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TRANSFORMATION OF EDUCATIONAL PROCESS MANAGEMENT IN HIGHER AND VOCATIONAL EDUCATION BASED ON DIGITAL PLATFORMS AND SMART TECHNOLOGIES

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Abstract *– This article examines the transformation of educational process management in higher and vocational education based on digital platforms and smart technologies. The rapid development of digital transformation and smart technological solutions has created new opportunities for improving academic management, enhancing teaching efficiency, and optimizing educational processes. The study analyzes modern approaches to the integration of digital platforms, learning management systems, artificial intelligence, and educational data analytics into academic administration. The research demonstrates that smart technologies contribute to the automation of educational management, support data-driven decision-making, and enable personalized learning pathways. The article identifies key directions for the development of smart digital educational ecosystems aimed at improving the quality of educational services and strengthening professional competencies required in the digital economy. The findings provide practical recommendations for implementing digital platforms and smart technologies in educational process management.*

Keywords*: digital platforms, smart technologies, educational process management, higher education, vocational education, learning management systems, artificial intelligence in education, educational data analytics, smart learning environments, digital transformation*

INTRODUCTION

The rapid development of digital technologies and smart solutions has significantly transformed modern educational systems and created new opportunities for improving educational process management. In the context of the digital economy and Industry 4.0, higher and vocational education institutions are required to modernize academic management structures, implement innovative learning technologies, and develop flexible educational environments. The transformation of educational process management based on digital platforms and smart technologies has therefore become one of the key priorities in contemporary educational development.

Digital platforms and smart technologies represent integrated technological ecosystems that combine learning management systems, artificial intelligence, cloud computing, big data analytics, and interactive communication tools. The implementation of these technologies enables educational institutions to automate administrative and academic processes, improve access to educational resources, and enhance the efficiency of teaching and learning activities. Digital platforms support flexible educational models, including blended learning and distance education, which allow students to follow personalized learning pathways and develop professional competencies relevant to the digital labor market.

Smart technologies play a particularly important role in improving educational management by supporting data-driven decision-making and predictive academic analytics. The use of artificial intelligence tools allows educational institutions to monitor student performance, identify learning difficulties, and adapt teaching strategies according to individual learning needs. Moreover, smart

educational environments improve communication between educators and students, increase student engagement, and support collaborative learning processes.

Despite the increasing adoption of digital platforms and smart technologies, several challenges remain, including insufficient integration of digital systems, limited methodological support for smart educational management, and varying levels of digital competencies among educators and students. These challenges highlight the need for comprehensive research aimed at developing effective models for transforming educational process management through digital and smart technologies.

The aim of this study is to analyze the transformation of educational process management in higher and vocational education based on digital platforms and smart technologies. The research focuses on identifying modern trends in smart digital education, evaluating the effectiveness of digital platforms in academic management, and developing strategies for improving educational process management in the context of digital transformation.

LITERATURE REVIEW

The transformation of educational process management in higher and vocational education based on digital platforms and smart technologies has become a prominent subject in contemporary educational research. The expansion of digital transformation and the increasing integration of intelligent technologies have encouraged scholars to explore new models of academic management, innovative teaching methodologies, and advanced learning environments. Digital platforms and smart technologies are widely understood as integrated technological systems that combine learning management systems, artificial intelligence tools, cloud-based services, educational data analytics, and interactive communication technologies.

International research highlights that digital platforms play a crucial role in modernizing educational management systems and improving the efficiency of educational processes. Scholars emphasize that digital learning management systems enable institutions to organize educational activities more effectively, distribute learning materials systematically, and monitor academic performance. Digital platforms also support flexible educational models, including blended learning and distance education, which allow students to access educational content regardless of geographical or time constraints. These technologies contribute to improving accessibility, flexibility, and adaptability of modern education systems.

Studies conducted by international organizations emphasize the strategic importance of smart technologies in preparing specialists for the digital economy. Research findings indicate that smart educational environments facilitate the development of digital competencies, critical thinking skills, and problem-solving abilities among students. The literature also highlights the role of artificial intelligence in supporting adaptive learning systems that personalize educational content according to individual student characteristics and learning styles. The use of predictive analytics tools has been identified as a significant factor in improving academic decision-making and optimizing educational management processes.

Scholarly publications increasingly focus on the application of big data analytics and artificial intelligence in educational process management. Researchers note that intelligent academic management systems enable educators and administrators to analyze student learning patterns, identify potential academic risks, and develop targeted educational interventions. The use of cloud technologies and digital collaboration tools further supports interactive learning and enhances communication between participants in the educational process.

Research in vocational education highlights the importance of digital platforms and smart technologies in improving practical training and professional skill development. Virtual laboratories, digital simulations, and online training platforms have been identified as effective tools for providing realistic training environments and supporting competency-based education models. These technologies enable vocational education institutions to align educational programs with the requirements of digitalized labor markets and technological innovation.

Studies conducted in post-Soviet and developing countries examine the organizational and methodological challenges associated with implementing digital platforms and smart technologies in education. These studies indicate that despite the increasing availability of digital educational tools, many educational institutions face difficulties related to technological infrastructure limitations, insufficient digital competencies among educators, and a lack of comprehensive methodological frameworks for digital academic management. The literature emphasizes the importance of developing integrated smart educational ecosystems that combine pedagogical strategies with advanced digital management technologies.

