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ИНТЕГРАЦИОННЫЕ ПРОЦЕССЫ В СОВРЕМЕННОЙ НАУКЕ: НОВЫЕ ПОДХОДЫ И АКТУАЛЬНЫЕ ИССЛЕДОВАНИЯ

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СОЦИОЛОГИЧЕСКИЕ НАУКИ

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ENHANCING THE MASTERY OF MODERN INFORMATION, COMMUNICATION AND DIGITAL TECHNOLOGIES IN EDUCATION: KEY FACTORS AND PEDAGOGICAL APPROACHES

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Аннотация. В статье рассматриваются факторы эффективного освоения современных информационно-коммуникационных и цифровых технологий в системе образования в условиях глобализации и цифровой трансформации. Проанализированы педагогические подходы к внедрению ИКТ, роль цифровых инструментов в повышении качества обучения и формировании информационной компетентности обучающихся. Выявлены основные проблемы, связанные с недостаточным уровнем цифровой грамотности, ограниченными ресурсами и неэффективной интеграцией технологий в образовательный процесс. Предложены практические меры по совершенствованию использования цифровых технологий, развитию индивидуализированного обучения и повышению эффективности образовательной деятельности с учётом современных требований.

Abstract. The article examines the key factors influencing the effective mastery of modern information, communication, and digital technologies in the education system in the context of globalization and digital transformation. It analyzes pedagogical approaches to the implementation of ICT, the role of digital tools in improving the quality of education, and the development of students' information competence. The main problems related to insufficient digital literacy, limited resources, and ineffective integration of technologies into the educational process are identified. Practical measures are proposed to enhance the use of digital technologies, support individualized learning, and improve the overall effectiveness of educational activities in line with contemporary requirements.

Ключевые слова: информационно-коммуникационные технологии, цифровые технологии, образование, цифровизация, информационная компетентность, электронное обучение, мультимедиа, дистанционное обучение

Keywords: information and communication technologies, digital technologies, education, digitalization, information competence, e-learning, multimedia, distance learning

Information and communication technologies are based on working with electronic computing equipment, using computers in the educational process, modeling, effective use of electronic textbooks, interactive whiteboards and virtual laboratories, working on the Internet, and computer-based educational programs.

The use of modern information technologies in lessons leads to the following results:

Enables students to think freely;

Develops language skills;

Teaches students to express their ideas and engage in comprehensive inquiry;

Increases creative activity and fosters teamwork;

Forms knowledgeable individuals who are proficient in information technologies.

The great pedagogue Konstantin Ushinsky stated: "A teacher remains a teacher only as long as he continuously improves his knowledge; once he stops learning and searching, his teaching collapses." Therefore, every teacher must prepare their daily lessons in accordance with modern requirements and widely use information and communication technologies.

According to the Law on Education of the Republic of Uzbekistan, the main task of the education system is to create necessary conditions for education aimed at forming personal and professional competencies based on national and civic values and practical achievements, introducing new teaching technologies, informatizing education, and integrating into global communication networks.

Effective Factors of Using Electronic Textbooks and Virtual Laboratories

The teacher applies rational methods of assessing knowledge together with students, ensuring accuracy and objectivity of evaluation;

Students work individually and are constantly engaged in independent learning;

The teacher can fully observe students' progress and work individually with each learner according to their abilities.

In addition, integrating Internet technologies into teaching methods serves as a source of high-quality education.

Teaching through Internet systems enables information exchange, enhances cognitive activity, increases interest in learning, and encourages independent research. The teacher plays the role of a guide and organizer in such educational systems.

Mastering digital technologies in education is a requirement of the time. The 21st century is the age of information technologies. In modern society, ICT plays a crucial role in the development of the education system. The informatization of education and teaching subjects on a scientific-technological basis are among the key priorities.

Strategic goals of education development include modernizing the country, ensuring socio-economic stability, improving the quality of training highly qualified personnel, aligning human development with labor market demands, expanding educational coverage, training competitive, creative, and independent-thinking specialists based on international standards, creating conditions for intellectual and moral development, and ensuring global competitiveness of the education system.

In the era of rapid development of information technologies, training qualified specialists is one of the main tasks of the teacher. The rapid development of information processes in society requires the formation of individuals who are proficient in modern technologies. Education oriented toward the future must focus on developing competencies of individuals.

The main goal of forming information competence is to equip students with knowledge on transmitting, transforming, and applying information, and to develop their ability to use computer technologies effectively and independently.

In a time when ICT is widely used and rapidly developing, the formation of an information society becomes essential. The main requirement is to provide students with basic knowledge of information, develop logical and structural thinking, form ICT skills, and raise an information-literate generation adapted to modern society.

Information technologies are a set of mathematical, cybernetic methods and modern technical tools that ensure the collection, storage, processing, and transmission of information. Communication includes methods and mechanisms of information transfer and the devices used for recording it.

Main Tasks of Education in ICT Conditions

Teaching and learning;

Development;

Forecasting information;

Developing creative abilities.

Directions of ICT in Education

- a) Electronic textbooks;
- b) Virtual reality and laboratories;
- c) Telecommunication technologies;
- d) Multimedia and hypertext technologies;
- e) Distance learning (Internet-based).

New Tasks for Teachers

Creating electronic educational-methodical complexes;

Using global computer networks;

Developing software tools using innovative programming methods;

Providing independent learning opportunities in distance education.

Electronic Textbooks

Electronic textbooks are a tool for presenting new knowledge and conducting test-based assessment. Their use allows achieving significant results in education.

Students gain dual knowledge: subject knowledge and computer literacy. They can independently conduct creative work and integrate theory with practice.

Electronic textbooks provide additional materials, improve memory retention, and develop independent learning skills. Their main purpose is to ensure continuous control of the learning process and to develop information-search skills and creativity.

Advantages include video lessons, glossaries, dictations, tests, and revision questions.

Their use increases students' interest in subjects, improves knowledge quality, develops practical skills, and enhances assessment processes. Students can store and revisit materials at any time.

The ultimate goal is not only knowledge acquisition but also independent learning and practical application of knowledge. Today's child is tomorrow's future.

Today, due to the vast flow of information, teachers must be able to express ideas systematically, possess strong communication and information culture, and effectively use digital tools. Students must adapt to new educational environments, technologies, and relationships.

The study examined the theoretical and practical aspects of using modern information, communication, and digital technologies in the education system, analyzed pedagogical approaches, and identified key challenges related to their implementation. The main factors influencing the effective mastery of digital technologies were determined, including the level of digital literacy, availability of technical infrastructure, and methodological support. Practical recommendations were developed to improve the educational process through the effective integration of digital tools.

The implementation of the proposed measures will enhance the quality of education, promote individualized learning, develop students' information competence, and ensure more efficient use of digital resources.

Prospects for further research include the study of advanced digital educational technologies, the integration of artificial intelligence into education, and the assessment of their impact on learning outcomes.

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