DIGITAL PARADIGM OF UKRAINE'S EDUCATIONAL POLICY DEVELOPMENT IN THE CONTEXT OF EUROPEAN INTEGRATION: FROM THEORY TO PRACTICE

PARADIGMA DIGITAL DO DESENVOLVIMENTO DA POLÍTICA EDUCACIONAL DA UCRÂNIA NO CONTEXTO DA INTEGRAÇÃO EUROPEIA: DA TEORIA À PRÁTICA

PARADIGMA DIGITAL DEL DESARROLLO DE LA POLÍTICA EDUCATIVA DE UCRANIA EN EL CONTEXTO DE LA INTEGRACIÓN EUROPEA: DE LA TEORÍA A LA PRÁCTICA

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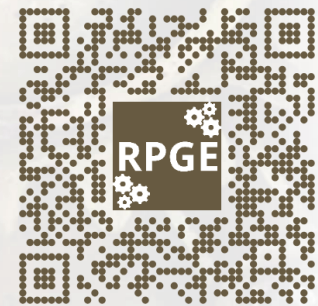Liudmyla KANOVA[3]
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ABSTRACT: The purpose of the article was to investigate the impact of the digital paradigm on the reform of the education system in Ukraine. The research methodology included analyzing legislation, documents from international organizations, and national programs. The implementation of digitization in the educational process can provide more effective and interactive learning, fostering the development of critical thinking and creative abilities among students. Digital technologies can ensure access to education for people from different regions of the country and various social groups. National programs for the implementation of digital education in Ukraine have been analyzed, highlighting issues such as insufficient funding and a lack of qualified personnel. The digitization of the educational process is an important element of modernizing the education system in Ukraine, but it requires significant increases in funding and the development of qualified human resources.

KEYWORDS: Educational innovation. European integration. Educational process. Educational reform. Digital transformation.

RESUMO: O objetivo do artigo foi investigar o impacto da paradigma digital na reforma do sistema educacional na Ucrânia. A metodologia de pesquisa incluiu a análise da legislação, documentos de organizações internacionais e programas nacionais. A implementação da digitalização no processo educacional pode proporcionar aprendizagem mais eficaz e interativa, fomentando o desenvolvimento do pensamento crítico e das habilidades criativas entre os estudantes. As tecnologias digitais podem garantir o acesso à educação para pessoas de diferentes regiões do país e diversos grupos sociais. Os programas nacionais para a implementação da educação digital na Ucrânia foram analisados, destacando questões como o financiamento insuficiente e a falta de pessoal qualificado. A digitalização do processo educacional é um elemento importante para a modernização do sistema de educação na Ucrânia, mas requer aumentos significativos no financiamento e no desenvolvimento de recursos humanos qualificados.

PALAVRAS-CHAVE: Inovação educacional. Integração europeia. Processo educacional. Reforma educacional. Transformação digital.

RESUMEN: El propósito del artículo fue investigar el impacto de la paradigma digital en la reforma del sistema educativo en Ucrania. La metodología de investigación incluyó el análisis de la legislación, documentos de organizaciones internacionales y programas nacionales. La implementación de la digitalización en el proceso educativo puede proporcionar un aprendizaje más efectivo e interactivo, fomentando el desarrollo del pensamiento crítico y las habilidades creativas entre los estudiantes. Las tecnologías digitales pueden garantizar el acceso a la educación para personas de diferentes regiones del país y diversos grupos sociales. Se han analizado los programas nacionales para la implementación de la educación digital en Ucrania, resaltando problemas como la financiación insuficiente y la falta de personal calificado. La digitalización del proceso educativo es un elemento importante para modernizar el sistema educativo en Ucrania, pero requiere un aumento significativo en la financiación y el desarrollo de recursos humanos calificados.

PALABRAS CLAVE: Innovación educativa. Integración europea. Proceso educativo. Reforma educativa. Transformación digital.

