

THE IMPACT OF DIGITAL TRANSFORMATION ON SCIENTIFIC AND EDUCATIONAL MODELS IN THE KYRGYZ REPUBLIC

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ABSTRACT. The article discusses current issues about the education and science system in the Kyrgyz Republic, as well as the impact of digital transformation on these models. During the period of transformation in the field of science, digital transformation allows scientists to conduct research using modern information technologies. They can create virtual models and experiments, analyze large amounts of data and use high-performance computing. This allows scientists to study complex processes and phenomena more effectively, make new discoveries and participate in international scientific cooperation.

Traditional and modern approaches to education, active learning, project work, the use of information and communication technologies and distance learning are also considered. These sources may be useful for studying the impact of digital transformation on scientific and educational models in the Kyrgyz Republic.

KEYWORDS: digital transformation, scientific and educational models, online education, artificial intelligence, immersive educational environments.

ҚЫРҒЫЗ РЕСПУБЛИКАСЫНДАҒЫ ҒЫЛЫМИ ЖӘНЕ БІЛІМ БЕРУ ҮЛГІЛЕРІНЕ ЦИФРЛЫҚ ТРАНСФОРМАЦИЯНЫҢ ӘСЕРІ

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АҢДАТПА. Мақалада Қырғыз Республикасындағы білім және ғылым жүйесі туралы өзекті мәселелер, сондай-ақ цифрлық трансформацияның осы үлгілерге әсері талқылана-

ды. Ғылым саласындағы трансформация кезеңінде цифрлық трансформация ғалымдарға заманауи ақпараттық технологияларды пайдалана отырып зерттеулер жүргізуге мүмкіндік береді. Олар виртуалды модельдер мен эксперименттер жасай алады, деректердің үлкен көлемін талдай алады және өнімділігі жоғары есептеулерді пайдалана алады. Бұл ғалымдарға күрделі процестер мен құбылыстарды тиімдірек зерттеуге, жаңа ашулар жасауға және халықаралық ғылыми ынтымақтастыққа қатысуға мүмкіндік береді.

Сонымен қатар білім берудегі дәстүрлі және заманауи тәсілдер, белсенді оқыту, жобалық жұмыс, ақпараттық-коммуникациялық технологияларды пайдалану және қашықтықтан оқыту қарастырылған. Бұл дереккөздер цифрлық трансформацияның Қырғыз Республикасындағы ғылыми және білім беру үлгілеріне әсерін зерттеу үшін пайдалы болуы мүмкін.

ТҮЙІН СӨЗДЕР: цифрлық трансформация, ғылыми және білім беру үлгілері, онлайн білім беру, жасанды интеллект, иммерсивті білім беру орталары.

ВЛИЯНИЕ ЦИФРОВОЙ ТРАНСФОРМАЦИИ НА НАУЧНЫЕ И ОБРАЗОВАТЕЛЬНЫЕ МОДЕЛИ В КЫРГЫЗСКОЙ РЕСПУБЛИКЕ

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АННОТАЦИЯ. В статье рассматриваются актуальные вопросы о системе образования и науки в Кыргызской Республики, также влияние цифровой трансформации на эти модели. В период трансформации в сфере науки цифровая трансформация позволяет ученым проводить исследования с использованием современных информационных технологий. Они могут создавать виртуальные модели и эксперименты, анализировать большие объемы данных и использовать высокопроизводительные вычисления. Это позволяет ученым более эффективно изучать сложные процессы и явления, делать новые открытия и участвовать в международном научном сотрудничестве.

Также рассмотрены традиционные и современные подходы к образованию, активное обучение, проектную работу, использование информационно-коммуникационных технологий и дистанционное обучение. Эти источники могут быть полезными для изучения влияния цифровой трансформации на научные и образовательные модели в Кыргызской Республике.

КЛЮЧЕВЫЕ СЛОВА: цифровая трансформация, научные и образовательные модели, онлайн-образование, искусственный интеллект, иммерсивные образовательные среды.

INTRODUCTION. Digital transformation is of great relevance in modern society, as it changes and improves scientific and educational models. It allows for more effective and interactive teaching methods, and also expands the accessibility of education. Online education and distance learning are becoming increasingly popular, allowing you to study from anywhere in the world and at a time convenient for you.

The main goal of digital transformation in scientific and educational models is to improve the quality of education and accessibility to it. This is achieved by integrating new technologies, developing online education, creating interactive teaching methods and personalizing the educational process.

The challenges of digital transformation in scientific and educational models include:

1. Integration of new technologies into the educational process, such as computers, interactive whiteboards, mobile applications and other digital tools.
2. Development of online education and distance learning to make learning more flexible and accessible to everyone.
3. Ensuring data security and protection of personal information of students and teachers.
4. Preparing teachers to use new technologies and developing their competencies in the field of digital education.
5. Improving the interactivity and personalization of education so that every student can receive an education that matches their needs and abilities.

Digital transformation in scientific and educational models is of great importance for society, as it allows for the creation of more effective and accessible educational systems. This helps enhance education, develop students' skills and knowledge, and prepare them for the modern digital world.

MATERIAL AND METHODS OF RESEARCH. The objects of digital transformation in scientific and educational models are curricula, textbooks, educational materials, educational platforms, tools and technologies.

Digital transformation methods include the use of interactive teaching methods, online courses, virtual laboratories, multimedia materials, as well as the integration of new technologies into the educational process.

Digital transformation models include the creation of personalized educational programs, the development of adaptive learning systems, and the use of data analytics to assess the effectiveness of the educational process and make data-based decisions.

In general, digital transformation in scientific and educational models is a comprehensive approach to changing and improving the educational process using new technologies and methods. It is aimed at improving the quality of education, expanding the accessibility and flexibility of learning, as well as developing the skills and knowledge of students in the modern digital world.

