AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Pedagogical and Educational Research
ISSN (E): 2832-9791| Volume 34, |March - 2025

SCIENTIFIC-THEORETICAL-METHODOLOGICAL BASES OF THE USE OF MODERN PEDAGOGICAL TECHNOLOGIES IN EDUCATION

Yuldashev Sodiq Norchayevich
Associate Professor, Karshi State University

Shaxmurodova Diljahon Almardanovna
Teacher at the University of Information Technologies and Management

A B S T R A C T

The scientific-theoretical-scientific basis for the use of modern pedagogical technologies in education, information and communication technologies (ICT), modern pedagogical technologies in education, the introduction of modern pedagogical technologies in education creates unique opportunities, and a number of problems are discussed.

K E Y W O R D S

Blended learning, mixed learning, gamification, personalization, active learning, personal safety, privacy issues.

INTRODUCTION

Modern pedagogical technologies in education are a set of various methodological and technological tools designed to make the educational process effective, interactive and interesting for students. These technologies include new approaches, innovative tools and methods in teaching, learning and information delivery. Let's consider some of the following modern pedagogical technologies:

1. Information and Communication Technologies (ICT) - involves the use of computers, the Internet, multimedia, and interactive learning platforms in the teaching and learning process. There are many online resources and interactive programs for teachers and students.

2. Blended learning - combines traditional and online forms of learning. In this model, students receive learning materials online, but classes are also held face-to-face.

3. Flipped classroom - the model encourages students to study new materials before class (online videos, articles), and during class the teacher analyzes and discusses the material with students.

4. Virtual and augmented reality (VR and AR) technologies allow students to learn in a virtual environment, separating them from the real world. This provides a high level of interactivity in education.

5. Gamification - Enriching the learning process with game elements (e.g. rewards, grades, achievements). This motivates students and makes the learning process more interesting.

6. Mobile learning (m-learning) - Learning via mobile devices, which allows students to access lessons or materials from anywhere and at any time**.**

7. Collaborative learning - In this method, students work together, share ideas, and solve problems. Technology facilitates communication and collaboration between students in this process.

8. Big Data and Learning Analytics - Using big data to analyze and improve the learning process. Teachers optimize teaching methods by observing student activity and analyzing learning outcomes.

9. Personalization - Using a personalized approach to teaching, creating individual learning materials and methods for each student. With this method, each student can choose their own learning pace and style.

Modern pedagogical technologies in education mean the use of various new methods and tools to make the educational process effective and interesting. Their main goal is to ensure the active participation of students, develop independent thinking of students, improve the quality of education and train qualified specialists who meet the requirements of the time. Below we will consider some modern pedagogical technologies:

1. Human-centered pedagogy - In this method, the teacher organizes the educational process taking into account the needs, interests, and individual characteristics of the student. The student is involved in learning in accordance with his abilities and interests.

2. Active teaching methods - Modern pedagogical technologies provide teachers with methods that ensure active participation of students.

• Active Learning: Students engage in problem-solving, brainstorming, group work, and hands-on activities.

• Cooperative Learning: Students collaborate and solve problems together, thereby sharing knowledge and developing collective thinking.

3. Use of technological tools

• Interactive whiteboards: Modern technological tools are used to increase interaction between teachers and students.

• Virtual and augmented reality (AR/VR): Students learn to read and learn interactively in a virtual environment. This makes the learning process interesting and effective.

• Educational platforms: Students will have the opportunity to receive distance learning through online educational platforms. This technology makes the education system more flexible, especially during the pandemic.

4. Flip learning – In flip learning, students access online materials (video lessons, articles, and other materials) to teach the lesson at their own pace. During the lesson, students discuss, practice, and work individually with the teacher.

5. Gamification is the use of game elements (points, levels, prizes) to motivate students and engage them more actively in the learning process. This makes the learning process interesting and unique for students.

6. Software and mobile applications - Through mobile applications, students can assess their knowledge, take tests and take interactive exercises. This, in turn, develops students' independent learning skills..

7. Personalization (Personalized Learning) - Personalization refers to developing teaching approaches that are tailored to the unique learning rhythms and needs of students. The teacher analyzes the knowledge level of each student and provides individually tailored lessons and materials.