Introdução

The relevance of the chosen topic lies in the fact that in recent years there have been significant changes in the educational environment in Ukraine. These processes are connected, in particular, with the country's European integration movement. Digital transformation has become one of the key trends in the modern world, changing approaches to training and developing the professional competencies of future specialists in various fields. Therefore, the need to study the experience of the European Union (EU) partner countries in the field of digital education has become an urgent task for the Ukrainian educational system. This can help implement modern approaches and teaching methods, as well as ensure the training of qualified personnel for further economic transformation.

In addition, the relevance of the chosen topic lies in the fact that Ukraine is undergoing a process of comprehensive socio-economic transformation, which involves the harmonization of educational standards and curricula with EU standards. This creates a need to study the European experience in the field of digital education and implement it in the practice of Ukrainian schools and higher education institutions (MIELKOV, 2022).

A new educational reform has been introduced in Ukraine, which provides for the transition to standards that meet European norms. That is why it was decided to move to a digital paradigm in the educational process, which involves the use of information computer technologies (hereinafter referred to as ICT) as a reliable tool for providing educational services. However, the implementation of this idea has faced significant difficulties, such as insufficient funding and a lack of sufficient specialists. Most schools and higher education institutions (hereinafter referred to as HEIs) had limited opportunities to purchase modern equipment and software, as well as to train teachers and faculty in modern digital technologies. (ČEGINSKAS; LÄHDESMÄKI, 2023).

The Ukrainian education system has its own peculiarities and differences from European standards, which also complicates the process of European integration. Serious efforts should be made to adapt European standards to the conditions and needs of the Ukrainian education system while ensuring that the basic principles of the European model, such as emphasis on the practical application of knowledge and skills, individualization of learning, and creation of conditions for the development of creative thinking and innovation, are preserved (TSEKHMISTER *et al.,* 2021).

Certain problems have been identified with the organization of the educational process in the context of the use of digital technologies. It is necessary to resolve the issue of creating

high-quality teaching materials and ensuring security when using IT technologies in the educational process (SANETRA; MAŁODOBRY, 2022).

The purpose of the study is to reveal the prospects for the implementation of digital education in Ukraine, analyze the experience of digital education in the European Union, identify problems and shortcomings in this area, and identify possible ways to overcome them. The results of the study should help the Ukrainian education system to expand the possibilities of using digital technologies and implement the European experience in its practice.

Literature Review

The lack of digital literacy and low level of information culture are serious obstacles to Ukraine's development as an innovative country. At the same time, European experience shows that the digital transformation of education can be a powerful catalyst for development and ensure the country's competitiveness in the international market. The relevance of the chosen topic lies in the fact that Ukraine is undergoing a process of comprehensive socio-economic transformation, which involves the harmonization of educational standards and curricula with EU standards. This creates a need to study the European experience in the field of digital education (MIELKOV, 2022).

Analyzing the latest scientific publications and literature on digital innovations in Ukraine and the EU, we can conclude that the use of digital technologies in the educational process is a relevant and necessary condition for the development of education. In recent years, several important scientific articles have been published on the development of the digital environment of educational institutions. For example, Borodina and Trushkina (2021) investigated the possibilities of using a cluster approach to the digitalization of management in a regional education development strategy. The authors studied international experience and Ukrainian reality and proposed ways to implement this approach in Ukraine. Pidorycheva and Trushkina (2021) drew attention to the development of academic and scientific and technical cooperation between the EU and Ukraine. Using an expert survey, the authors identified achievements in this area and suggested ways to further develop such cooperation.

The study by Wojciech *et al.* (2021) emphasizes the global challenges of our time for future teachers and their digital educational resources. In particular, the authors draw attention to the need to create high-quality teaching materials and ensure safety when using IT technologies in the educational process. Zinchenko *et al.* (2022) draw attention to the

peculiarities of education and science in Ukraine in the context of large-scale military aggression and global challenges of the twenty-first century. The authors emphasize the need to develop and use information technology to improve the quality of education in Ukraine. The study presented in Hasiuk *et al.* (2022) aims to assess the state of sustainable development of Ukraine's education sector in the context of European integration. The authors point out that digital technologies are one of the key factors in the development of education in Ukraine, in particular, in times of war.

