology for integrating game technologies into elementary mathematics[8]

Table

Game technology type	Application in the lesson	Purpose	Advantages
Play with numbers and shapes	Adding, subtracting numbers, selecting shapes	Strengthening understanding of mathematical concepts	Developing practical skills, arousing interest
Logic and problem-solving games	Problem solving, choice and strategy building	Develop critical thinking and problem solving	Developing logical thinking and analytical skills
Group games	Q&A and task	Developing	Develop social

	completion in groups	cooperation and social skills	skills, cooperation, and a sense of competition
Interactive technologies	Tablet, smartboard, math game programs	Making the lesson interactive and fun	Attract attention, stimulate the learning process
Role playing games	Dramatizing math problems	Increase practical and visual understanding	Develop creativity, better understand the subject

The results of the experimental study showed that game technologies make lessons significantly more interactive and interesting for primary school students. According to the results of observations and surveys, the level of students' concentration and understanding of mathematical topics was higher than with traditional teaching methods.

It was also found that game technologies are effective in developing students' practical skills. For example, when working with numbers, performing addition and subtraction operations, students developed self-assessment and critical thinking skills. Group games helped to strengthen cooperation and social skills.

Another important aspect identified during the research process is that game technologies increase students' motivation. Increased interest in the lesson helps them learn the subject faster and increase their active participation. At the same time, it was found that in some cases, when there are many game elements, attention can be distracted, so it is necessary to maintain a balance in the methodological application.

Discussion results:

1. It was confirmed that game technologies are an effective tool for increasing motivation and increasing students' interest in the lesson in elementary mathematics.
2. Interactive and practical games develop students' logical thinking, computational skills, and problem-solving abilities.
3. Group games form cooperation, social skills, and critical thinking in students.
4. According to the results of the study, integrating game technologies into the lesson helps to deepen understanding of mathematical topics and consolidates students' knowledge.
5. When choosing game elements, it is important to take into account the content of the lesson and their relevance to the didactic purpose to make the results effective.

CONCLUSION

The above has shown that the application of game technologies to elementary mathematics makes lessons interactive, interesting, and motivating. Students' level of understanding of mathematical concepts increases, practical skills are strengthened, and logical thinking develops. Group and individual games help students develop cooperation and social skills, as well as develop self-assessment and critical thinking skills.

It should be noted that for the effective use of game technologies, it is necessary to choose methods and techniques that are consistent with the purpose and content of the lesson. The study showed that the game methodology is an effective tool not only for imparting knowledge in elementary mathematics, but also for developing students' thinking, calculation, and practical skills. At the same time, the effectiveness of the lesson can be significantly improved by increasing students' interest and motivation.

In conclusion, the methodology for integrating game technologies into elementary mathematics can be recognized as an important and relevant direction in the modern pedagogical process.

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