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IMPLEMENTATION OF INNOVATIVE TECHNOLOGIES IN THE PEDAGOGICAL PROCESS: SCIENTIFIC ANALYSIS AND PROSPECTS

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Abstract: This article explores the implementation of innovative technologies in the pedagogical process, their scientific foundations, and practical potential. It also analyzes the role of innovative approaches in the modernization of the education system and evaluates the effectiveness of using digital technologies and interactive methods. The authors present the stages of integrating innovative technologies into pedagogical activity, their impact on both students and teachers, and outline future directions for development. The article also offers recommendations for the effective application of modern technologies in pedagogical practice.

The modern educational process demands constant changes and updates. Especially in an era of rapidly advancing digital technologies, integrating innovative technologies into pedagogical activity has become a pressing issue. This process not only enhances the effectiveness of teaching but also plays a key role in developing students' independent thinking, creative approaches, and proficiency in using information technologies. Reforms in the education system, new-generation standards, digital platforms, and interactive methods all further intensify the need for implementing innovative technologies in the pedagogical process. This study examines the introduction, scientific basis, and future prospects of such technologies.

In the Republic of Uzbekistan, key directions have been set to improve the education system. The main goal is to train highly qualified specialists who possess modern knowledge and think independently. In addition, efforts are being made to renew general education, develop sectors of the economy and social sphere based on advanced technologies, and strengthen research activities in preschool and school education institutions. Involving young people in scientific work and creating a modern infrastructure for science are also considered crucial priorities.

These tasks are outlined in the Presidential Decree No. PF-5847 dated October 8, 2019, titled "The Concept of Development of the Public Education System of the Republic of Uzbekistan until 2030." Reforms in the field of education are ongoing, and innovative technologies are steadily advancing with an increasing variety of their forms. Effective use of information technologies in education and the development of modern solutions to existing problems are of great importance. In this regard, the scholar F.I. Peregudov has made significant contributions.

Nowadays, the concepts of "pedagogical innovation" and "teacher's innovative activity" have emerged. According to G.A. Mkrtichyan, a teacher's innovative activity represents the most advanced form of pedagogical experience, in which the teacher thoroughly explores new

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developments and implements them into practice. The rapid development of schools in our country, as well as the renewal of educational standards and curricula, have intensified the need for pedagogical innovation. The creation, implementation, and practical application of novelties have become increasingly active. As a result, terms such as “innovation,” “innovative process,” and “novelty” have become widespread.

Researchers have identified the stages that constitute the innovative process. Initially, a new idea or concept is generated, often as a result of scientific research. Then, based on that idea, a new product or solution is developed. Over time, this innovation is refined and gradually introduced into practice. Eventually, the innovation becomes independently operational and begins to be applied in other fields as well. However, over time, the innovation itself becomes outdated and is replaced by a more efficient and advanced idea. Consequently, the earlier innovation is phased out and succeeded by a newer, more effective version.

The innovative process described above unfolds sequentially through time, moving from one stage to another. An innovative process is a constantly evolving system that, even in its simplified form, includes various phases. However, it is not always necessary to strictly adhere to these phases. The innovative process is a complex and purposeful activity related to the creation and dissemination of new developments, with its primary goal being to meet human needs through new means. As a result of this process, qualitative changes occur in certain systems and methods.

In some cases, the innovative process highlights the obsolescence of the current system and calls for its revision based on emerging needs. Moreover, a collection of different levels of innovations contributes to an overall integrated innovative system. In the field of education, as innovative activity is carried out, innovations directly enter and impact the educational process.

Therefore, the integration of innovations into the educational system is implemented through the following four stages:

1. Identifying the problem through analysis;
2. Designing the intended educational system;
3. Planning changes and innovations;
4. Implementing the changes.

The introduction of innovation follows a specific internal logic and includes the entire process from the emergence of an idea to its practical application. In this process, collaboration and interconnection between innovation participants play a significant role.

Thus, the innovation process is a dynamic system that evolves over time according to certain principles and is closely connected with the surrounding environment. The structure of the innovation process also gradually changes step by step. Each stage directly influences the final outcome and effectiveness of the innovation. The success of the innovation depends on how effectively the entire process has been carried out.

Transitioning from simple production to expanded production is considered one of the most critical and complex stages. In many cases, this stage fails to be realized, resulting in the innovation not reaching its conclusion—leading to a range of innovation-related challenges. For this reason, the effectiveness of an innovation can only be evaluated when it has been fully implemented. As a result of implementing innovations into the system, the interrelation between different indicators becomes clearly visible.

In this context, two types of innovations can be distinguished:

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1. A novelty created for the first time – an invention-level innovation that introduces a genuinely new approach not previously known;
2. An improvement of an existing theory – a modernization of previous ideas, refined and redeveloped in accordance with the demands of the current era.

Such approaches are also reflected in decisions and decrees aimed at improving the effectiveness of the Ministry of Preschool and School Education. In particular, directions were outlined in the Presidential Decree of the Republic of Uzbekistan No. PF-14 dated January 25, 2023, "On the First Priority Organizational Measures for Effectively Streamlining the Activities of Executive Authorities."

At the same time, the role of mass media in the educational process is increasing. Educational programs on television and radio are becoming more intellectualized. The database of publications related to science and education is expanding. A stable system has been formed to supply educational, methodological, scientific, and encyclopedic literature.

The main content of innovative didactics consists of teaching innovation, learning innovation, and renewing innovation. All components involved in this process are interconnected, and none of them should be overlooked. This raises the question: Where should we start – with learning or with teaching? This leads to another question: What kind of new content are we aiming to teach?

