

THE ISSUE OF DEVELOPING DIGITAL COMPETENCIES IN THE TRAINING OF FUTURE TEACHERS

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Annotation: In today's digital economy, modernizing the education system and training professionals with digital competencies is a crucial task. Digital education utilizes advanced technologies to establish a personalized learning process. Digital didactics focuses on developing teaching methods and technologies based on modern requirements. Furthermore, shaping teachers' digital competencies is a significant direction in the education system, integrating information and communication technologies and interactive teaching methods. The digital learning environment enhances students' independent thinking and information analysis skills. This process helps adapt to labor market demands and contributes to increasing the competitiveness of the national economy.

Keywords: Digital economy, digital education, digital didactics, digital competence, education system, innovative technologies, information and communication technologies, interactive learning, independent learning, labor market, professional competencies, modern pedagogy.

Nowadays, the economy increasingly demands highly competent specialists who possess professional mobility and can work in dynamic economic conditions. In the Decree of the President of the Republic of Uzbekistan No. PF-4947, "On the Strategy for Further Development of the Republic of Uzbekistan," improving the quality of training for modern specialists who meet the requirements of the labor market, employers, and the digital economy as a whole is identified as a key task.

The education process is being directed toward digitalization, lifelong learning, and the use of advanced learning technologies such as big data, virtualization, virtual and augmented reality (VR, AR), and cloud computing in mobile technologies to ensure a personalized approach to learning. Effective use of digital technologies in education, involving students in independent research, selecting and processing information, and participating in project activities contribute to the development of 21st-century skills, including digital competencies, in future specialists.

The creation of a digital education process in educational institutions must be based on digital didactics, a new branch of pedagogy that focuses on organizing the teaching process in a digital learning environment. The subject of digital didactics is not merely the functioning of digital educational tools but rather human activity itself.

Digital didactics can be considered a trans-integrative field of scientific knowledge, characterized by the transfer and integration of certain scientific ideas and approaches from one domain to another. In vocational education and training, the subject of digital didactics is "the entire teaching process as a system for organizing the learning process in a digital educational environment." This includes educational goals (aligned with the requirements of the digital economy and digital society), learning content and its structuring requirements, teaching methods (leveraging digital technologies), organizational forms, teaching technologies and methodologies (maximizing the didactic potential of digital technologies), teaching tools (including digital tools integrated into a unified intellectual system of networks and software-

hardware solutions), and the impact of digital education processes in vocational education and training on societal and economic development.

Moreover, as scholars have pointed out, the strategy for working with the digital generation should be based on the understanding that "integrating them into the traditional educational process is practically impossible. Therefore, it is necessary to significantly transform the educational process according to the capabilities of the digital generation, leading to the creation of a new digital learning process."

The distinctive feature of designing a digital learning process is the implementation and use of digital technologies, many of which possess the following didactic properties:

- Freedom to search for various types of information within the global network.
- Personalization, offering unlimited possibilities for customization according to learners' needs and characteristics.
- Interactivity, ensuring multi-subject engagement during collaborative learning activities.
- Multimedia capabilities, activating different channels of information perception and comprehension in an integrated manner.
- Hypertextuality, allowing free navigation within texts, the use of cross-references, and the informative nature of digital content.
- Subcultural adaptation, aligning with the worldview and cognitive habits inherent to the digital generation.

Furthermore, nowadays, digital education technologies (blended learning, mobile learning, distance learning technologies, electronic (online) learning, and others) play a significant role in the digital education process. They rely on the use of technical tools and specialized interactive devices (PCs, laptops, tablets, robotics kits, interactive whiteboards, electronic flipcharts, interactive panels, interactive sandbox, interactive floor, interactive cubes, and other similar devices).

To organize the digital education process, educational institutions require highly qualified and well-trained personnel. Under the conditions of the continuously growing digitalization in all sectors of the economy, only personnel with the necessary competencies can become the main source of increasing the competitiveness and labor productivity of the economy of the Republic of Uzbekistan and the country as a whole.

To achieve this, it is necessary to modernize the professional education system to the required level, align educational programs with the needs of the digital economy, widely introduce digital technologies into the educational processes of educational institutions, and ensure the possibility of lifelong learning for citizens.

