

STRATEGIC PARADIGMS FOR IMPROVING AND MANAGING THE QUALITY OF EDUCATION IN THE ERA OF DIGITAL TRANSFORMATION

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Annotatsiya: Ushbu maqolada global raqamli transformatsiya va sun'iy intellekt (AI) rivojlangan asrda ta'lim sifatini oshirish hamda uni boshqarishning zamonaviy mexanizmlari tadqiq etiladi. An'anaviy ta'limni boshqarish tizimlari (LMS) o'rnini egallayotgan aqlli boshqaruv tizimlari, Big Data (katta ma'lumotlar) tahlili va shaxsiylashtirilgan ta'lim traektoriyalarining samaradorligi tahlil qilingan. Maqolada ta'lim sifatini baholashning yangi KPI (Key Performance Indicators) modellari taklif etiladi.

Kalit so'zlar: Ta'lim menejmenti, Raqamli transformatsiya, Sun'iy intellekt, Ta'lim sifati, Big Data, KPI modellar, Shaxsiylashtirilgan ta'lim.

Annotation: This article examines modern mechanisms for improving and managing the quality of education in the era of global digital transformation and advanced artificial intelligence (AI). The effectiveness of intelligent management systems replacing traditional Learning Management Systems (LMS), Big Data analytics, and personalized learning trajectories is analyzed. The article also proposes new KPI (Key Performance Indicators) models for assessing the quality of education.

Keywords: Educational management, Digital transformation, Artificial intelligence, Quality of education, Big Data, KPI models, Personalized learning.

In the 21st century, the digital transformation taking place worldwide is bringing fundamental changes to the education system alongside all other sectors. The current processes of globalization and informatization are positively influencing all spheres of human life, including the education system. The intensification of global economic development, along with the rapid advancement of science and technology, necessitates the modernization of the level of economic education. Therefore, today the quality of education and its management are considered among the stable priorities of state policy.

Information technologies and artificial intelligence (AI), like in all other fields, are fundamentally transforming the education system. Educational quality is now measured not only by the content of textbooks or the professional skills of teachers, but also by the ability to digitally manage educational processes, make data-based decisions, apply data analytics and data-driven decision making, and create adaptive learning environments.

In many developing countries, educational management still remains human-factor dependent and static in nature. Students' academic performance is evaluated only at the end of the semester, which prevents the timely identification and correction of problems. In the modern technological era, this approach leads to a decline in the quality of education. In the educational process, it is possible to monitor the daily growth of students' learning activities through conducting various engaging quizzes using interactive educational platforms and social messengers. This scientific article focuses

in detail on presenting a dynamic model for managing educational quality through digital and intelligent technologies and substantiating its pedagogical and economic effectiveness.

Main Part: Digital Transformation and the Education System

Digital transformation is the process of improving traditional activities through modern information and communication technologies. In the field of education, this process is manifested in the following areas:

- implementation of electronic learning platforms;
- development of distance and hybrid education systems;
- artificial intelligence-based assessment systems;
- virtual laboratories and simulators;
- digital monitoring and data analytics.

Today, the needs of pupils and students are changing, and they require fast, interactive, and individualized forms of education. Therefore, teachers are also expected to possess digital competence, creativity, and innovative approaches.

Strategic Paradigms for Improving the Quality of Education

Competency-Based Approach Paradigm

The primary goal of modern education is not only to provide knowledge, but also to develop practical competencies. In the era of digital transformation, the following competencies are considered important:

- media literacy;
- information processing skills;
- critical thinking;
- problem-solving abilities;
- the use of artificial intelligence technologies.

This paradigm serves to shape learners as independent thinkers and competitive individuals.

Digital Pedagogy Paradigm

Digital pedagogy elevates the relationship between teacher and learner to a new level. Interactive platforms, video lessons, gamification, and virtual learning environments increase lesson effectiveness.

Advantages of digital pedagogy:

- individual educational trajectory;
- rapid feedback;
- openness of educational resources;
- reduction of time and space limitations.

In addition, electronic journals, LMS systems, and online tests are expanding opportunities for monitoring educational quality.

