Volume 3, Issue 5, May – 2025 **ISSN (E):** 2938-379X

NEW TECHNOLOGIES AND METHODS USED IN THE EDUCATION SYSTEM

Abdurazzoqov Ilhom Rustamovich
Termiz davlat pedagogika instituti
Matematika va informatika kafedrasi o‘qituvchisi,
E-mail: ilhomabdurazzoqovterdpi@gmail.com
Tel: (91) 587 00 96

Xudoyberdiyev Nortura Kabilovich
Termiz davlat pedagogika instituti
Matematika va informatika kafedrasi o‘qituvchisi,
E-mail: xudoyberdiyevnortura@gmail.com
Tel: (94) 269 34 00

Madayeva Muqaddas Baxtiyor qizi
Termiz davlat pedagogika instituti
Matematika va informatika kafedrasi o‘qituvchisi,
E-mail: muqaddasmadayeva@gmail.com
Tel: (91) 970 80 09

Abstract
New technologies and methods in the modern education system allow making the learning process interactive, effective and personalized. Artificial intelligence, virtual reality, online learning platforms, mobile applications, gamification and digital assessment tools deepen students' knowledge, develop independent learning skills and improve the quality of education.

Keywords: Artificial intelligence, digital education, online courses, virtual reality, blended learning, gamification, mobile applications, interactive whiteboards, e-learning, LMS, blended learning, video lessons, distance learning, EdTech, learning platforms, simulation, student-centered learning, personalization, cloud technologies, digital assessment, cognitive technologies, robotics, coding training, virtual laboratories, gamification, Big Data in education, voice assistants, AR, systematic analysis, smart classrooms.История развития информатики.

Introduction

Today, the education sector is developing rapidly and is undergoing fundamental changes through modern technologies and innovative methods. Information and communication technologies (ICT) have penetrated every aspect of our lives, and are creating new opportunities in the education system. The traditional learning process based solely on a teacher

and textbook is now considered an outdated method. Now, educational approaches adapted to the individual abilities, interests, and learning speed of students are becoming popular. This requires the introduction of modern technologies and innovative methods. With the help of new technologies, the educational process is becoming more interactive, effective, and more engaging for students. For example, it is possible to determine the level of knowledge of students and develop a personal curriculum using artificial intelligence, and to implement simulations close to real life through virtual and augmented reality (VR and AR) technologies. In addition, digital platforms, mobile applications and distance learning tools are enabling students to learn independently, manage their time effectively and work on themselves. The methods used in the education system are also changing. Instead of traditional lectures and classroom sessions, methods such as interactive lessons, problem-based learning, project-based learning, and collaborative learning are being widely introduced. Such methods not only increase the level of knowledge of students, but also develop skills such as critical thinking, problem solving, teamwork, and communication. The effective use of technology in education creates great opportunities not only for students, but also for teachers. Teachers are able to improve their skills through modern platforms, create and analyze lesson materials, and monitor student results in real time. Parents can also constantly monitor how their children are participating in the learning process. Thus, the introduction of new technologies and methods into the education system serves to make the process more open, flexible and high-quality. The correct and targeted use of technologies is of great importance in preparing knowledgeable and qualified personnel who can withstand global competition. Therefore, innovative approaches and digital transformation are becoming increasingly important in modern education.

Literature review on the topic

The number of scientific and literary sources written in the Uzbek language on the use of new technologies and methods in education is increasing year by year. The Resolution of the President of the Republic of Uzbekistan No. PQ-4457 dated September 6, 2019 “On measures to develop digital education” created the main legal basis for the widespread introduction of digital technologies in education. Based on this resolution, many scientific studies and methodological manuals have been developed. In particular, the manuals and articles written by scientists working in the field of pedagogy - S.S. Jo'raev, M.T. Isroilov, G'.A. Saidov and others provide detailed information about modern educational technologies, interactive methods, and the integration of information and communication technologies (ICT) into the educational process. S.S. Juraev's work "Pedagogical Technologies" systematically covers the advantages of information technologies in the classroom, approaches to using effective methods. Also, in the manual "Digital Education: Methods and Practice" by T.A. Kholmukhamedova and N.Kh. Narzullaeva, the possibilities of distance learning, mobile learning, working with electronic resources, and educational platforms (Moodle, Google Classroom) are analyzed in detail. This work also considers social and technical problems of the transition to digital education, especially in Uzbekistan. In recent years, many articles on modern technologies have been published in scientific journals of the National University of

Uzbekistan and the Nizami Tashkent State Pedagogical University (for example, "Education and Innovations", "Pedagogical Sciences"). These articles mainly cover new approaches such as the use of artificial intelligence, monitoring student activity, virtual laboratories, and gamification from a theoretical and practical perspective. In general, there are scientifically based analyses of the application of new technologies in education in Uzbek literature, which are an important theoretical and practical source for use in pedagogical activities. In the future, it is advisable to deepen research in this area and enrich it with more experience.