Researchers Marieiev *et al*. (2023) examine modern teacher education in Ukraine and the EU. The authors point out the need to transform and develop the teacher training system in line with the challenges of the modern world. In their study, the authors consider the main vectors of the development of the educational system, including increasing the number of technologies used in education, raising the level of qualification of teaching staff, and developing the competencies necessary to work with students with different needs. In addition, the authors draw attention to the fact that the system of training pedagogical specialists is quite effective, but still needs to be developed and improved.

The study by Bondarenko, Semenova and Vysotska (2021) provides a comparative analysis of the processes of reforming education policy in Ukraine and the European Union. The authors note that Ukraine is forced to harmonize its educational standards and programs with EU standards. The article by Vizniuk *et al.* (2022) examines the pedagogical training of medical specialists in the context of European integration processes. It is noted that the EU recognizes the importance of digital education and confirms its necessity for the training of healthcare professionals.

The information and digital development of higher education in the context of Ukraine's innovative economy is considered in the scientific work of Kraus *et al.* (2021). The researchers conclude that digital technologies can help solve a number of problems in the field of education but require significant investment. Lazarenko *et al.* (2021) present the results of an analysis of European integration processes in the context of training future foreign language specialists in the information society. The researchers note that, according to European standards, foreign language teaching should be differentiated, focused on the needs of the labor market, and include digital technologies.

Despite the widespread interest in the topic, there are still a number of issues that require further study. The problem of studying the specifics of financing the digital transformation of educational institutions remains unresolved. Also, the issue of compliance of the national legal

framework governing the digital transformation of education in Ukraine with EU standards remains unresolved.

Methodology

The study used a set of methods that allowed us to analyze the state and prospects of digital education in the EU and the possibilities of its implementation in Ukraine. The research methodology was based on the analysis of scientific literature on digital education, as well as information from open sources. The study used methods of grouping, classifying, and comparing information to systematize the data obtained. To analyze the EU experience in the field of digital education, a comparison method was used, which consisted of comparing data from different EU countries on the organization of the digital education process, educational programs, and materials used in the educational process.

The methods of systematic and comparative analysis were also used to compare the state of digital education in Ukraine and the EU. For the comparative analysis, the Digital Readiness Index (DRI) methodology was used, which makes it possible to assess the readiness of countries to implement digital technologies in various fields, including education. It is a tool for measuring the readiness of countries for digital transformation and was developed by the International Telecommunication Union (ITU) to help countries understand their state of readiness for the digital economy and digital transformation (CAHYADI; MAGDA, 2021). The DRI methodology uses 40 indicators that reflect five main aspects of digital transformation readiness: infrastructure, regulatory environment, entrepreneurship and innovation, people and society, and information security and cybersecurity. Each of these aspects is assessed separately, and the results of the assessment are used to create an overall digital transformation readiness index.

Results and Discussion

The results of the study showed that the development of digital education is of great importance to society, especially in the digital age. Table 1 shows the main advantages of introducing digital innovative technologies into the educational process in Ukraine (ZASKALETA; OLEKSYUK, 2021).

Table 1 – Advantages of introducing digital innovative technologies into the educational process in Ukraine

Advantages	Content
Improving the quality of education	The use of digital technologies allows us to expand learning opportunities, provide access to more information, and develop the skills needed in the modern world.
Efficiency of training	Digital technologies can make the learning process more efficient, reduce the time spent on organizing and conducting classes, and ensure individualized learning.
Saving time and effort	The introduction of digital technologies into the educational process reduces the time and effort required to organize and conduct classes and reduces the amount of paperwork.
Increasing student motivation	The use of digital technologies in the educational process can increase students' motivation to learn and provide more engaging and interesting learning.
Development of skills necessary for future careers	The use of digital technologies allows us to develop skills that are essential in most professions today, so digital education is an important component of the future careers of students and professionals.

Source: developed by the authors of the article based on content analysis

Digital technologies can help improve the quality of education, provide more effective learning, and reduce the time and effort required to organize and deliver classes. In particular, digital technologies allow for interactive learning methods, such as video tutorials, online games, and interactive platforms, which provide for more effective learning and the development of critical thinking. In addition, digital technologies allow for individualized learning approaches, where students can study at their own pace and using the tools that best suit their needs and learning style.