Both teaching and learning are directed toward the primary goal of the educational process, which ultimately involves a new interpretation of the content of education. Different types of content require distinct methods of comprehension. Therefore, the nature of learning depends on the content itself, which in turn is influenced by the approach of the educator.

Thus, didactic thinking refers to the continuous connection between teaching, learning, and the educational process, as well as the search for and identification of new approaches. A teacher seeks and refines modern methods, innovative forms, tools, and techniques that activate the learner and are convenient for both the teacher and the student.

As a result, alongside terms such as "pedagogical technology," "didactic technology," and "educational technology," concepts like "innovation studies," "innovative pedagogy," "innovation," "innovative activity," and "innovative process" are also becoming increasingly important.

Today, organizing the content of education on an innovative basis is of paramount significance. For this purpose, State Educational Standards, new programs, and a new generation of textbooks have been developed and delivered to educational institutions. These textbooks, created based on standards and modernized programs tested in pilot regions, are now being introduced into practical use.

The most urgent task now is to develop mechanisms for the rapid integration of these innovative standards into the educational process. However, it must be acknowledged that, so far, a unified and integrated system for generating, collecting, selecting, and experimentally implementing innovative approaches and new technologies has not yet been fully established in many educational institutions across the Republic.

In the Law of the Republic of Uzbekistan No. O'RQ-901 dated February 1, 2024, "On the Status of the Pedagogue", special attention is given to this issue. Based on this law, a new generation of State Educational Standards is being gradually introduced into practice. This reflects the need for mechanisms that enable the implementation of innovations in the education system, as well as their support and widespread application.

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This is because state standards and new curricula define the level of knowledge required from students and guarantee quality. In turn, this necessitates an approach that matches each student's talent and individual needs—an approach that can only be implemented through innovative methods.

As a result, there is an increasing need to collect best practices, identify innovative technologies, test their didactic potential, and implement them in practice. Therefore, it has become essential to develop a database of advanced innovative practices, test them, and design mechanisms for their integration into pedagogical practice.

In the field of education, a teacher's innovative activity develops through specific stages. In the initial stage, the teacher works based on ready-made methodological guidelines. In the next stage, the teacher introduces certain modifications into the existing system. In the third stage, the teacher fully develops educational content, methods, and formats based on a new idea. In the fourth stage, the teacher creates their own teaching and educational concept and methodology.

Currently, many studies and initiatives are being carried out in this area. In particular, departments for monitoring the implementation of the updated state educational standards are operating within the Ministry and regional and district departments of public education.

These departments perform a number of important functions. First and foremost, they monitor the implementation of new educational and regulatory documents. In addition, the National Program for Personnel Training is introduced into practice, and the implementation of improved programs is regularly monitored. The effectiveness of pedagogical innovations in the activities of educational management bodies and institutions is also analyzed. Furthermore, pedagogical experiments and pilot initiatives are summarized and evaluated, and recommendations for practical application are developed based on their results.

Another important area is the collection of innovative technologies, their implementation into practice, and the organization of training sessions and short-term professional development courses for this purpose. A database of new technologies is also compiled, analyzed, and integrated into the educational process.

To fulfill these tasks, scientific research, studies, and initiatives are necessary. The creation and management of pedagogical innovations are aimed precisely at solving these pressing challenges. Therefore, it is essential to develop a comprehensive system for promoting innovative ideas, formulating their concepts, selecting effective innovations, and implementing them in educational practice.

Today, introducing effective mechanisms for managing the educational process is a key condition for ensuring the moral, ethical, and intellectual development of the younger generation. At the same time, it supports the application of modern methods and innovative forms of education.

Reforms in the education system aim to create social, economic, legal, psychological-pedagogical, and organizational conditions that enhance students' independent thinking, adaptability to life, and interest in learning. Ultimately, the goal is to nurture a well-rounded individual who is aware of their responsibilities toward their family, society, and the state.

Innovative technologies are methods that introduce novelty into the educational process and bring changes to the activities of both teachers and students. These processes primarily require the use of interactive methods.

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Interactive methods encourage students to be active and to think independently. In such lessons, learning becomes an engaging activity. Students acquire knowledge through research, experimentation, and analysis. By working in groups and completing tasks collaboratively, they develop skills in cooperation, communication, and defending their own viewpoints.

Modern lessons are non-traditional formats that help develop students' creative thinking, broaden their scientific worldview, and facilitate quick assimilation of new information. The use of innovative technologies in the classroom increases students' interest in inquiry and discovery.

As a result, the acquired knowledge and skills are applied in real-life practice, leading to effective and high-quality learning outcomes. This largely depends on the teacher's ability to design and conduct a well-planned lesson aligned with the topic.

Pedagogical innovation refers to novelty in teaching and upbringing, aimed at achieving effectiveness through changes in the content and technology of education. The development of innovation typically proceeds in three stages: A new idea emerges as a result of scientific research; This idea is then developed practically, with the creation of appropriate methods; Finally, the developed methods and solutions are implemented in practice.

In an innovative approach, a key criterion is optimality, which encompasses the combined efforts of the teacher and the student to achieve results. Each teacher or student achieves varying levels of effectiveness depending on their capabilities. This defines the usefulness or impact of the innovation. Innovative methods are considered effective if they produce positive results. The main evaluation criteria include: a technological approach, observability, precision, and the ability to record measurable outcomes.

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