Research Methodology

This study investigated the introduction of new technologies and methods in the education system, their effectiveness and impact on the learning process. The study used a combination of qualitative and quantitative methods. This approach allowed for a comprehensive analysis of the research object. Teachers, students, and education management specialists working in general education schools, higher education institutions, and some specialized vocational training centers were selected as the main objects of the study. Random sampling and purposive sampling methods were used to select respondents. In total, 100 teachers, 150 students, and 20 education specialists participated in the survey. One of the main methods used in the study was a questionnaire, through which data was collected on the level of integration of new technologies into the educational process, their advantages and disadvantages, and users' attitudes towards technologies. The questionnaire was conducted online using the Google Forms platform, which accelerated and facilitated the data collection process. Also, more in-depth information was obtained from the heads of some educational institutions and advanced teachers through the interview method. This method was useful in identifying the real-life application of educational technologies, emerging problems and ways to overcome them. The document analysis method is also an important part of the study. Through it, decisions, legislative acts, methodological manuals and scientific articles related to the education policy of the Republic of Uzbekistan were analyzed. In particular, documents such as “Digital Education”, “Strategy for the Development of Distance Education”, “National Education Program” were taken as a basis. The obtained data were statistically analyzed using Excel and SPSS programs. The results were presented in the form of graphs and tables, and conclusions were drawn based on them. Thus, the selected methodological approaches ensured the scientific validity, reliability and practical significance of the study.

Analysis and Results

Based on the survey, interviews, and document analysis conducted during the study, the status, effectiveness, and emerging problems of new technologies and methods used in the education system were identified. The analysis of the data obtained showed the following main results. First of all, according to the survey results, 78 percent of teachers reported that they regularly use some kind of digital platform in the educational process. The most commonly used platforms are Google Classroom, Zoom, Moodle, and Microsoft Teams, and their convenience, the ability to conduct classes remotely, and online assessment of assignments were highly

Web of Teachers: Inderscience Research
webofjournals.com/index.php/1

appreciated. 65 percent of students rated the learning process using interactive teaching methods (tests, quizzes, online presentations) as interesting and effective. In particular, gamification elements (scoring points, rating system, awards) increased student participation. These results indicate that game-based approaches are an effective tool for increasing learning motivation. The interviews revealed that while many teachers are receptive to modern technologies, they lack the methodological skills and technical training to fully and effectively use them. Older teachers in particular reported having difficulty adapting to technology. At the same time, there was also a high level of interest in adopting new technologies. The analysis showed that the level of access to technological resources varies between higher education institutions. Some universities have virtual laboratories, digital libraries, and artificial intelligence-based learning systems, while others are limited to basic tools. This situation creates a problem of technological inequality. Data on distance education showed that 82% of teachers took distance learning during the pandemic, but currently only 43% of them are using this format regularly. This situation is explained, on the one hand, by the desire to return to traditional education, and on the other hand, by technical conditions (internet speed, lack of devices). From the results of the study, it can be concluded that new technologies and methods play a major role in improving the quality and efficiency of education. However, for their successful implementation, the technical base, teacher qualifications and a continuous support system are important. Therefore, a phased, comprehensive approach to digitizing the education system is required.

Conclusions and Recommendations

The results of the study showed that the use of new technologies and innovative methods in the education system plays an important role in improving the quality of the educational process, increasing student activity and developing independent learning skills. The widespread introduction of digital platforms, distance learning tools, artificial intelligence technologies, gamification and interactive methods serves to modernize the educational process. At the same time, the necessary infrastructure, training of pedagogical personnel and methodological support must be sufficient for the full functioning of technologies.

Based on the results of the study, the following conclusions were drawn:

• New technologies increase the efficiency of education, but their introduction should be carried out gradually and on a scientific basis.

• Improving the technological literacy of teachers and students and constantly updating their skills are an integral part of modern education.

• The difference in technological capabilities between educational institutions creates inequality in the quality of education.

On this basis, the following proposals are put forward:

1. Expanding the national strategy for digitizing the education system - it is necessary to strengthen work on providing the Internet, computer equipment and software in all regions in accordance with existing programs.