The introduction of modern pedagogical technologies in education, while creating unique opportunities, also poses a number of problems. Below, we will consider the main problems in the use of modern pedagogical technologies in the educational process:

1. Lack of technological resources - The technological tools necessary for the effective use of modern pedagogical technologies, namely computers, interactive whiteboards, Internet access and other electronic devices, are not available in every educational institution. Especially in schools in remote areas, these resources can be very limited. This becomes a major obstacle to making education competitive and modern.

2. Technological incompetence of teachers - Many teachers are not ready to use modern pedagogical technologies. This is due to the low level of teachers' skills in working with technology or the lack of time and opportunities to learn them. Also, the process of teaching new technologies often requires additional resources and time.

3. Resistance to new technologies - Many teachers and education systems have a conservative view of new technologies. They rely more on traditional teaching methods and are afraid to fully implement technologies. This, in turn, limits the widespread use of modern pedagogical technologies.

4. Limited access to the Internet and technology - Many educational institutions, especially in rural areas, have serious problems with internet connectivity and the effective use of technology. Low internet speeds and limited access to computers or mobile devices by students hinder the effective implementation of the educational process.

5. Implementation of personalized learning - Modern pedagogical technologies provide for the personalization of education, that is, teaching according to the individual needs and abilities of each student. However, to implement such an approach, teachers need more time and resources, which often leads to difficulties in implementation.

6. Managing student motivation - Teaching with modern technologies can ensure that students are active and engaged, but for some students, these new methods may not be interesting or may be

difficult to learn. Creating motivation to learn new technologies and maintaining students' interest in learning can also be a challenge in itself.

7. High costs for students and teachers - The implementation of modern pedagogical technologies requires high financial costs. Costs such as installing new technologies in educational institutions, purchasing software, and training teachers often become a huge burden on the budget of the education system.

8. **Difficulties in assessing the quality and effectiveness of the educational process** - Assessing the effectiveness of the use of new technologies can cause difficulties in traditional assessment systems. New methods and criteria are required to measure student knowledge. At the same time, technologies create uncertainty in measuring the quality and effectiveness of learning compared to traditional assessment methods.

9. Personal security and privacy issues - Learning through modern technology, especially the use of the internet and online platforms, can put students' personal information at risk. Ensuring students' online safety and protecting their information becomes a key task for educational institutions.

10. **Curriculum flexibility -** The use of modern technologies sometimes requires changes to the traditional structure of the curriculum. This can be inconvenient for teachers, as well as making it difficult to train students in the new system and convey new methodologies to them.

Conclusion

Modern pedagogical technologies help make the educational process more effective, interesting and interactive. These technologies allow teachers to choose teaching methods that suit the needs of students and implement learning more deeply.

Modern pedagogical technologies bring education to a new level. They help students develop their knowledge in a more complete form, increase motivation and more actively involve them in the educational process. They also provide teachers with convenient and effective tools for managing the educational process.

Although problems with the use of modern pedagogical technologies in education exist in many education systems, their correct and effective implementation can significantly improve the quality of education. To solve these problems, educational institutions, teachers and the government must jointly mobilize resources to integrate technologies and organize high-quality education for students.

References

1. Shirinov, A. N. Modern educational technologies. - Tashkent: Science and technologies. 2018
2. Maksimova, T. P., Frolova, L. A. Pedagogical technologies and their role in the educational system. - Journal of Pedagogy and Psychology, 2017 3(12), 45-52.
3. Almardanovna, S. D., & Shokirovna, A. M. (2025). The Effectiveness of Increasing Students' Cognitive Activity in Primary Education. Spanish Journal of Innovation and Integrity, 39, 66-70.

4. Islamovna, K. G. (2025). Preparing Elementary Students for Emergencies–As a Pedagogical Problem. Spanish Journal of Innovation and Integrity, 40, 169-172.
5. Yuldashev, S., Akramov, M., Tursunova, F., Abdullaeva, K., Shakhmurodova, D., & Ubaidullayev, A. (2024, May). A Development of AI Connected System with Adaptive Assessments Method for Evaluation Methods in Education Field. In 2024 4th International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE) (pp. 826-830). IEEE.