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ORGANIZING MATHEMATICS LESSONS THROUGH GEOGEBRA AND OTHER MULTIMEDIA SOFTWARE

No`monova Kamolaxon Abdug`opir qizi
Student of Mathematics,
Andijan State Pedagogical Institute
E-mail: nomonovakamola07@gmail.com

ABSTRACT

This scientific article covers the pedagogical and didactic foundations of using GeoGebra and other multimedia programs in teaching mathematics. The role of multimedia technologies in increasing students' cognitive activity, visual perception of topics, and the formation of independent thinking skills is scientifically analyzed. Also, a methodology for effectively organizing mathematics lessons based on multimedia is proposed.

Keywords: GeoGebra, multimedia programs, information technologies, mathematics education, innovative pedagogy, interactive education.

INTRODUCTION

In today's era of globalization and digitalization, integrating innovative technologies into the education system has become a crucial task. Specifically, the use of information and communication technologies and multimedia software in teaching Mathematics is becoming a vital factor in enhancing the quality of education. While certain topics may be challenging for students to grasp through traditional teaching methods, these difficulties can be effectively overcome using multimedia tools.

From this perspective, providing a scientific basis for the role and significance of GeoGebra and other multimedia software in mathematics education is a matter of great relevance.

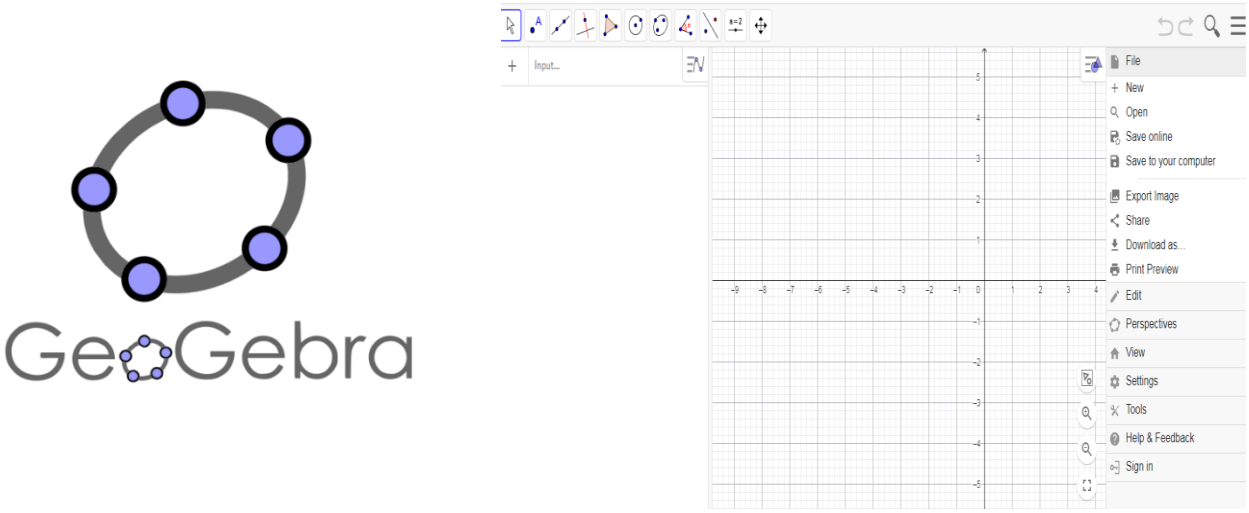
MAIN BODY

1. Didactic Capabilities of the GeoGebra Software

GeoGebra is a dynamic mathematics environment that integrates elements of algebra, geometry, calculus, and statistics. Through this software, students have the opportunity to construct geometric shapes, dynamically modify function graphs, and conduct experiments on mathematical models. With GeoGebra, we can visualize formulas through diagrams and have the capability to create various functions and geometric problems ourselves. This application can be accessed via the following link:

https://www.math10.com/ru/geometria/geogebra/fullscreen.html

The main advantages of the GeoGebra software are as follows:



-explaining topics in a visual and interactive manner;
-developing students' logical and critical thinking skills;
-ensuring the harmony between theory and practice;
-forming independent learning skills.

These capabilities facilitate a deeper mastery of mathematical knowledge among students. By applying the given tasks in practice, opportunities arise to memorize and perfectly learn examples and problems.

2. The Role of Other Multimedia Software in Mathematics Lessons

Alongside GeoGebra, other multimedia software can be effectively utilized in mathematics education. These include:

Desmos — for drawing function graphs quickly and accurately;
Microsoft Excel — for analyzing statistical data and creating diagrams;
PowerPoint — for presenting topics systematically and visually;
Electronic textbooks and online platforms — significant for organizing independent education.

These multimedia tools increase student engagement during the lesson process and help reinforce knowledge.

3. Methodology for Organizing Mathematics Lessons Based on Multimedia

It is advisable to organize lessons using multimedia software based on the following stages:

Motivation Stage – introducing the topic through videos, animations, or real-life examples.
Acquisition of New Knowledge – visual demonstration of concepts using GeoGebra and other software.
Reinforcement Stage – interactive exercises and practical tasks.
Control and Evaluation – checking knowledge through electronic tests and online assessment tools.

This methodology develops students' competencies in independent work, analysis, and drawing conclusions.

CONCLUSION

In conclusion, organizing mathematics lessons through GeoGebra and other multimedia software increases educational efficiency, strengthens students' interest in the subject, and serves to form individuals who meet modern educational requirements. An educational process based on multimedia technologies is considered a vital innovative direction in teaching mathematics.

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