2. Organizing regular advanced training courses for teachers - it is necessary to create a system of practical training aimed at teaching modern educational technologies, methods and platforms.
3. Ensuring equality in technological capabilities - it is necessary to create equal conditions for students by providing educational institutions in rural areas with technical means as a priority.
4. Enriching digital educational resources with national content - it is necessary to increase the number of educational materials, video lessons, interactive tests in the Uzbek language.
5. Improving the monitoring and evaluation system - it is necessary to introduce systems that allow for real-time assessment of the results of the educational process based on technologies.

In conclusion, integrating new technologies into education is a must. A systematic approach, support for educators, and continuous updating of resources are the keys to success.

References

1. Rustamovich, A. I., & Abdimuminovich, A. B. (2024). MODERN INFORMATION OF TECHNOLOGIES TECHNICAL AND SOFTWARE TOOLS. Web of Discoveries: Journal of Analysis and Inventions, 2(6), 26-30.
2. Rustamovich, A. I. (2022). FRANSIYA VA AVSTRALIYA DAVLATLARIDA INFORMATIKA VA AXBOROT TEXNOLOGIYALARI FANINING RIVOJLANISHI, O'QITISHDA QO'LLANILADIGAN METODLAR. World scientific research journal, 8(1), 123-126.
3. Abdurazzoqov, I. R. (2023). Xorijiy davlatlar tajribasi asosida informatika ta'limi samaradorligini oshirishga qaratilgan texnologiyalar. Scholar, 1(28), 323-328.
4. Rustamovich, A. I. (2024). INFORMATIKA FANIDAN INNOVATSION O 'QITISH USULLARI. World scientific research journal, 25(1), 86-90.
5. Shuxratovich, E. U., & Rustamovich, A. I. (2024). INFORMATIKA VA AXBOROT TEXNOLOGIYALARI FANIDA "BULUTLI TEXNOLOGIYALAR" ORQALI O'QITISH (XORIJIY DAVLATLAR MISOLIDA). World scientific research journal, 25(1), 79-85.
6. ABDURAZZOQOV, I. (2024). vUMUMTA'LIM MAKTABLARIDA INFORMATIKA VA AXBOROT TEXNOLOGIYALARI FANINI O'QITISH METODIKASINI TAKOMILLASHTIRISH. Acta NUUz, 1(1.3. 1), 61-65.
7. Rustamovich, A. I. (2022). RIVOJLANGAN XORIJIY MAMLAKATLARDA INFORMATIKA VA AXBOROT TEXNOLOGIYASI FANINING O 'RNI. PEDAGOGS Jurnali, 20(1), 58-61.
8. Rustamovich, A. I. (2025). BREEDING PUREBRED AND CROSSBRED STEERS FOR MEAT USING VARIOUS TECHNOLOGICAL METHODS. Web of Agriculture: Journal of Agriculture and Biological Sciences, 3(2), 25-31.
9. Rustamovich, A. I. (2022). FRANSIYA VA AVSTRALIYA DAVLATLARIDA INFORMATIKA VA AXBOROT TEXNOLOGIYALARI FANINING RIVOJLANISHI, O'QITISHDA QO'LLANILADIGAN METODLAR. World scientific research journal, 8(1), 123-126.

Web of Teachers: Inderscience Research
webofjournals.com/index.php/1

10. KARIMOVA, M., & NURALIYEVA, F. (2024). KOMPYUTERNING DASTURIY TA'MINOTI. DASTURIY TA'MINOTNING TURKUMLANISHI. News of the NUUz, 1(1.7), 1.
11. Nuraliyeva, F. A. qizi, & Karimova, MX qizi.(2024). SUN'IY INTELLEKTNING KOMPYUTER GRAFIKASIGA BOG 'LANISH BOSQICHLARI. Educational Research in Universal Sciences, 3(1), 65-68.
12. NURALIYEVA, R. M. F. (2024). ZAMONAVIY DUNYODA JAMIYATNI AXBOROTLASHTIRISH. «ACTA NUUz», 1(1.6), 102-104.
13. Abdurazzakov Ilhom Rustamovich, & Feruza Abdusalim qizi Nuraliyeva. (2024). THE ROLE OF COMPUTER AND INFORMATION TECHNOLOGY SCIENCE IN DEVELOPED FOREIGN COUNTRIES. Web of Discoveries: Journal of Analysis and Inventions, 2(6), 43–46.

Web of Teachers: Inderscience Research
webofjournals.com/index.php/1