Prospects for the use of technology in education in teaching physics

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Abstract: This article discusses the creation of modern pedagogical systems to ensure the quality of teaching physics in teaching physics. Traditional and interactive teaching methods are compared, and the impact of the document on the level of knowledge of students, their practical appearance, activity in the lesson and their attitude to science is studied. In the research process, pedagogical observation, test analysis, evaluation and statistical methods were used. The research confirms the effectiveness of modern, interactive and technology-based teaching in teaching physics.

Keywords: physics education, quality of education, interactive methods, pedagogical approach, comparison, diagram, efficiency

In today's conditions of globalization and scientific and technological progress, the requirements for the education system are changing radically. The issue of the quality of education is especially important in teaching fundamental sciences such as physics. Physics plays an important role in the formation of logical thinking, analysis, problem solving and scientific outlook in students. At the same time, practice shows that traditional teaching methods in many cases cannot ensure sufficient student activity. As a result, students are limited to memorizing theoretical knowledge and face difficulties in applying it in practice. Therefore, the introduction of modern pedagogical approaches to teaching physics, their comparison with traditional methods and scientific analysis of their effectiveness are urgent issues.

This study was conducted on the example of senior classes of a comprehensive school. In the research process following methods were used:

• pedagogical observation;
• diagnostic tests;
• comparison and comparative analysis;
• statistical processing;
• visual analysis through diagrams.

The experiment was organized into two groups:

Group A - received education based on traditional teaching methods;

Group B - received education based on interactive, practical and information technology-based methods.

Comparison of approaches to teaching physics

Features of the traditional approach. In the traditional approach, the lesson is organized mainly in the center of the teacher. The teacher appears as a source of knowledge, and the student plays the role of a listener. The main disadvantage of this approach is the limitation of independent thinking and creative activity of students.

Advantages of the modern (interactive) approach. The modern approach makes the student an active participant in the educational process. In it:

- laboratory and experimental work;
- problem situations;
- group work;

- virtual laboratories and simulations are widely used.

Based on the results, the proposals were developed:

• widespread introduction of interactive methods in physics lessons;

• use of virtual laboratories and digital resources;

• organization of lessons based on a differentiated approach;

• regular improvement of teachers' professional qualifications;

• orientation of the assessment system to competence.

In conclusion, modern pedagogical approaches to teaching physics are an important factor in improving the quality of education. The analysis based on comparisons and diagrams has scientifically confirmed that modern methods are more effective than traditional methods. The results of this study have practical significance in improving physics education.

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