EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 2, February 2026
brightmindpublishing.com
ISSN (E): 3061-6972

INNOVATIONS AND INFORMATIZATION IN THE MODERN EDUCATION SYSTEM

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Abstract
This article presents information on informatization, technologization, and innovation in educational processes. The rapid development of science and technology has created the foundation for the informatization of all spheres of public life. A country's place in the economy, human life, and the global community depends on the state of information technology development. The state of development of modern technologies depends primarily on the intellectual potential of society, including the development of the educational sphere.

Keywords: Technological process, integration, innovation, global, portable, modeling, strategy, communication, multimedia, information technology.

Introduction

In the modern era, the capabilities of information and computer technologies have expanded significantly thanks to the emergence of the global internet and its penetration into the multifaceted activities of humanity. In the 21st century, the universality of education, as well as the globalization and development of education in various regions and educational institutions, harnessing the opportunities of the rapid development of the global internet, are creating an open education system.

The first president of the Republic of Uzbekistan, Islam Karimov, wrote in his work "Serving the Happiness, Prosperity, and Great Future of Our Homeland is the Highest Happiness": "Information and communication technologies, mathematics, physics, chemistry, industry, and management—all of these are, of course, necessary. But above all, it is vital to know history. Knowing life and understanding the age in which we live is the duty of all of us. That is to say, a

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person disconnected from life, far removed from reality, will never achieve their goals" [1]-this was true.

One of the main areas of the informatization process of modern society is the informatization of education.

Computerization of education, in a broad sense, is viewed as providing the education sector with the practice of effectively using and creating (refining) new information technology tools aimed at achieving psychological and pedagogical objectives. Furthermore, computerization serves as the foundation for the development of distance learning systems. As part of the computerization process, new information technology tools are widely used in the education system.

Computerization of education primarily includes the following:

- systematic study, organization, and use of modern computer and information and communication technologies;
- organization of independent student work and educational and methodological support;
- teachers' efforts to create the necessary educational and methodological support;
- requires improvement of the educational process, taking into account new opportunities arising from the effective use of information technology.

The unified information technology system aims to train personnel with solid fundamental knowledge and the ability to apply this knowledge in their work through the development of a wide range of educational and specialized programs. The goal of informatization is the effective implementation of distance learning principles.

The development of modern science, in particular, is manifested in the ever-increasing sophistication of scientific research methods and tools, which requires the use of information technology.

Information technology is a combination of computing, telecommunications, and information capabilities aimed at selecting, accumulating, analyzing, and presenting information to the user. When describing any technology underlying a production process, one can distinguish the object of processing, methods and technologies, production tools, and a description of production methods. Technology is regulated and organized as a process. However, while traditional technologies rely on material and energy factors, information technology is based on information. The basis of information technology is not material factors, but

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ideal factors. Information technology is defined as a set of processes of information circulation and processing, as well as the description of these processes. Information is viewed as objects of data processing and circulation. Components can be created to describe process routes and scenarios for information processing. Thus, the concept of information technology is interpreted from two different theoretical and practical perspectives. "From a theoretical perspective, information technology is a scientific and technical discipline that studies the development and use of automated processes for the circulation and processing of information. From a practical perspective, information technology is a set of automated processes for the circulation and processing of information, a description of these processes that relate to a specific area and are implemented using modern technical and economic means" [2].

Modern information technologies leverage the technological advances of the past, such as the telegraph, telephone, radio, and television. Scientific and technological advances have led to the creation of machine-readable storage media. These media enable the delivery of information to any point on the globe without any restrictions in time or space. Finally, automated information processing technology using computers and established algorithms has been developed.

The theoretical foundations for the development of the information society worldwide were laid in new concepts of the formation and development of the information society in the late 1970s and early 1980s, which emphasized the need to produce and effectively use information as the primary factor in social progress. Z. Brzezinski, D. Bell, and E. Toffler [3], studying the development of society as a "stage transition," link the development of an information-based post-industrial society to the priority of the "fourth" information sector of the economy, followed by agriculture, industry, and other economic services. They believe that the foundations of industrial society-capital and labor-depend on information and knowledge, which will take their place in the information society. Unlike some other theorists, these scholars view revolution not as the result of a socio-political movement, but as an “information explosion” that replaces the class structure of society with a socially undifferentiated “information society”[4].

