WORLD CONFERENCE ON STUDENT - CENTERED LEARNING APPROACHES

MODERN PEDAGOGICAL TECHNOLOGIES IN TEACHING MATHEMATICS

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Abstract: This article analyzes the importance of modern pedagogical technologies in teaching mathematics and their impact on improving the quality and effectiveness of education. The study examines interactive methods, information and communication technologies, digital educational platforms, problem-based learning, and innovative approaches used in mathematics classes. The article also highlights the role of modern pedagogical technologies in developing students' logical thinking, independent learning skills, creativity, and problem-solving competencies. Practical recommendations for improving mathematics teaching through innovative educational technologies are presented.

Аннотация: В данной статье анализируется значение современных педагогических технологий в преподавании математики и их влияние на повышение качества и эффективности образования. Рассматриваются интерактивные методы, информационно-коммуникационные технологии, цифровые образовательные платформы, проблемное обучение и инновационные подходы, применяемые на уроках математики. Также освещается роль современных педагогических технологий в развитии логического мышления, самостоятельного обучения, творческих способностей и навыков решения задач у учащихся. Представлены практические рекомендации по совершенствованию преподавания математики на основе инновационных образовательных технологий.

Annotatsiya: Mazkur maqolada matematika fanini o‘qitishda zamonaviy pedagogik texnologiyalarning ahamiyati hamda ularning ta’lim sifati va

samaradorligini oshirishdagi o‘rni tahlil qilingan. Matematika darslarida qo‘llaniladigan interfaol metodlar, axborot-kommunikatsiya texnologiyalari, raqamli ta’lim platformalari, muammoli ta’lim hamda innovatsion yondashuvlar yoritilgan. Shuningdek, zamonaviy pedagogik texnologiyalarning o‘quvchilarda mantiqiy fikrlash, mustaqil ta’lim olish, ijodkorlik va muammoni hal qilish kompetensiyalarini rivojlantirishdagi ahamiyati ochib berilgan. Matematika ta’limini takomillashtirish bo‘yicha amaliy tavsiyalar keltirilgan.

Keywords: Mathematics education, pedagogical technologies, innovative methods, digital learning, interactive teaching, ICT, problem-based learning, educational efficiency.

Ключевые слова: Математическое образование, педагогические технологии, инновационные методы, цифровое обучение, интерактивное обучение, ИКТ, проблемное обучение, эффективность образования.

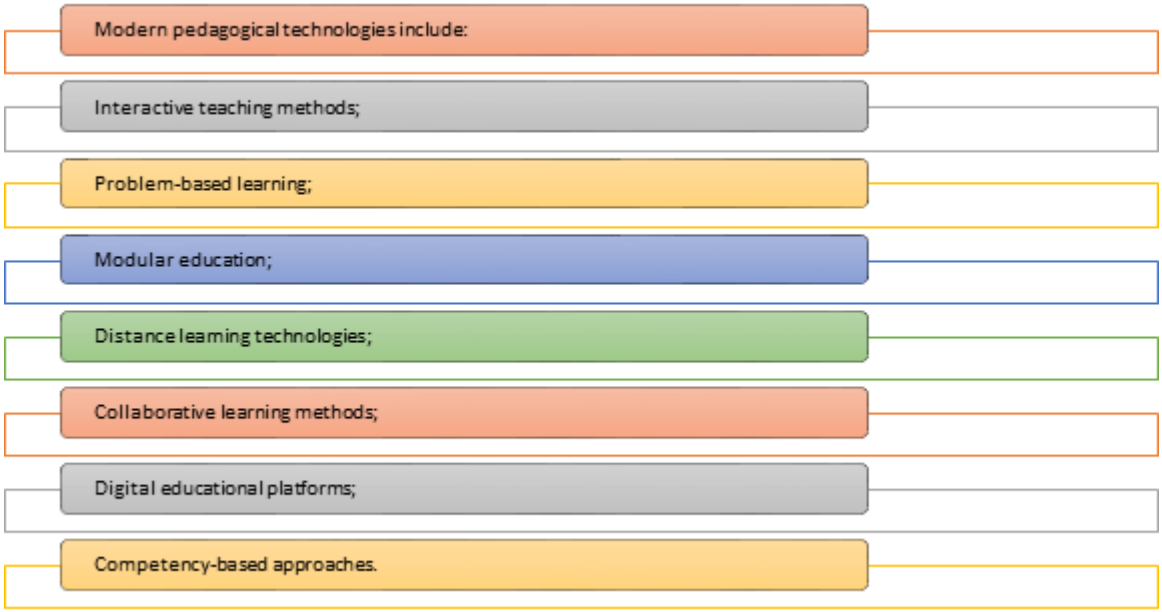
Kalit so‘zlar: Matematika ta’limi, pedagogik texnologiyalar, innovatsion metodlar, raqamli ta’lim, interfaol o‘qitish, AKT, muammoli ta’lim, ta’lim samaradorligi.