The implementation of digital technologies into the learning process provides the ability to store and process large amounts of data, which can be used to improve the efficiency and quality of learning, as well as to ensure that students have a deeper understanding of the material. It also allows students from different parts of the country or even the world to interact and exchange information, which increases the level of international cooperation and understanding (CHABAN; ELGSTRÖM, 2020).

The use of digital technologies in the educational process can ensure more effective learning, increase the interactivity of the learning process, and provide access to a wider range of information and learning resources. In addition, the introduction of digitalization in the educational process can help develop students' creative and innovative abilities, as well as prepare them to work with complex technologies and high-tech devices, which is important in the context of the modern labor market (DAVRONOVICH; MANSURJONOVICH, 2023).

The study also showed that the development of digital education will be highly effective if the necessary efforts are made by government institutions responsible for the development of

education. To do this, it is necessary to ensure adequate funding and training of qualified professionals who will be able to implement the latest technologies in the educational process and provide quality education to students.

The development of digital education in Ukraine has great potential and is an important step in the transformation of society as a whole. However, in order to succeed in this area, efforts must be made by the government, schools, and higher education institutions. In addition, it is important to provide educational institutions with the necessary hardware and software to effectively use digital technologies in the educational process (MIELKOV, 2022).

One possible solution to this dilemma is to introduce new disciplines related to digital technologies and information security into the curriculum, as well as to conduct special courses for teachers on the use of digital technologies in the educational process. It is also important to maintain active cooperation between the public and private sectors to ensure infrastructure development and access to the necessary technologies (HORDIICHUK *et al.,* 2022).

Several positive trends in the development of digital education have been identified. In particular, some schools and universities are successfully implementing the latest technologies in the educational process. In addition, the Government of Ukraine has recognized the importance of developing digital education and has introduced a number of programs aimed at improving its level. The study found that the development of digital education in Ukraine is still at an early stage. However, against the background of insufficient funding and lack of proper training, several positive trends have been identified (RATHORE, 2023).

The Government has recognized the importance of developing digital education and has introduced a number of programs aimed at improving its level. For example, the program "E-Education for Ukraine" proposed by the authors of the study, which aims to provide access to electronic resources and information technologies in Ukrainian schools (Table 2).

Table 2 – Program "E-learning for Ukraine"

Step	Program description
Step 1	Developing a national strategy for digital education
Step 2	Provide access to the Internet and computer equipment in all schools and higher education institutions
Step 3	Development of online courses and web-based learning platforms
Step 4	Training and retraining of teaching staff in digital education
Step 5	Development and implementation of training programs in programming, computer science, and cybersecurity
Step 6	Creating an infrastructure for storing and sharing digital learning materials

Step 7	Introduction of electronic tests and knowledge assessment
Step 8	Support for startups and innovative projects in the field of digital education

Source: developed by the authors of the article based on content analysis

The proposed program aims to improve the quality of education in Ukraine through the introduction of digital technologies and ensuring appropriate access to them. To achieve this goal, it is necessary to develop high-quality infrastructure and software for learning that will ensure the availability of digital technologies. In addition, teaching staff should be trained and retrained in digital education, and students and learners should have access to high-quality online courses and learning platforms. This program also aims to stimulate innovation in digital education and the development of digital entrepreneurship in Ukraine.

The actual level of development of digital education in Ukraine remains low compared to EU countries. The consequence of this may be that Ukrainian students and professionals will be left behind their European counterparts in the provision of digital education and the development of digital products (LIASHENKO; PIDORYCHEVA; ANTONIUK, 2020). But in order to enter the digital age, specialists with in-depth knowledge of digital technologies and teaching methods are needed.

