



Article

Some Problems of Managing The Educational Process in Higher Education in The Context of Digital Transformation and Their Solutions

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Abstract: This article analyzes the problems arising from the introduction of digital technologies in higher education institutions and the ways to address them. The study examines technical support, Internet infrastructure, teachers' digital readiness, software shortages, financial resources, and data security. It also considers the impact of digitalization on education quality, student activity, personalized educational trajectories, and higher education management. The article substantiates directions for developing an integrated model of digital management, indicators for assessing the impact of digital transformation, structural classification of digital technologies, personalized learning, and interactive assessment. The study concludes that effective digital transformation requires not only technological modernization but also coordinated pedagogical, organizational, and human-centered measures.

Keywords: Digital Technologies, Higher Education, Digital Transformation, Digital Educational Environment, Digital Literacy, Internet Infrastructure, Pedagogical Technology, Educational Management, Digital Competence, Distance Learning

Citation: Ramanovich, B. I. Some Problems of Managing The Educational Process in Higher Education in The Context of Digital Transformation and Their Solutions. American Journal of Social and Humanitarian Research 2026, 7(10), 1-4.

Received: 30th Jul 2026

Revised: 20th Aug 2026

Accepted: 15th Sep 2026

Published: 03rd Oct 2026



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1. Introduction

Today, the introduction of digital technologies into the educational process is one of the most urgent directions of professional training of specialists in the higher education system. It makes it possible to improve the quality of education, increase the competitiveness of future specialists in the labour market, and create interactive conditions in the educational process.

Digital technologies are discrete systems based on methods of encoding and transmitting information that make it possible to perform a large number of various tasks in the shortest possible time. The speed and versatility of these technologies have created a high demand for IT solutions.

The current state of the education system is characterized by the growing role of non-traditional educational technologies. They change the nature of the development, acquisition and dissemination of knowledge, make it possible to deepen and expand subject content, update it quickly, apply more effective teaching methods, and expand educational opportunities.

When discussing the digitalization of higher education, three main aspects can be distinguished: teaching with the help of digital technologies; application of digital

technologies in educational management, including assessment and adjustment of educational trajectories; and digital training for professional purposes.

In recent years, large-scale work has been carried out in Uzbekistan on reforming the education system, assessing education quality, and developing digital education. The national digitalization agenda has included measures associated with the development of information and communication technologies and the implementation of digital transformation in the economy, industry and society [1–4].

The advantages of digitalization include increased efficiency, increased student activity, personalized education, new teaching methods, and improved management of educational programmes, academic staff, employees and resources. In studies by P.V. Vedeneev, A.S. Zavarikhin, J.N. Zaitseva, T.N. Kazarina, B.A. Krasilnikova, V.I. Soldatkin and V.S. Tarasov, the essence of the concept of the “digital educational environment” is considered. According to S.V. Tarasov, the digital educational environment includes content, methodological and communicative components supplemented by a technological component [1].

A.B. Fedorov considers media education as a process of developing a person through mass communication tools and materials, aimed at forming communication culture, creative and communicative potential, critical thinking, perception and analysis of media texts, and various forms of self-expression through media technologies [2].

Digital competence in higher education also includes the ability to create and use electronic textbooks, work with digital communication and cloud services, and enrich distance learning platforms with creative innovations [3].

According to D.P. Khashimova and R.A. Parpieva, one of the significant obstacles to the effective use of ICT in higher education is insufficient Internet infrastructure, particularly in remote areas. The authors emphasize the importance of improving Internet infrastructure and mobile services, creating conditions for students to master modern ICT, expanding the use of digital technologies, developing information resources and distance learning technologies, and involving creative students in digitalization projects [4].

These approaches demonstrate that digital transformation should not be limited to introducing technical tools. It requires corresponding changes in educational content, teaching methods, management processes, teacher competencies and the organization of interaction between teachers and students [6].

2. Materials and Method

The research object is the educational process and its management in higher education institutions in the context of digital transformation. The study focuses on the organizational, pedagogical, technological and infrastructural conditions that influence the effectiveness of digitalization.

In order to achieve the goal of the research and ensure the fulfilment of the set tasks, the study of advanced foreign experience and literature in the field, theoretical analysis, modelling (design), testing, electronic questionnaire, interview, pedagogical observation, expert assessment and mathematical-statistical methods were used.

The scientific significance of the research results lies in the study of the relevance and importance of informatization and digitalization of the education system, as well as the factors and obstacles that influence their implementation. The practical significance is connected with the formation of a digital educational environment in higher education institutions and the use of different electronic and interactive forms of education.

3. Results and Discussion

The analysis of the digital transformation of higher education demonstrates that the introduction of digital technologies creates new opportunities for both the organization of the educational process and the management of higher education institutions. The study

identifies technical, infrastructural, organizational and pedagogical factors that influence the effectiveness of digitalization [7].

An integral model of digital management in higher education institutions can include innovative technologies, distance learning platforms, data analysis tools and personalized management approaches. Such a model provides a basis for linking educational activities with management decisions and learner needs [8].

A system of indicators for assessing the impact of digital transformation on the educational process can include pedagogical effectiveness, student activity and transparency in management. These indicators can be used to monitor the results of digitalization and identify areas requiring further improvement [9].

The structural classification of technologies used in the digital educational environment creates conditions for more systematic decision-making by teachers and managers. At the same time, recommendations concerning personalized education, interactive assessment and the development of digital competencies expand the human-oriented possibilities of digitalization [10].

Digitalization is also associated with the creation of new educational tools and forms: electronic textbooks, electronic problem books, video lectures, quests, computer games, role-playing and simulation activities, and the use of artificial intelligence in teaching. The effectiveness of these opportunities depends on adequate Internet infrastructure, quality digital services, appropriate educational resources, teacher and student digital readiness, and organizational support [11].

The practical implications include transferring educational materials and knowledge-control tools into electronic formats and developing interactive electronic environments based on teacher-student interaction, webinars, debates and forums. These measures can contribute to improving the accessibility, flexibility and efficiency of higher education [12].

The results also indicate that digital transformation changes the requirements for teachers and students [13]. Teachers need digital competencies for designing and managing learning activities, while students require the ability to independently work with digital resources, evaluate information and participate effectively in interactive educational environments [14].

Consequently, the main problems of managing the educational process under digital transformation can be grouped into technical and infrastructural, pedagogical and personnel, organizational and managerial, financial-resource, and information-security problems. Their solution requires coordinated measures rather than isolated technological interventions [15].

4. Conclusion

The study shows that digital transformation is becoming an important component of the development of higher education. Digital technologies create opportunities to improve teaching speed and flexibility, support continuous learning, individualize educational trajectories, introduce interactive teaching methods and improve the management of educational resources.

At the same time, successful implementation requires a comprehensive solution to existing problems. Particular attention should be paid to improving Internet infrastructure, increasing the quality of digital services, creating conditions for students to master modern ICT, expanding the use of digital technologies in the educational process, developing information and distance-learning resources, and involving creative students in digitalization projects.

Thus, the development of a digital educational environment should combine technological modernization with pedagogical, organizational and human-oriented measures. Such an integrated approach can support the effective transformation of teaching and educational management in higher education institutions.

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