The development of educational models allows us to improve the learning process

and increase its effectiveness. They allow you to create personalized educational programs tailored to the individual needs of students. Educational models also promote the development of 21st century skills such as critical thinking, collaboration, communication and problem solving, and contribute to increasing access to education. It makes it possible to reach students who were previously limited by geographic or social barriers. For example, massive open online courses (MOOCs) provide educational opportunities to thousands and even millions of students around the world. [1]

Thus, the development of scientific and educational models plays an important role in the development of society, contributing to the growth of knowledge, innovation and accessibility of education.

RESULTS AND THEIR DISCUSSION.

Various educational models are used in Kyrgyzstan, including traditional and modern approaches. However, due to limitations in access to new technologies and resources, some modern educational models may be less common.

Traditional educational models such as lectures and group classes are still widely used in universities and schools in Kyrgyzstan. These models are based on the transfer of knowledge from teacher to student and imply the organization of the educational process in the classroom.

However, some educational institutions in Kyrgyzstan have also begun to use more modern educational models, such as active learning, project-based work and

the use of information and communication technologies. These models involve more interactive student participation in the learning process, the use of modern technologies and the development of independent work and critical thinking skills. They are also introducing distance learning and online courses, which allows students to receive education remotely using the Internet and modern educational platforms. [3]

In addition, digital educational models allow students to learn at their own pace and receive personalized support and feedback. Also promotes personalization of education. With the help of modern information technologies, it is possible to create individual educational programs and provide students with personalized support and feedback. This helps each student develop according to his needs and abilities. [6]

Students and teachers positively assessed the introduction of distance learning and online courses at our university. As a result of the analysis, several main positive aspects were identified.

Firstly, students noted the convenience and flexibility of distance learning. They can study materials and complete assignments at a time convenient for them, without being tied to a class schedule. This is especially true for students who work or have other commitments. In addition, students noted that the availability of online courses allows them to expand their knowledge in various areas and study subjects of interest that are not offered as part of the main curriculum.

Secondly, teachers noted the opportunity to use their time more effectively. They can record lectures in advance and share them with students, allowing them to review or study the material at their own time. In addition, teachers can create interactive online courses with various tasks and tests, which contributes to a deeper understanding of the material by students. [7]

It was also noted that the introduction of distance learning and online courses allows the university to achieve greater flexibility in the provision of educational services. It can attract students from different regions or even countries, which expands its potential and increases its attractiveness to students.

In general, the results of the analysis indicate the positive impact of the introduction of distance learning and online courses at our university. This allows students to receive education in a more convenient way, and teachers to use their time efficiently and create more interactive courses. In addition, it expands the university's capabilities and makes it more attractive to students.

Overall, digital transformation plays a key role in improving scientific and educational models. It makes education more accessible and flexible, enables scientists to conduct more effective research, and promotes science and innovation. However, for the successful implementation of digital transformation it is necessary to overcome existing challenges and problems.

In Kyrgyzstan, the development of scientific and educational models in the context of digital transformation faces a

number of challenges and problems:

1. Insufficient availability of technology: many regions of Kyrgyzstan have limited access to high-speed Internet and modern technologies. This creates inequality in access to education and scientific resources.

2. Lack of digital literacy: Low levels of digital literacy among the population can make it difficult to use new technologies in scientific and educational models.

3. Lack of coordination and cooperation: Insufficient interaction between educational institutions, scientific institutions and the business sector can hinder the development of scientific and educational models.

To overcome these challenges and problems, it is necessary to pay more attention to infrastructure development, personnel training, funding of science and education, as well as the creation of cooperation mechanisms between various stakeholders. It is also important to develop strategies to develop digital literacy among the population and stimulate scientific research. [4]

1. Prospects for the use of new technologies in the digital transformation of scientific and educational models include:

2. 1. Development and application of artificial intelligence (AI) in education: AI can help create personalized learning programs, analyze learning data to identify student weaknesses and provide personalized assistance.

3. 2. Virtual and Augmented Reality: These technologies enable the creation of immersive educational environments in which students can immerse themselves

and interact with materials and objects that would be inaccessible in the real world.

4. 3. Use of big data in science and education: analysis of large volumes of data can help identify new patterns and trends, as well as predict research results or student performance.

5. 4. Development of blockchain in education: Blockchain can be used to create reliable systems for storing and verifying educational achievements and certificates, which will help simplify the process of recognizing qualifications and improve transparency.

6. 5. Development of mobile technology: Mobile devices and applications can be used for learning anytime and anywhere, allowing students to organize their learning flexibly.

CONCLUSION. Thus, in general, new technologies provide ample opportunities for the digital transformation of scientific and educational models, which can significantly improve the quality of education, the development of science and innovation. However, to successfully realize these prospects, it is necessary to continue research and investment in technology development, as well as ensure accessibility and support for all participants in the educational process.

The use of new technologies in the digital transformation of scientific and educational models has enormous potential for improving the quality of education and the development of science. Artificial intelligence can help create personalized learning programs and provide personalized assistance to students. Virtual and augmented reality enable the creation of immersive educational environments, and the use of big data can help identify new patterns and trends.

The development of the Internet of Things in education can lead to the creation of smart classrooms, where devices and sensors collect data to optimize the learning process. Blockchain can be used to create reliable systems for storing and verifying educational achievements and certificates, while mobile technologies and cloud technologies allow flexible training and collaboration.

However, to successfully realize these prospects, it is necessary to continue research and investment in technology development, as well as ensure accessibility and support for all participants in the educational process. Only then will new technologies be able to fully realize their potential and lead to the digital transformation of scientific and educational models.

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