Thus, the development of new technologies and methods is directly related to socio-political life. They should create favorable conditions for the expression of

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creativity and initiative. Information technology formalizes scientific knowledge while simultaneously utilizing visual forms of information presentation (pictures, graphs).

Informatization issues include:

• defining the role of mobile portable personal computers;
• establishing didactic requirements for them;
• training students and teachers to use mobile portable personal computers at the user level;
• resolving methodological issues related to their use in the educational process;
• creating an information environment for distance learning;
• methodological goals achieved through the implementation of technologies:
• monitoring learning activities with feedback;
• self-monitoring;
• organizing exercises and independent training during the process of mastering the educational material;
• saving class time;
• modeling the phenomena and processes under study;
• creating and using an information base;
• equipping students with a new systematic strategy for mastering the educational material;
• developing thinking;
• formation of information culture among students, etc.

Currently, it is possible to separately study the development trends of modern information technologies in education. These include:

1. Implementation of software capabilities for educational purposes as a teaching tool, a basis for cognition, and a means of information processing.
2. Integration of the capabilities of teaching and methodological complexes, educational demonstration devices, and computer tools.
3. Integration of the capabilities of computers and audio-video transmission devices, and the creation of multimedia systems. The use of multimedia systems facilitates the implementation of active methods and forms of learning and improves the level of information perception [5]. Thus, the analysis of the implementation of modern information technologies in the education system is based on their:

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• student acquisition of knowledge about the world;
• expansion of the scope of student independent activity through the diversity of the organization of educational activities;
• individualization and differentiation of the educational process through the introduction of interactive communication capabilities;
• the presentation of the processes and phenomena under study using computer technology has proven to be an important means of increasing interest and activity among students.

New pedagogical and information technologies are inextricably linked, as the widespread introduction of new pedagogical technologies is changing the paradigm of education, and only modern information technologies can ensure the effective use of the potential of new pedagogical technologies.

Thus, the development of new technologies and methods is directly linked to socio-political life. They must create favorable conditions for the expression of creativity and initiative. Information technologies formalize scientific knowledge while simultaneously utilizing visual forms of information presentation (drawings, graphs).

Innovation is a paradigmatic activity aimed at updating existing forms and methods of scientific research, creating new goals and tools for their implementation. It also creates important conditions for the development of the scientist's full potential, their readiness for any, even unexpected, situations, and the ability to quickly adapt to new conditions [6]. Modern views on scientific research place greater emphasis on its innovative components. Thus, creative activity is currently understood as a method of human innovation aimed at creating new material and spiritual values and having social significance. In the same sense, scientific creativity, a special form of creativity, also possesses a uniquely innovative character. Its primary goal is to introduce novelty into the real possibilities and objects of phenomena.

Currently, the development of scientific research in our Republic and its structural changes are closely linked to innovation. In particular, the role of innovation in the implementation of innovation in the production and service sectors of science is incomparable. This is reflected in the research and developments participating in the annual exhibition of innovative ideas and technologies. Therefore, it is important to create an innovative environment in our country to ensure the

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progress of science and technology and continuously stimulate heuristic activity. Innovation is the effective use of new scientific and technological achievements. Coordinating this situation with the scientific and creative environment and increasing its effectiveness will significantly contribute to the full utilization of the scientific potential of our Republic. In this process, the main focus is on the most rational activities of the younger generation. This is because innovative ideas have a very strong influence on the development of society. Innovation plays a significant role in the development of such ideas. It is precisely on the basis of innovation that a new, typical form of scientific and creative activity can emerge. This occurs when some novelty takes priority in a new idea, theory, or paradigm. Based on their scientific innovations, innovations radically change existing theories, and their primary goal is to implement these new ideas into practice. First, they strive to overcome all obstacles to the implementation of their inventions or new ideas. Second, they create opportunities for other scientists to utilize the innovations they have brought to science. Third, they facilitate the abandonment of ineffective scientific ideas. Fourth, they stimulate the development of innovative and constructive ideas that have existed to date.

Initially, innovations were studied in the literature within the framework of theoretical research. Over time, innovative changes have been used to assess qualitative indicators in all spheres of social life. Therefore, the notion that these innovations are used only in the economy has been proven incorrect. The introduction of innovations into scientific research creates a wide range of opportunities for utilizing modern achievements. An innovative approach to scientific research allows for the verification of the content, composition, and classification of new discoveries, as well as the analysis of their results [7].

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