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REVIEW OF METHODS THAT FACILITATE THE TEACHING OF MATHEMATICS TO STUDENTS

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Abstract: Mathematics in the system of higher education is traditionally considered one of the most difficult disciplines to perceive. The effectiveness of its teaching directly depends on the chosen methodology, the ability of the teacher to adapt to different levels of training of students and the use of modern pedagogical technologies. This thesis considers relevant methods that help to facilitate the assimilation of mathematical material: visualization of concepts, use of digital resources, contextual learning, modular approach and elements of gamification. An analysis of the effectiveness of various approaches is provided and practical recommendations for teachers are offered.
Keywords: teaching mathematics, students, teaching methods, visualization, digital technologies, active learning.

INTRODUCTION

Modern higher education places ever higher demands on students' mathematical training. However, many students face difficulties in mastering even basic mathematical concepts. The reasons are the abstract nature of the discipline, the diversity of formulas, the need to operate with logical constructions and simultaneously solve applied problems. These difficulties require flexibility, innovative thinking and mastery of various teaching methods from the teacher. It is possible to facilitate the perception of mathematical material not by simplifying it, but by means of the correct methodological approach, which will combine traditional and modern forms of teaching.

MAIN PART

One of the most effective methods of teaching mathematics is the visualization of abstract concepts. Many students perceive information primarily through visual images, and visual models allow them to better understand such complex topics as limits, integrals, multidimensional functions, etc. The use of graphs, diagrams, dynamic visualizations through programs such as GeoGebra, Desmos, Mathematica allows the student not just to mechanically apply formulas, but to understand the relationships between variables and results. Visualization is especially important in the topics of analytical geometry, linear algebra and probability theory [2].

The next important area is the integration of digital educational platforms and interactive tools. Video lessons, online tests, interactive lectures, automated simulators - all this contributes to the individualization of the learning process. For example, the Khan Academy platform or the Russian resource "Foxford" offer adaptive programs in which each student can advance at their own pace. In addition, such resources allow the teacher to promptly receive feedback, track errors and correct the material in a timely manner.

One of the effective ways to increase motivation to study mathematics is contextual learning, in which mathematical concepts are presented in an applied, realistic form. Thus, teaching statistics

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can be based on the analysis of demographic or economic data, linear programming problems - on logistics or production cases. Linking the material to the student's future profession increases his interest and helps to realize the practical value of mathematical knowledge [3].No less effective is the modular approach, in which the educational material is structured in the form of separate thematic blocks with clear goals and assessment criteria. Each module includes a theoretical part, practical tasks, project work and self-assessment. This format increases the manageability of the learning process, reduces anxiety before the final assessment and develops independent learning skills in students.

In addition, in recent years, gamification of the educational process has been actively introduced, that is, the use of game elements: point systems, difficulty levels, quests, competitions. For example, organizing a tournament for solving non-standard problems or online mathematical quizzes can increase student engagement and develop team thinking. This method works especially well in groups with a mixed level of preparation, where the game dynamics help students learn from each other.

It is also worth noting the importance of a differentiated approach that takes into account different levels of mathematical preparation and cognitive styles of students. It is important for the teacher to create educational tasks of varying complexity, offer additional resources for advanced students and consult with those who are experiencing difficulties. This contributes to the equalization of educational opportunities and forms a sustainable interest in the discipline among most students [4].

CONCLUSION

Mathematics, as a basic discipline in technical and natural science education, requires constant methodological updating. A review of modern methods shows that the effectiveness of teaching directly depends on the degree of adaptation of the educational process to the needs of students. A combination of visual, digital, contextual and game approaches, supported by individualization and active feedback, can significantly improve the level of assimilation of mathematical knowledge. The teacher should not only be a bearer of knowledge, but also an architect of the learning environment in which the student feels motivated, confident and capable of analytical thinking.

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