

Educational Information Technologies: the Evolution towards a New Quality of Education

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Abstract:

New forms of education are characterized by interactivity and collaboration in the learning process. New learning theories, such as constructivism, student-centered education, and learning without temporal and spatial boundaries, need to be developed. To enhance the quality of education, intensive use of new educational technologies is also proposed. Various approaches to defining educational technology can be summarized as a set of methods for implementing curricula and programs. This encompasses a system of forms, methods, and means of instruction designed to achieve educational goals. Specialists typically distinguish between educational technologies based on the differences in the teaching tools employed.

Keywords: Computerization, Educational Technologies, Information Space

The role of information-social technologies in education is significantly increasing today, ensuring comprehensive computerization of students and teachers at a level that enables the resolution of at least three key tasks:

1. **Providing Internet access** to every participant in the educational process, ideally at any time and from any location.
2. **Developing a unified information space** for educational industries, allowing all participants in the educational and creative process to engage with it at different times and independently of each other.
3. **Creating, developing, and effectively utilizing managed informational educational resources**, including personal user databases and the knowledge of students and teachers, with universal access for work purposes.

Given the current pace of computerization in the continuous education sector, as well as the uneven distribution of technological and computer-network resources available to households, it is expected that these tasks will not be fully and comprehensively addressed in the near future (Armengol M., 2002).

As is well known, educational technologies in higher education refer to a system of scientific and engineering knowledge, as well as methods and tools, used for the creation, collection, transmission, storage, and processing of information in the domain of higher education. There is a direct correlation between the effectiveness of implementing educational programs and the degree to which relevant information and communication technologies are integrated into them.

Educational technologies in higher education represent a system of scientific and engineering knowledge, as well as methods and tools used for creating, collecting, transmitting, storing, and processing information within the field of higher education. The effectiveness of educational programs directly depends on the extent to which appropriate information and communication technologies are integrated.

The primary goal of informatization in higher education is the global rationalization of society's intellectual activity through new IT solutions to enhance the efficiency and quality of specialist training, elevating it to the level of information culture seen in developed countries. It is essential to ensure the preparation of professionals with a new type of thinking that meets the demands of a post-industrial society.

Associate Professor A. V. Fel from the Institute of Management in Mechanical Engineering (Russia) comments on this aspect as follows: the use of an information system in the educational process "not only provides students with information about the object of management but also helps them comprehend the diversity and complexity of connections characteristic of real enterprises. This enables tracking the dynamics of these connections under changing external and internal factors and breaking down interdisciplinary barriers caused by the chronological sequence of presenting academic subjects.

Such tools allow for the creation of modern educational technologies that cultivate unconventional thinking and a creative approach to management in students. Ultimately, their activities go beyond a mere set of standard techniques, being grounded in an understanding of the cause-and-effect relationships of phenomena and processes, which significantly enhances both their motivation and effectiveness."

Information technologies offer the opportunity and necessity to transform the very model of the educational process, shifting from reproductive learning—where knowledge is transferred from teacher to students—to a creative model. In this model, utilizing new technological and technical tools, real-life situations or processes are simulated in the classroom. Under the guidance of the teacher, students apply their knowledge and demonstrate creative abilities to analyze and solve assigned tasks.

Experts believe that the development of both traditional and new technologies should adhere to the principles of complementarity and intercorrelation. This approach introduces a fundamentally new dimension to the educational environment—a global dimension that exists in real time and encompasses the full range of educational technologies (Hasson W., Waterman E., 2002).

Modern information and communication technologies, originally developed outside the education system, are driving a true revolution in this field. We are already witnessing how the education system is integrating into the networked world, where mass media, advertising, banking, commerce, and other industries have already established their presence. This process is inevitable and without alternative.

Higher education has taken the lead in the practical implementation of network technologies, particularly in the areas of open and distance learning. However, higher educational institutions face certain contradictions that are almost impossible to resolve within their current structure.

The application of modern information and communication technologies can help overcome these contradictions. Various solutions are possible—from integrating the educational institution into the network in its current form to completely reorganizing its structure, as has been observed with the adoption of new technologies in other areas of human activity. In both cases, the changes should enrich the activities of higher educational institutions, improving the quality of education and expanding its accessibility.

Modern higher education institutions must adopt new approaches to learning that foster the development of students' communicative, creative, and professional skills, leveraging the diversity of content and organization in the learning process. These approaches should not replace traditional teaching methods but significantly expand their capabilities (Zakharova I.).

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