

THE INTRODUCTION OF INNOVATIVE TECHNOLOGIES IN THE EDUCATIONAL PROCESS CURRENT ISSUES AND SOLUTIONS

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Abstract. In the modern world, digital technologies have penetrated into all spheres of society and are radically changing them. The introduction of innovative technologies into the educational process is one of the most pressing problems today. The article discusses the introduction of innovative technologies in education, their advantages and problems.

Keywords. innovative technologies, Coursera, Udemy, Khan Academy, Moodle, artificial intelligence, gamification, Quizlet, Duolingo, robotics.

Login. The modern education system is in the process of rapid development and adaptation to technological changes. The introduction of innovative technologies into the educational process makes it possible to increase efficiency, simplify the learning process for students, and prepare them for future professions. The article examines the role of innovative technologies in the education system, the problems that arise during their implementation, and ways to solve them.

Analysis and results. Innovative technologies can be introduced into the educational process by various methods. Below we will list the most effective types.

Through digital learning platforms, students gain access to distance and independent learning opportunities. Examples of such platforms include Coursera, Udemy, Khan Academy, and Moodle. Students can attend these courses in their free time, complete assignments, and study on their own.

Educational programs based on artificial intelligence (AI) are also important for the implementation of personalized learning. With the help of SI, it is possible to develop individual programs for students. Chatbots based on artificial intelligence are being developed that will answer questions and provide explanations to students. Using ChatGPT or other artificial intelligence, complex concepts can be explained to students in simple language. SI allows you to automatically evaluate test results, check essays, and analyze errors. Artificial intelligence systems can also be used to detect plagiarism.

Artificial intelligence can also be used to create educational materials, including textbooks, tutorials, and tests. For example, apps like Quizlet create automated tests. AI can also improve automatic translation and pronunciation during language learning. Apps like Duolingo make language learning interactive using artificial intelligence. Technologies such as speech-to-text conversion for students with disabilities and voice interfaces for the blind are also widely used in education. Artificial intelligence makes the learning process more efficient and convenient. This makes it easier for teachers to work and allows students to learn more interactively and effectively.

Virtual reality (VR) and augmented reality (AR) technologies make the learning process more interactive, interesting and effective compared to traditional methods. Thanks to these technologies, students can visually understand complex concepts, conduct experiments, and learn in real-world settings. For example, in the field of medicine or engineering, it will be possible to conduct experiments using 3D models. Gamification (game learning) is a method that increases students' motivation and makes the learning process more interesting by adding game elements to it. Lessons can also be made interactive using various game platforms.

Coding and Robotics — allows students to learn the basics of programming and engineering. This is important when preparing for modern professions. These technologies help not only to develop technical knowledge, but also problem solving skills, logical thinking and creativity. With their help, students acquire useful skills that can be applied in real life.

In addition, the use of artificial intelligence and the Internet can affect students' independent thinking. Obtaining ready-made answers using SI tools can undermine academic integrity.

Despite the fact that the introduction of innovative technologies (artificial intelligence, VR/AR, robotics, gamification, etc.) into the educational process has many advantages, various problems may arise when they are implemented in practice. The first of these problems is financial. The implementation of these innovative technologies requires significant investments. In addition, virtual and augmented reality devices, robotics kits, programming platforms, and interactive whiteboards are expensive.

Most teachers may not have the skills to work with new technologies. Positive results can be achieved by organizing regular seminars, trainings, webinars for teachers, as well as by establishing knowledge exchange programs with teachers with advanced experience in implementing innovative technologies, as well as through the introduction of new technologies.

The lack of updating of educational programs hinders the effective implementation of innovative technologies. Although innovative technologies bring quality and efficiency to the educational process, their implementation may face financial, technical, pedagogical and methodological challenges. Of course, there may be some problems when using innovative technologies in the educational process. Insufficient logistical support, as a result of which many educational institutions lack or lack the necessary tools for the introduction of new technologies.

In many regions, the Internet quality is poor or non-existent. The lack of computers and tablets does not allow making the learning process fully interactive. Problems with power supply can hinder the full implementation of innovative technologies.

Some education systems are overly tied to traditional teaching methods and resist innovation. Sometimes problems arise as a result of improper use of technology by students and teachers. In such cases, it is necessary to target technologies to achieve efficiency. In addition, misunderstandings arise due to the lack of technical knowledge among some teachers. Currently, in order to teach using new methods, teachers themselves have to be in a constant learning process.

In conclusion, we can say that technological equipment of educational institutions is necessary, that is, the introduction of modern computer classes, VR laboratories, and artificial intelligence-based programs. It is necessary to update training programs and integrate technologies. It would be advisable to combine traditional and innovative teaching methods.

It will also be necessary to organize special courses so that teachers can effectively use innovative methods of retraining and advanced training. The introduction of innovative technologies into the educational process plays an important role in improving the quality of education and training highly qualified specialists in the professions of the future. To do this, it is important to develop the education system technologically, improve the skills of teaching staff, and make extensive use of new methods.

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