

THE SOCIAL NECESSITY OF TEACHING PEDAGOGICAL SCIENCES TO STUDENTS IN THE INFORMATION EDUCATIONAL ENVIRONMENT

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Annotation: This article analyzes the changes occurring in the educational process as a result of the introduction of information and communication technologies (ICT) and scientifically substantiates the social necessity of teaching pedagogical sciences to students. The study examines the factors influencing the development of pedagogical competencies within the information educational environment, as well as the effectiveness of digital education and its impact on societal development.

Keywords: information educational environment, pedagogy, digital competence, innovative methods, social necessity, education quality.

Introduction

In modern society, the issue of improving the quality of the educational process is more urgent than ever. The rapid development of global digital transformation processes, artificial intelligence, online learning platforms, and open educational resources requires new approaches within the system of pedagogical education. The information educational environment (IEE) plays a crucial role in enhancing the quality of pedagogical training, as it renews not only the technical foundation of teaching but also the philosophy, methodology, and content of the entire learning process. The Presidential Decree of the Republic of Uzbekistan dated November 6, 2020, on the implementation of the “Digital Uzbekistan – 2030” strategy, also identifies the digitalization of education, the improvement of distance learning systems, and the enhancement of education quality as priority directions.

In the 21st century, the rapid development of information and communication technologies has fundamentally transformed the education system. Today, every educational institution, particularly higher education, is adapting to a digital learning environment. This process, in turn, requires the renewal of the content, forms, and methods of instruction. Pedagogical sciences—responsible for shaping future teachers’ professional preparedness, pedagogical thinking, and humanistic values—represent an essential field. Therefore, teaching these subjects within an information educational environment is considered not only a methodological innovation but also a social necessity. This is because, in the digital era, every educator must be technologically literate, capable of effectively using information resources, and able to educate students in accordance with modern requirements.

This article aims to analyze the theoretical foundations of this process, identify its social necessity, and substantiate the advantages of teaching pedagogical sciences within an information-rich environment.

Research Methodology

In the course of the study, theoretical analysis, a systems approach, comparative and analytical methods, as well as empirical observation were employed. These methods involved examining scientific literature in the fields of pedagogy, didactics, and information technologies, as well as relevant regulatory documents (including Presidential Decree PQ-4884 of the Republic of Uzbekistan).

The components of the information environment in pedagogical education (learning platforms, electronic resources, interactive tools) were analyzed in their interrelation: platforms were examined as instruments for management, communication, monitoring, and assignment distribution; electronic resources were treated as sources of knowledge; and interactive tools were analyzed for their role in enhancing practical activities and increasing student engagement.

Through comparative and analytical methods, the effectiveness of traditional and digital forms of education was studied. Empirical observation involved monitoring distance learning sessions and interactive classes with student participation, followed by an analysis of the results.

Analysis and Results

The information educational environment significantly enhances the quality of pedagogical education. Teaching pedagogical sciences within such an environment represents an integrated system that ensures digital interaction among students, teachers, and educational resources. This system promotes openness, flexibility, and opportunities for individualized development within the learning process. Electronic textbooks, video lectures, testing systems, and virtual platforms enable students to engage in the learning process in interactive and independent ways. As a result, learners develop independent thinking, analytical skills, and creativity.

In today's era of socialization, information and communication technologies (ICT) serve as a crucial factor in developing pedagogical competencies. Through digital learning, students acquire the ability to effectively use online resources, design educational projects using digital tools, engage in interactive communication, and develop media literacy and information culture.

As a social necessity, one of the key factors in teaching pedagogical sciences within an information environment stems from the digital transformation of society. Digital transformation demands fundamental reforms in all sectors, including education, where teachers' digital competence is of decisive importance. This raises a key question: **what does digital competence mean for teachers?**

Teacher's Digital Competence. A teacher's digital competence is the ability to effectively use modern information technologies in the teaching process, scientific-methodological activities, and educational work. The digital competence of a teacher consists of the following components:

1. **Technical competence** – the ability to use computers, tablets, interactive whiteboards, and work with online platforms.
2. **Information-communication competence** – creating electronic resources, searching for, analyzing, and processing information.
3. **Pedagogical-digital competence** – designing lessons using digital tools and applying digital assessment methods (quizzes, tests, analytics).