In the education system, training future educators in terms of developing their digital competencies largely depends on the psychological-pedagogical, didactic, methodological, and content-related possibilities of organizing the educational process, as well as on the creation of a modern information-educational environment in educational institutions.

The relevance and significance of the information-educational environment in educational organizations are supported by legislation. Accordingly, it is defined as a system that includes electronic information resources, electronic educational resources, and a combination of information and telecommunication technologies along with appropriate technological tools, ensuring that learners can fully acquire educational programs regardless of their location.

Thus, the information-educational environment of educational institutions serves as a foundation for developing the digital competencies of future educators.

The establishment of a digital learning environment is becoming increasingly important. Today, if the modern digital learning environment is fully transitioned into a digital format, Uzbekistan will be able to create conditions for all categories of citizens to receive continuous education through the development of a national digital education space.

The analysis of regulatory documents, recommendations, and research in the field of education digitalization allows for the identification of key conditions necessary for digital transformation in education, which include:

- The digital generation of learners;
- The creation of legal frameworks for education digitalization;
- Resource provision for digital education, including the digital learning environment of educational institutions;
- The preparation of personnel with digital competencies, including digital literacy;
- Digital pedagogical technologies and other educationally significant digital technologies.

From the perspective of creating the aforementioned conditions for the digitalization of education and the development of digital competencies, we will analyze the regulatory documents governing the preparation of future educators in the vocational education system.

In recent times, the government has been implementing a series of measures aimed at improving the system for training future educators.

Alongside other ongoing trends, professional standards that are actively being developed and implemented are increasingly influencing the training of future specialists and the overall process of modernizing the education system.

One of the methods for assessing the quality of specialist training and the level of development of their professional competencies is their knowledge and understanding of digital components (such as Microsoft Office, SMART Notebook, SMART Table, and similar programs).

A specialist must be able to apply digital technologies in the educational process, prepare documents using Microsoft Office, work with Microsoft Office, SMART Notebook, and SMART Table, and utilize educationally significant digital technologies (such as virtual and augmented reality, robotics components, and specialized digital technologies for educational purposes).

A future educator's preparation includes a mandatory requirement: demonstrating digital competencies that reflect their ability, proficiency, and readiness to solve professional tasks using digital tools and educationally significant digital technologies.

The study of the content of the informatics course, regulated by academic curricula, is offered at an advanced level within the framework of the general education subject "Informatics." This standard defines the requirements for subject-specific outcomes of an advanced informatics course, which include:

- Acquiring a fundamental knowledge system that reflects the contribution of informatics to shaping the scientific perception of the modern world;
- Understanding the concept of algorithm complexity and knowing the basic algorithms for processing numerical and textual information;
- Forming an understanding of the structure of modern computers and the trends in the development of computer technologies;
- Developing a general understanding of the principles behind the development and functioning of internet applications;
- Gaining awareness of computer networks and their role in today's world;

• Understanding the fundamental principles of organizing and operating computer networks, norms of information ethics and rights, principles of ensuring information security, and methods and tools for ensuring the reliable operation of digital tools, among others.

Currently, many researchers consider it necessary to take into account interdisciplinary integration based on information and communication technologies to systematically develop the digital competencies of future educators during their training.

Based on the points mentioned above, the following conclusions can be drawn:

- The analysis of regulatory documents, recommendations, and research in the field of digitalization of the economy generally makes it possible to highlight the conditions necessary for the digitalization of education. These include: the digital generation of learners; the creation of a legal framework for digitalizing education; resource provision for digitalizing education, including the development of a digital learning environment in educational institutions; and the preparation of personnel with digital competencies, including digital literacy, to meet the demands of the digital economy.
- Digital pedagogical technologies and educationally significant digital technologies, such as big data, distributed ledger systems, artificial intelligence, robotic components, wireless communication technologies, virtual and augmented reality technologies, digital twin technology, electronic identification and authentication technologies, specialized digital technologies for educational purposes, and the Internet of Things, play a crucial role in modern education.
- The variable part of the training program for mid-level specialists provides the necessary conditions for developing relevant digital competencies that are currently in high demand.

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