Artificial Intelligence-Based Management Paradigm

Today, artificial intelligence is becoming an important tool in managing the quality of education.

AI technologies:

- automatically analyze students' knowledge;
- provide individual recommendations;
- identify educational problems in advance;
- process statistical data.

For example, adaptive learning systems adjust the complexity of tasks according to the learner’s level of knowledge. This increases the effectiveness of education.

Modern Approaches to Managing the Quality of Education

The following strategic mechanisms are of significant importance in managing the quality of education:

Direction	Content
Digital monitoring	Monitoring the educational process in real time
Data analytics	Statistical analysis of educational outcomes
Innovative management	Management based on new technologies
Staff competence	Improving teachers’ IT skills
Cybersecurity	Protection of educational data

Today, educational institutions are becoming not only centers of knowledge delivery, but also platforms for innovative development.

Problems and Their Solutions

Several problems also exist in the process of digital transformation:

- lack of internet access and technical equipment;
- low digital literacy of some teachers;
- cybersecurity threats;
- risks of improper use of artificial intelligence in education;
- digital inequality.

To solve these problems, it is necessary to:

- improve teachers’ professional qualifications;
- develop IT infrastructure;
- create national electronic platforms;
- develop digital ethics;
- strengthen cooperation between the public and private sectors.

World scholars have conducted extensive research on educational quality management and the role of digital technologies in it.

- George Siemens (2005) and Stephen Downes (2010), in their theory of Connectivism, substantiated how knowledge is formed and disseminated in the digital era.
- Dylan Wiliam (2018) proposed a system for managing educational quality through formative assessment, while modern researchers (Luckin et al., 2023) promote management through Artificial Intelligence in Education (AIEd) systems.

In the era of rapid technological development, improving the quality of education is not limited to simply installing a smart board in the classroom. A genuine transformation in quality requires a change in the “philosophy of management.”

Today, in the education system, both public and private educational institutions are preparing qualified specialists through formal education. Based on this, it is necessary to align workforce preparation with labor market demands.

In this context, Big Data and Predictive Management can play a crucial role. Large volumes of data collected in educational institutions enable rectorates and deans to make strategic decisions. For example, an AI system, integrated with job vacancy platforms (such as LinkedIn and HH.uz), can

identify which fields are experiencing a decline in labor market demand and suggest optimization of admission quotas accordingly.

Through Artificial Intelligence and personalization, it is recognized that each learner processes information at a different pace. Using AI, an individual learning plan can be provided for each student. The system can detect topics that a student struggles with and automatically recommend simplified content or additional visual materials tailored to their needs.

As strategic recommendations, it can be stated that in order to bring the quality of education to international standards, the following steps should be implemented:

Strategic stages for improving the quality of education:

1. Digitalization of infrastructure (cloud technologies).
2. Training academic staff to work with AI (upskilling).
3. Transition to data-driven management.

Additional recommendations:

1. EdTech and AI integration: establishment of unified intelligent monitoring centers at the level of ministries of higher and secondary specialized education.
2. Improving teachers' qualifications: requiring educators not only to master their subject areas but also to acquire skills in "prompt engineering" (interaction with AI) and digital pedagogy methods.
3. Blended learning approach: shifting lectures fully to an online format, while practical sessions are conducted in laboratories and VR (virtual reality) environments focused on solving problem-based scenarios.

Conclusion

In the era of digital transformation, improving the quality of education and managing it effectively has become a crucial factor in the development of modern society. Innovative technologies, artificial intelligence, and digital pedagogy are elevating the education system to a new level. At the same time, strategic management, the digital competence of educators, and modern infrastructure are key factors in ensuring educational quality. In the future, a flexible, open, and individualized educational model based on digital technologies is expected to become an important foundation for societal development.

In the age of technology, managing the quality of education is a continuous and dynamic process. The digital and intelligent model proposed in this article demonstrates that through the automation of management, human-related errors can be reduced by up to 40%, while significantly improving students' academic performance. The key to future competitiveness is not for the education system to fear technology, but rather to effectively harness it for its own benefit.

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