Introduction. The rapid development of science and technology in the modern world requires fundamental reforms in the education system. In particular, teaching mathematics through modern pedagogical technologies has become one of the urgent tasks of contemporary education. Mathematics is considered not only a theoretical subject but also an essential tool for developing analytical thinking, logical reasoning, and problem-solving abilities among students.

Traditional teaching methods are gradually being replaced by innovative and learner-centered approaches. Modern pedagogical technologies create opportunities to organize the educational process effectively, increase students’ interest in learning, and improve academic performance. Therefore, integrating advanced teaching technologies

into mathematics education is one of the key priorities in improving educational quality.

Literature Review. Many researchers have studied the role of pedagogical technologies in education. According to educational theorists, innovative teaching methods improve students' independent thinking and cognitive activity. The integration of information and communication technologies into mathematics education increases visualization, accessibility, and interactivity of the learning process.



Researchers emphasize that the effectiveness of mathematics teaching depends largely on the proper selection of teaching strategies and technologies.

The Importance of Modern Pedagogical Technologies in Mathematics Teaching.

Modern pedagogical technologies play an important role in organizing mathematics lessons effectively. Through innovative methods, students become active participants in the learning process rather than passive listeners.

One of the major advantages of modern technologies is the development of

students' critical and logical thinking skills. Interactive methods encourage learners to analyze mathematical problems independently and search for various solutions.

For example, problem-based learning technologies create real-life situations during lessons and motivate students to apply mathematical knowledge practically. This approach enhances students' creativity and analytical abilities.

Interactive Methods in Mathematics Lessons

Interactive teaching methods are among the most effective tools in mathematics education. These Methods include: Brainstorming; Small group discussions; Case-study method; Cluster method;

Debate; Educational games.

Such approaches increase students' engagement and encourage collaborative learning. Interactive methods also help teachers identify students' individual abilities and learning difficulties.

The Role of Information and Communication Technologies (ICT).

ICT tools significantly improve the quality of mathematics education. The use of multimedia presentations, virtual simulations, online testing systems, and educational software enhances lesson effectiveness.

Digital platforms provide opportunities for: Distance learning; Independent study; Visualization of mathematical concepts; Automated assessment; Personalized learning.

Applications such as GeoGebra, Moodle, Kahoot, and Google Classroom are widely used in mathematics teaching. These technologies simplify complex mathematical concepts and make lessons more attractive.

Problem-Based Learning Technology.

Problem-based learning is an innovative educational technology focused on developing students' research and analytical skills. In mathematics lessons, teachers

present problematic situations that require students to think critically and search for logical solutions.

This method: Develops independent learning skills; Improves problem-solving abilities;

Encourages creativity; Increases motivation for learning.

As a result, students gain deeper understanding and practical application of mathematical knowledge.

Competency-Based Approach.

The competency-based approach is one of the important directions of modern education. It focuses not only on theoretical knowledge but also on practical skills and competencies.

In mathematics education, this approach helps students: Apply mathematical knowledge in real-life situations; Develop communication skills; Strengthen analytical thinking; Improve decision-making abilities.

Modern pedagogical technologies support the formation of these competencies effectively.

Discussion. The analysis shows that modern pedagogical technologies positively influence mathematics education. Innovative methods increase students' academic achievement, motivation, and active participation during lessons.

However, successful implementation of these technologies requires: Professional development of teachers; Availability of technical resources; Methodological support; Digital literacy among educators and students.

Educational institutions should create favorable conditions for integrating innovative technologies into the teaching process.

Conclusion. Modern pedagogical technologies are essential for improving the quality and effectiveness of mathematics education. Interactive methods, ICT tools,

problem-based learning, and competency-based approaches contribute to developing students' logical thinking, creativity, and independent learning skills.

The integration of innovative technologies into mathematics teaching ensures active participation of students and improves educational outcomes. Therefore, expanding the use of modern pedagogical technologies in mathematics education remains one of the important tasks of the contemporary education system.

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