

Adoption of Digital Technologies in The Higher Education

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ABSTRACT

Objective: This article examines the digital transformation of higher education institutions and their impact on the development of distance education. It analyzes modern approaches to defining the concepts of "university digitalization" and "distance learning technologies," identifying key drivers and barriers to the implementation of digital solutions in the educational process. **Method:** Based on an analysis of domestic and international experience, the author identifies key areas of digitalization: the implementation of electronic educational platforms, automation of educational process management, and the use of artificial intelligence and big data technologies. **Results:** Particular attention is paid to the changing roles of teachers and students in the context of the transition to hybrid and fully online learning formats. **Novelty:** The article identifies key areas of digitalization: the implementation of electronic educational platforms, automation of educational process management, and the use of artificial intelligence and big data technologies.

INTRODUCTION

In the 21st century, the field of intellectual production, including science, technology, and education, is undergoing a profound qualitative transformation. Under the influence of digitalization, commercialization, and new bureaucratization, the technological foundations of intellectual production, its economic forms, as well as methods of communication, organization, and management, are rapidly and fundamentally changing [1, 2]. The digitalization of science and education is a necessary component of the overall global process of digital transformation of society. In the digital economy, science is responsible for developing innovations that drive economic growth, while higher education ensures the improvement of human capital [3, 4].

Today, the term "digitalization" can be considered in both a narrow and a broad sense. Narrowly defined, digitalization refers to the transformation of information into digital form, which implies cost reduction and the emergence of new opportunities. Broadly defined, digitalization refers to a contemporary global trend in economic and social development based on the transformation of information into digital form, which should lead to increased economic efficiency and an improved quality of life [5].

RESEARCH METHOD

The study is based on a systematic theoretical analysis, including a content analysis of scientific publications on the digitalization of higher education (for the period 2015–2025) and a comparative legal analysis of regulatory documents governing the implementation of distance learning technologies in Uzbekistan. To systematize existing approaches to the digital transformation of universities, a structural-functional analysis method was used to identify key components of the digital educational environment and identify the relationships between them based on a synthesis of literary data. A scientometric analysis of publication activity (using the VOSviewer tool) made it possible to identify key research trends, the most cited works, and promising areas for further research in the field of digitalization of higher education.

RESULTS AND DISCUSSION

The beginning of 2020 has once again forced the entire world to address the issue of the digitalization of education. This interest is driven by significant scientific and technological progress in the digital field, as well as the emergence of the COVID-19 coronavirus, which was quickly recognized as a pandemic [6]. Education of the future is currently undergoing a digital transformation, extending beyond the timeframe of life and beyond the confines of educational institutions, leveraging the unique capabilities of network and digital technologies, and engaging all direct and indirect participants in the educational process. The role of teachers in the digital economy is changing, and new forms of interaction between teachers and students, known as networked interaction, are emerging [7, 8].

Today, Uzbekistan is striving for greater digitalization of education: work is underway to equip organizations with modern technological equipment and develop digital services for educational activities [9]. The analysis revealed the main positive and negative aspects of digitalization of education and its impact on international education.

Let's start with the positive factors:

- 1) the ability to study remotely at any university worldwide;
- 2) the availability of conditions for continuous learning;
- 3) an adaptive and flexible curriculum;
- 4) the ability to combine studies with a full-time job;
- 5) accessibility of teaching and learning materials online;
- 6) technology and efficiency, as well as a well-designed learning process.

Negative factors include:

- 1) increased workload for faculty and students;
- 2) decreased personal contact, incomplete socialization;
- 3) insufficient technological skills for online learning;
- 4) limited supervision of independent learning.

Currently, effective online learning gives countries an advantage in the international competition in education. Distance education allows students to gain

knowledge from anywhere in the world. Consequently, a competitive higher education institution is one where online learning is effective and more accessible to students. Of course, not only students but also faculty members should learn and gain experience in online education. The digital transformation of the educational process in the university system, as part of the implementation of the international competitiveness strategy, should help reduce territorial barriers when international applicants choose a higher education institution. [10, 11]

For a modern university, a deep and conscious approach to digital technologies is at the center of the institution's life. The starting point is The creation of a digital strategy for the development of higher education is underway [12]. According to Cisco, the elements of the higher education digitalization strategy are the digital university; digital teaching, learning, and research; digital campus; and digital stakeholders (Figure 1).

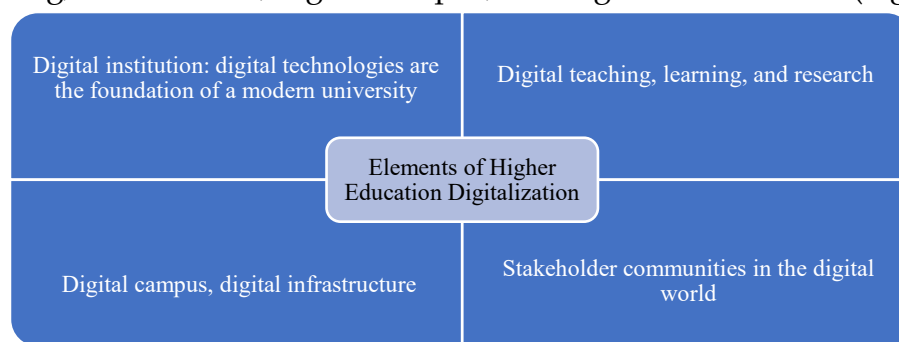


Figure 1. Elements of Higher Education Digitalization

The digitalization of higher education in Uzbekistan, actively supported by international projects of the World Bank, has led to the creation of a large-scale unified ecosystem based on the HEMIS information platform [13]. Today, this digital transformation covers all 222 operating universities in the country, including 30 international branches, and provides paperless management, electronic gradebooks, and transparent academic performance monitoring for 1.432 million students. Thanks to the introduction of modern technologies and the granting of academic independence to 35 leading state universities, the overall enrollment rate of young people in higher education has increased to 43%. Particular emphasis has been placed on training technology professionals: 145 universities have already launched specialized IT programs, training over 120,000 future specialists [14, 15]. The integration of digital platforms into science has increased the research potential of faculty to 44% and significantly increased the international visibility of Uzbek science.

CONCLUSION

Fundamental Finding: The digitalization of education is leading to significant changes in the labor market and is aimed at reorganizing the educational process and redefining the role of the teacher. Digital competence is the fundamental requirement for training highly qualified personnel in higher education institutions. **Implication:** On the one hand, digitalization undermines the proven effectiveness of the school's

methodological foundations inherited from the past, but on the other, it creates greater accessibility to information in various forms. This is the cornerstone of the digitalization of the economy. After all, it is at these two stages of education that the entire digital infrastructure of society and, in particular, the economy, is built. **Limitation:** However, accessibility to information will require teachers and students to constantly search for and select relevant and engaging content, as well as process the information quickly. While children quickly adapt to the digital environment, developing initial skills and abilities in using digital technologies, the same cannot be said for older generations. It is no secret that the shortage of qualified personnel in the digitalization sector is quite acute. **Future Research:** It is essential that the "Digital School" system and its subsequent stage, the "Digital Higher School," be operational.

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