The low level of digitalization of the educational process can have serious consequences for students and professionals in the digital field. Ukraine is a strategic partner of the EU in research and development and has the opportunity to take advantage of certain programs aimed at improving the level of digital education. In order to truly raise the level of digitalization of education and make it more competitive on the global stage, the state must invest significant efforts. It is necessary to provide adequate funding for research into new technologies and training, as well as to improve the pedagogical training of teachers and professors so that they can effectively implement digital technologies in the educational process.

Since the early 2000s, Ukraine has been actively working to integrate into the European educational space and introduce digital technologies into the educational process. The practice and reform of education under the influence of European integration has been successful and has provided some positive results. One of the main elements of reforming Ukrainian education was the introduction of new technologies into the educational process. In particular, e-textbooks and online courses have been widely used. This significantly reduced the cost of textbooks and allowed for a more efficient organization of the learning process. In addition, HEIs have begun to actively implement an electronic learning system that allows students to access lectures and other materials from anywhere and at any time (AZARI, 2023).

Another important aspect of the digital transformation of Ukrainian education was to improve the quality of teacher training and pedagogical staff. To this end, special training programs and courses have been created to enable teachers to master the skills of using digital technologies in the educational process. In addition, professional development programs for teachers have been introduced to help them improve their skills and knowledge. As a result of these reforms, a number of new programs and initiatives have been introduced that have contributed to improving the level of education in the country. One of the most significant programs was the introduction of an electronic system of interaction between participants in the educational process, which allowed for more effective communication between students and teachers and provided the possibility of maintaining electronic journals and other documents (OLEKSIIENKO *et al.,* 2022).

In addition, programs were developed to improve the computer literacy of teachers and students, including courses in basic programming, website development, and others. One of the initiatives made possible by the digital paradigm was the introduction of an electronic system for enrolling in higher education. This allowed students to ensure a faster and more efficient application and enrollment process. However, some programs and initiatives did not receive sufficient funding and support from the state and higher education institutions, so their implementation was limited. Also, certain technical and informational problems were identified related to ensuring the quality and security of electronic systems (MARIEIEV *et al.,* 2023).

Thus, to further develop digital education in Ukraine, a number of reforms need to be implemented based on international best practices. It is necessary to ensure adequate funding and training of qualified professionals who will be able to implement the latest technologies in the educational process. It is also necessary to develop teacher training programs in digital technologies and create the right conditions for their implementation. It is advisable to involve enterprises and companies engaged in the development of digital technologies in the development of digital education. Such partnerships will allow teachers and students to have access to the latest advances in IT technologies and provide better learning. In addition, it is important to ensure access to digital technologies for all segments of the population, including those living in rural areas. Mobile platforms and other innovative solutions can be used for this purpose. Thus, it is important to consider digital education as an important component of the development of modern society and to ensure adequate funding and training of specialists in this area for the further successful development of Ukraine (RADZIIEVSKA *et al.,* 2022).

The scientific novelty of the research is to study the digital transformation of Ukrainian education under the influence of European integration processes. This aspect is relevant and poorly understood, as digital technologies are developing rapidly and affecting all spheres of life, including education. The study used modern methods and approaches, which allowed for an objective analysis of the existing experience.

Conclusions

Summarizing the above, it can be argued that the introduction of digital technologies in the educational process has great potential to improve the quality of education and the performance of pupils and students. On the one hand, the use of digital technologies can contribute to more effective learning, provide access to the latest learning materials, and increase the motivation of students and pupils. In addition, digital technologies allow for more efficient organization of the learning process, reducing the effort required to organize and conduct classes. On the other hand, such a reform of the educational space requires significant funding and training of qualified personnel. Insufficient funding and a lack of qualified personnel may result in the level of digital education in Ukraine remaining low compared to EU countries, which may become an obstacle for Ukrainian students and professionals to compete in the international labor market. It should also be borne in mind that the introduction of digital technologies in the educational process may lead to increased dependence on computer technology and reduced interpersonal contact between students and teachers. The study of digital education in the EU and its implementation in Ukraine also revealed a number of issues that require further research. In particular, further research in this area could be directed at the problems of ensuring security in the use of digital technologies in education, developing and implementing innovative teaching methods, and evaluating the effectiveness of digital innovations in the educational process.

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