EOC
EUROASIAN ONLINE CONFERENCES

ENGLAND CONFERENCE

INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES AND EDUCATION

Google Scholar zenodo OpenAIRE doi digital object identifier

INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES AND EDUCATION: a collection scientific works of the International scientific conference – London, England, 2025. Issue 3

Languages of publication: Uzbek, English, Russian, German, Italian, Spanish

The collection consists of scientific research of scientists, graduate students and students who took part in the International Scientific online conference **«INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES AND EDUCATION»**. Which took place in London , 2025.

Conference proceedings are recommended for scientists and teachers in higher education establishments. They can be used in education, including the process of post - graduate teaching, preparation for obtain bachelors' and masters' degrees. The review of all articles was accomplished by experts, materials are according to authors copyright. The authors are responsible for content, researches results and errors.

MODERN METHODS OF TEACHING MATHEMATICS

Akbarova Husnidakhon Kamoldin qizi
Teacher of Mathematics and Informatics
School No. 2, Uchko'prik District Fergana region

Abstract: Today, in the education system, modern methods that replace traditional approaches in teaching mathematics play an important role in developing students' creative thinking, independent working skills, and logical reasoning. Digital technologies, interactive tools, and problem-based learning methods make it possible to organize mathematics lessons more effectively.

Keywords: mathematics, modern methods, interactive learning, ICT, STEAM, problem-based teaching.

Introduction: Current educational reforms demand the application of innovative approaches in the teaching process. In particular, modern methods that are replacing traditional approaches in teaching mathematics are essential for increasing students' interest in learning, expanding their thinking, and developing practical skills. In traditional teaching, the teacher is the main source of knowledge, and students focus mainly on memorizing and reproducing ready-made information. In contrast, in modern education, students take an active role — they search for knowledge independently, analyze it, and apply it in practice. The teacher's task is to guide, motivate, and create a creative learning environment. Digital technologies, interactive tools, and problem-based teaching methods are widely used in mathematics education. For example, digital platforms such as GeoGebra, Desmos, and Khan Academy visually explain mathematical concepts, helping students understand topics more deeply. Interactive methods — such as "Brainstorming", "Insert", "Cluster", and "Blitz Survey" — actively engage students in the lesson and encourage them to express their opinions freely. Problem-based learning, on the other hand, helps students develop independent thinking, logical analysis, and creativity by providing real-life problem situations.

Problem-based learning is a modern educational approach that develops students' skills in independent thinking, logical analysis, research, and problem-solving. In this method, the teacher does not simply transfer knowledge but acts as a guide and mentor, directing students' cognitive processes. The essence of problem-based learning is that the teacher presents students with a problem situation — a question or task that requires them to analyze previous knowledge, seek new information, and draw logical conclusions. For example, in a mathematics lesson, the question "Why is the sum of the interior angles of a triangle always 180°?" represents a problem situation. While finding the answer, students conduct experiments, analyze

geometric figures, and draw conclusions. Thus, they "discover" the new knowledge themselves.

Interactive methods are teaching techniques aimed at organizing active communication between teacher and students, increasing student engagement, and developing independent thinking skills. The term "interactive" comes from the English word interactive, meaning "mutual action" or "communication-based interaction." Using interactive methods in modern education makes mathematics lessons more dynamic, interesting, and student-centered. Through these methods, students gain the ability to analyze, compare, and apply information rather than simply memorize it. Today, the effective use of information and communication technologies (ICT) in education is one of the most important factors in improving teaching quality. Digital technologies modernize education, support students' independent learning, and present materials in a clearer and more interactive way. In mathematics, ICT tools allow students to visualize complex mathematical concepts, graphs, functions, and geometric shapes dynamically and practically. This visualization enables students to grasp topics more quickly and apply them in real-life situations.

Project-based learning is a modern pedagogical approach that ensures active, independent, and creative participation of students. The learning process is organized around a specific project or real-life problem. This method encourages students to analyze real-world situations, find solutions to problems, and achieve practical outcomes. Here, students are not passive recipients of ready-made knowledge but active participants who search for, create, and apply it. The teacher acts as a leader, facilitator, and consultant.

In recent years, attention has increased toward integrated teaching in education. One such integrative approach is STEAM education, which emphasizes teaching mathematics in connection with other disciplines. The core idea of the STEAM approach is to teach students knowledge not as isolated subjects but as an interconnected system. In doing so, learners combine elements of mathematics, physics, technology, engineering, and art to solve real-world problems.

Conclusion: In the era of globalization and digital technologies, introducing innovative approaches into every level of the education system has become an urgent necessity. In particular, using modern methods in teaching mathematics is crucial for increasing the effectiveness of learning and developing students' independent thinking, analytical skills, and creativity. Traditional teaching methods focus on transferring ready-made knowledge, while modern methods turn the student into an active participant in the learning process. Through problem-based learning, students discover knowledge through exploration and analysis; interactive methods make lessons more engaging and collaborative; and ICT tools allow lessons to be

presented in a visual, digital, and appealing format. Moreover, project-based learning connects theoretical knowledge with practice, enhances teamwork, responsibility, and creative thinking. The STEAM approach, through interdisciplinary integration, cultivates engineering thinking, technological literacy, and aesthetic appreciation in students. All modern methods aim to unlock each student's potential — teaching them to seek, analyze, and apply knowledge in practice. As a result, mathematics lessons go beyond formulas and calculations to become a "school of life thinking", problem-solving, and creativity.

References

1 Yulduzkhon, S. (2025). Econometric Modeling and Forecasting of Development Indicators of Tourism Enterprises in Uzbekistan. Central Asian Journal of Innovations on Tourism Management and Finance, 6(4), 1490-1499.

2 Kamoldinovna, S. Y. (2022). A boundary matter for a fifth-order private derivative differential equation with two double and one simple real characteristic. Eurasian Research Bulletin, 4, 45-47.

3 Yulduzxon, S. (2022). Six key principles for effective teaching of mathematics: Six key principles for effective teaching of mathematics. Qo 'qon universitetining ilmiy materiallar bazasi, 1(000006).