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DIDACTIC GAMES AS A MEANS OF DEVELOPING STUDENTS' MOTIVATION FOR COGNITIVE ACTIVITY

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Abstract
This article discusses the task of increasing students' interest in mathematics through the use of gaming educational technologies. The expected learning outcomes of using didactic games are presented.

Keywords: Teaching mathematics, game, didactics, interest, mental development.

Introduction

“The subject of mathematics is so serious that it is useful not to miss the opportunity to make it a little entertaining” said Blaise Pascal. Indeed, mathematics is one of the school subjects that requires seriousness, hard work, attentiveness and observation on the part of students. But all children are different; some find mathematics interesting, while others find it a boring science. The increased mental workload in a mathematics lesson makes us to think about how to arouse students’ interest in the material being studied, and at the same time keep them active and attentive throughout the lesson.

The success of a teacher in the learning process depends primarily on teaching methods and the ability to correctly structure educational activities. An accessible, understandable presentation of the material, as well as the teacher’s willingness to answer any student question on the topic of the lesson, will help to captivate students with the subject. Also it is important to use didactic games in mathematics lessons.

The game has two components: activity and condition, which can be filled with different “contents” and make one game completely different from the other, but nevertheless these two components are visible in every game. The conditional nature turns the activity into a game. If we consider the activity aspect without

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the conditional, then the result is nothing more than work or exercise. Suppose two people throw a ball to each other. This is an exercise, but if you surround this exercise with conventions, it becomes a game. That is, you stretch a net between the players, stipulate the rules for counting points - and a simple exercise turns into a sports game, a conditional component without activity appears when we perceive works of art

Based on the above scheme, a game can become didactic if the material, or some part of it, can form the basis of the content of the game: usually educational material becomes the content of the conditional component, and developmental material becomes the content of the activity component. Exercises and tasks from school textbooks are not a game, since children are often not interested in the content of the task or exercise, but if more importance is given to entertainment, then the educational task becomes a game task, and sometimes turns into a real game.

A didactic game is a modern and recognized method of teaching and upbringing, which has educational, developmental and nurturing functions that operate in organic unity. This term emphasizes its pedagogical orientation. A distinctive feature of a didactic game from ordinary game is the stated learning goal and its final result. In other words, during lesson theacher creates collective, purposeful educational activity atmosphere , where each student or group of students is united in achieving the main goal and strives for a common result, a win.[1]

The essence of the didactic game is that students solve mental problems presented to them in an entertaining way, find solutions by themselves, while overcoming certain difficulties. The student perceives a mental task as a practical, playful one; it increases his cognitive activity

In a didactic game, the ability to obey the rules is formed, since the success of the game depends on the accuracy of compliance with the rules. As a result, games influence the formation of voluntary behavior and organization. Most of this kind of games are collective. The presence of rules creates conditions for children's self-organization, and this is the basis for the formation of community relations in the game.

Didactic games can be widely used as a means of teaching, education and development. The main educational impact belongs to didactic material, game actions, which, automatically lead the educational process, directing the activity of children in a certain way.

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Based on the characteristics of the subject of mathematics, one should distinguish between competitive games and olympiad games. In the first case, victory is ensured mainly due to the speed of calculations and transformations, but without compromising the quality of the task; in the second, victory is ensured mainly due to the quality of solutions to problems of increased difficulty or proof of complex theorems. The first ones are useful for developing automaticity of actions, the second ones are useful for instilling a serious attitude towards mathematics. [1]

Ultimately, in the game forms of the lesson, the ideas of joint cooperation, competition, self-government, education through the team, introducing children to scientific and technical creativity, instilling everyone's responsibility for learning and discipline in the classroom, and most importantly, encouraging them to learn mathematics are implemented.

The mathematical side of the content of the game should always be clearly brought to the fore: only then the game will fulfill its role in the mathematical development of children and in nurturing their interest in mathematics.

Didactic games are often associated with certain plots, which are very simple and designed for children's imagination. Sometimes the plots are suggested by the name of the game: "Magic Square", "Individual Lotto", "Number Mill", etc. Many educational games contain a question, a task, a call to action, for example: "Who is faster?" etc. A significant part of the games makes it possible to make a generalization, to realize the rule that has just been learned, to consolidate, and to repeat the acquired knowledge in the system, in new connections, which contributes to a deeper assimilation of what has been learned.

"A didactic game is a means of mental development, since various mental processes are activated during the game." Solving problems posed by games requires concentrated attention, active mental activity, comparison and generalization.[2]

In the didactic game, a dual character is clearly visible: when explaining a game to children, the main thing is the game itself, and for the teacher, the main thing is the didactic result (the methodological significance of the game). For children, a fascinating convention makes the monotonous activity of assimilation, repetition, consolidation or assimilation of information invisible, emotionally positively colored and exciting.

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Thus, the role of the didactic game in the development of motivation for the cognitive activity of students is very great; its psychological analysis in the learning process shows that:

- the game helps schoolchildren to liberate their imagination, master cultural values and develop certain skills;
- students, being involved in gaming activities, satisfy their learning needs, learn to interact with other people;
- the game helps to express children's own individuality and get closer to their internal resources, which in the process of gaming activity become part of thinking, imaginative and logical thinking, the intelligence of each child;
- the student enjoys the game;
- the game ensures the accessibility of studying program material;
- activates the mental activity of students, the attention of children, creative forces and cognitive activity of the pupil.

There are different types of didactic games:

- lesson-travel;
- fairy tale lesson;
- riddle games;
- games "Field of Miracles", "Who Wants to Be a Millionaire?", "Alphabet".

During a travel lesson or a fairy tale lesson, real events are reflected, but they are presented colorfully, enigmatically, mysteriously. Children are immersed in a new world of the unknown. The pedagogical focus of riddle games or games similar to television programs is to test the knowledge of pupil. Children begin to remember, analyze previously covered material, guess, invent, and draw conclusions. All this activates the mental abilities of students, and also arouses their interest, curiosity, and joy.[4]

Thus, game situations increase the desire of pupil to learn, gain new knowledge, and make the perception of the material more entertaining and emotional. Carrying out didactic games in mathematics lessons increases children's interest in the subject, adds variety to the lesson, reduces fatigue, and develops attention and observation skills in them. And also game situations influence the improvement of the quality of knowledge, skills and abilities of students, the development of their mental activity.

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