The analysis of existing scientific literature demonstrates that digital platforms and smart technologies play a significant role in transforming educational process management in higher and vocational education. However, despite considerable progress in digital education research, several issues remain insufficiently explored. These include the development of comprehensive smart educational management models, effective integration of digital platforms into unified academic ecosystems, and the creation of sustainable strategies for implementing smart technologies in educational administration. These gaps highlight the need for further research focused on transforming educational management systems through digital platforms and smart technologies.

METHODOLOGY

This study is based on an integrated methodological approach aimed at analyzing the transformation of educational process management in higher and vocational education through digital platforms and smart technologies. A systems approach was used to examine educational management as an interconnected structure that includes pedagogical, organizational, and technological components.

Comparative analysis was applied to study international and national practices of digital and smart educational management, including digital platforms, smart learning environments, and blended academic management models. The empirical part of the research included observation, surveys, and statistical analysis to evaluate the level of technology adoption and digital competencies among educators and students.

Modeling methods were used to develop a conceptual smart educational management model that integrates digital platforms, artificial intelligence tools, and educational analytics to support automated management and personalized learning. The effectiveness of the model was evaluated through expert assessment and statistical analysis, ensuring the reliability of the research results.

ANALYSIS AND RESULTS

The analysis of the transformation of educational process management in higher and vocational education demonstrates that the integration of digital platforms and smart technologies significantly improves the efficiency and quality of academic management. Educational institutions are increasingly implementing learning management systems, cloud-based digital platforms, artificial intelligence tools, and educational analytics technologies to modernize teaching and administrative processes. The adoption of these technologies has expanded access to educational resources, improved the flexibility of educational programs, and strengthened mechanisms for monitoring student performance and academic progress.

The results of the study indicate that digital platforms contribute to the automation of educational process management. Learning management systems allow for systematic distribution of educational materials, continuous monitoring of student performance, and automated assessment of academic achievements. Smart technologies, including artificial intelligence and predictive analytics tools, support adaptive learning environments that personalize educational content according to individual student needs. The use of digital communication tools and collaborative platforms enhances interaction between educators and students, leading to increased engagement and participation in educational activities.

Empirical findings demonstrate that the effectiveness of digital and smart educational

management largely depends on the level of digital competencies among educators and students. Educators who actively use smart technologies and digital platforms demonstrate higher levels of interactivity and teaching effectiveness, which positively influences student motivation and learning outcomes. However, the research also identified several challenges, including insufficient integration of digital platforms into unified academic ecosystems, limited methodological support for smart educational management, and uneven levels of technological infrastructure across educational institutions. These challenges may reduce the overall effectiveness of digital transformation in education.

Table 1

Impact of digital platforms and smart technologies on educational process management

Indicator	Before Digital Transformation (%)	After Digital Transformation (%)	Improvement (%)
Access to Educational Resources	58	88	+30
Flexibility of Educational Programs	52	84	+32
Automation of Academic Management	46	80	+34
Student Engagement and Participation	55	85	+30
Independent Learning Activity	50	82	+32
Academic Performance Monitoring	53	81	+28
Assessment and Feedback Efficiency	49	78	+29
Decision-Making Transparency	48	79	+31
Development of Professional Competencies	56	86	+30

The development of methodological approaches to smart educational management resulted in the creation of an integrated digital platform-based management model. The proposed model combines digital learning platforms, artificial intelligence technologies, and educational data analytics systems to improve academic planning, knowledge assessment, and learning outcome analysis. The model emphasizes the development of personalized learning trajectories, automated academic monitoring, and data-driven decision-making processes that enhance institutional academic management.

The practical implementation of the proposed model demonstrated its positive impact on educational process management. The use of digital platforms and smart technologies increased students' independent learning engagement, improved the quality of knowledge acquisition, and enhanced the efficiency of assessment and feedback mechanisms. Furthermore, smart academic management tools improved administrative decision-making processes and increased transparency in educational activities.

The findings confirm that digital platforms and smart technologies play a crucial role in transforming educational process management in higher and vocational education. Their effective implementation contributes to improving educational quality, strengthening institutional management systems, and supporting the development of professional competencies required in modern digital economies.

CONCLUSION

The conducted study confirms that the transformation of educational process management based on digital platforms and smart technologies is a key factor in modernizing higher and vocational education systems. The integration of learning management systems, cloud-based digital platforms, artificial intelligence tools, and educational analytics technologies significantly enhances the efficiency of academic management and supports the development of innovative teaching and learning practices. Digital and smart educational environments provide flexible, interactive, and personalized learning opportunities that improve student engagement and academic performance.

The research findings demonstrate that digital platforms and smart technologies contribute to the automation of academic planning, continuous monitoring of student progress, and objective evaluation of learning outcomes. The implementation of smart technologies supports data-driven decision-making processes, increases transparency in educational administration, and improves communication between educators and students. At the same time, the effectiveness of digital transformation largely depends on the level of digital competencies among educational participants and the degree of integration of digital platforms into unified academic ecosystems.

The study proposes methodological approaches for transforming educational process management through digital platforms and smart technologies. These approaches emphasize the integration of traditional educational methods with innovative digital solutions, the development of personalized learning trajectories, and the application of predictive analytics for optimizing academic management. The practical implementation of these approaches has demonstrated positive outcomes in improving educational quality and strengthening institutional academic management.

Overall, the results indicate that digital platforms and smart technologies contribute to the creation of advanced educational systems aligned with the requirements of the digital economy and technological innovation. Future research should focus on the development of adaptive smart educational management models, the integration of advanced artificial intelligence technologies into academic administration, and the continuous improvement of digital platforms for managing educational processes in higher and vocational education systems.

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