4. **Cybersecurity competence** – protecting personal data and teaching students safe Internet practices.

A digitally competent teacher primarily improves the quality of education, adapts learners to new formats of learning, meets global educational standards, and effectively utilizes modern technologies. Therefore, enhancing teachers' digital competence is considered one of the priority tasks of today's educational policy.

The obtained results show that the information educational environment is creating a new paradigm in the teaching of pedagogical sciences. In addition to imparting pedagogical knowledge, it now requires the development of students' digital pedagogical competencies, the cultivation of information culture, and the strengthening of social responsibility. This is because the modern teacher is not only a provider of knowledge but also a guide who navigates students through the flow of information.

In addition, the following challenges were observed in the process of teaching in the information environment:

- Teachers' digital literacy levels are insufficient;
- The technical capabilities of learning platforms are limited;
- Internet infrastructure is inadequate for some students.

Therefore, in teaching pedagogical subjects, it is crucial to develop ICT infrastructure, retrain teachers, and improve digital teaching methodologies. Based on the research findings, the following recommendations are proposed to maximize the positive impact of digital education and the information environment on societal development:

1. **Develop a policy of digital inclusivity.** Governments and educational institutions should expand infrastructure, provide access to the Internet, devices, and technical support to reduce digital inequality. Implement digital literacy programs and training for all population groups (students, parents, teachers) to enhance digital skills.
2. **Strengthen information security.** Enhance personal data protection policies on online learning platforms, implement systematic monitoring against cyber threats, and raise awareness through security training for teachers and students.
3. **Create high-quality digital educational resources.** Develop interactive, adaptive, and high-quality learning modules, provide methodological guides for teachers, and organize professional development courses to deepen digital teaching skills.
4. **Enhance student support systems.** Establish mentoring and online support, create tutors, online groups, and communities for students, and improve learners' self-management, self-assessment, and reflective skills to adapt to independent learning.
5. **Monitoring and evaluation mechanisms.** Define indicators (student outcomes, participation, motivation) to evaluate the effectiveness of digital education, conduct regular analyses, and implement social sustainability models (e.g., EU experience) to measure the societal impact of digital transformation.

6. **Political and social collaboration.** Strengthen collaboration between state, non-governmental, and private sectors; encourage investments, grants, public-private partnerships, social innovations, and startups; and support projects that address digital education and societal challenges.
7. **Integration with Sustainable Development Goals (SDGs).** Align digital education strategies with national and regional sustainable development policies and evaluate the social and economic benefits of digital transformation within the context of sustainable development.

Conclusion

The research results indicate that teaching pedagogical subjects in the information-based learning environment has become a strategic direction and a social necessity for the modern education system. The deep integration of digital technologies into the educational process necessitates a fundamental renewal of the content, methods, and organizational forms of pedagogical training. Teaching in the information environment allows students to develop independent thinking, creativity, information literacy, media literacy, and digital pedagogical competencies.

A teacher's digital competence is a key factor in improving the quality of education, encompassing technical, information-communication, pedagogical-digital, and cybersecurity skills. Developing these competencies ensures active participation of educators in the digital transformation of contemporary society and enhances the efficiency of the educational process.

Analysis shows that the information-based learning environment not only improves educational effectiveness but also promotes social equity, open access to education, innovative thinking, and a culture of lifelong learning. At the same time, existing challenges—insufficient digital literacy, weak technical infrastructure, and limited resources—need to be addressed systematically.

Overall, teaching pedagogical subjects in the information environment plays a crucial role in modernizing the educational process, preparing digitally competent specialists, and ensuring the intellectual and moral development of society. Proper implementation of this process, in alignment with Uzbekistan's digital development strategy, will elevate the quality of pedagogical training to a new level.

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