AI AND DIGITAL TECHNOLOGY: OPPORTUNITIES AND PITFALLS

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Abstract. The article explores the role and impact of digital technologies on contemporary distance education. It is noted that the implementation of technologies in education has improved teaching and learning, especially during the COVID-19 pandemic and the war in Ukraine. New opportunities for teachers, students, and universities are outlined in the context of future work, new business models, and the philosophy of higher education management.

Keywords: distance education, digital technologies in education, higher education management, ethics of artificial intelligence, interactive technologies, future of work, social impact of AI on education.

In the article "The Influence of Emerging Technologies on Distance Education", which vividly illustrates that distance learning is inextricably linked to the development and access to various types of digital technologies. Educational technology refers to the use of tools, technologies, processes, procedures, resources, and strategies to enhance the learning experience in a variety of settings, such as formal learning, informal learning, and lifelong learning. The achievement of digital technologies in the field of distance education is the creation of a large number of tools that have radically changed the ability to carry out the learning process. In particular, the main technologies that have a significant impact on the development of distance education include: VoiceThread, Intranet, and Moodle, and communication platforms such as MS Teams, Google G platforms Suite, Zoom, Skype, BigBlueButton, WebEx, Smart Class, and others.

In my opinion, the implementation of technology in education has improved both teaching and learning experiences. The COVID-19 pandemic has clearly demonstrated to the whole world how necessary it is to involve digital technologies in the learning process. Educational institutions have decided to incorporate more technology into the learning process to create and maintain online courses. Of course, at the initial stage, this created certain difficulties, since we had to master various programs and tools at a fairly fast pace, but in the end, we can see how we have advantages at this time. The forms of interaction with students have changed: we can use video lectures or show videos from external resources, use online whiteboards for collaborative work, create documents and share for editing, instead of printing and handing out, or sending by mail 10 times, the teacher has his own electronic journal in each course and the student sees only his grades and better tracks his progress.

The main technological advances that have made this progress possible are: first, hardware technologies such as laptops, webcams, digital whiteboards, interactive touch displays; secondly, Free Space Optical Communication (FSOC) and 5G technology; thirdly, 1) Immersive education, i.e. virtual reality, augmented reality, mixed reality, and extended reality; 2) Artificial Intelligence in Education (AIE); 3) Cloud platforms; 4) Learning Management Systems; 5) Video conferencing tools; 6) Big Data; 7) Block chain, 8) Artificial Intelligence (e.g. Chat GPT).

«To summarize, while new technologies have greatly enhanced the distance education experience, it is important to consider the challenges and limitations they can bring. Ensuring access and equity to new technologies and addressing the technical and pedagogical challenges will be crucial for ensuring the success of distance education programs. Moving forward, it will be important for educators and institutions to strike a balance between leveraging the benefits of new technologies while also addressing the potential challenges and limitations they bring»[1].

In the previous section of the paper, I explored the interaction between digital technologies and the development of distance education. It was technology that made it possible to alter the delivery of educational services and shift from the traditional learning system to distance and blended learning. Considering this issue in the context of opportunity modes, I can say that the digitalization of education has affected all three models at the same time.

- ***Future of work:***

Teachers conduct lessons and lectures online (+ make recordings) using video conferencing and specialized platforms, which has increased the flexibility in conducting classes and the ability to expand the audience Electronic textbooks, video lessons, interactive exercises and other modern and diverse digital materials that improve the availability of information are actively used. Assessment management is made easy, results are delivered faster, and data can be used to improve teaching methods. Interactive platforms, virtual labs, group projects, and online discussions are widely used to promote active engagement in learning. Adaptive platforms and individual training programs are used, which provides an opportunity to customize learning for the needs of each student and improve the quality of education. These changes in the work of teachers due to the active use of digital technologies and artificial intelligence contribute to improving the effectiveness of learning, involve students and help in adapting to the requirements of the modern educational environment.

- ***New business models***

The development of distance education has had a significant impact on increasing the potential audience, expanding international influence, and attracting students from all over the world. There has been a change in the traditional funding model, simplifying access to education for a wide range of students. Cooperation with enterprises has increased to create relevant training programs that meet the requirements of the labor market and increase employment opportunities for graduates (the development of dual education is ensured). The system of analytical tools for determining the effectiveness of programs, understanding student needs and forecasting trends has changed. There has been an improvement in social interaction, and opportunities for collaboration and learning outside the university walls have expanded. The popularity of short courses and specialized programs for the rapid acquisition of specific skills has increased, and universities have begun to implement this. The strategy of attracting students has changed, and the competitiveness of universities has increased. These changes in the higher education business model are indicative of the industry's adaptation to current trends in teaching and learning, taking into accounts the new opportunities and requirements of students and employers.

- ***Management philosophy***

The flexibility and adaptability of university structures for the effective implementation of distance learning formats has increased. There has been an increased interest in international partnerships, resource sharing and expertise in the field of distance learning. Universities have focused on developing and implementing quality online courses and programs to ensure the effectiveness of distance learning, thereby working to enhance reputation. In addition, was

improved strategic and operational management to ensure effective monitoring and analysis of results, as well as was informed management decision-making. Emphasis was placed on providing personalized learning and increasing student satisfaction. Identifying innovative methods for development and competitiveness to handle the challenges of distance education was also provided. These changes in the philosophy of management in higher education reflect the importance of adapting to new technologies and the requirements of the modern educational environment, ensuring the effectiveness and sustainability of management practices.

The use of new technologies in distance education has revolutionized the way students and teachers communicate and learn. Digital technologies have significantly improved the learning process and made it easier for students to collaborate and work with course materials, which we mentioned in more detail in the previous sections of the work. But there are situations where digital technologies can do more harm.

For example, consider such a technology as artificial intelligence. On the Internet, you can now see many articles, studies and news about the development and use of AI, including in the field of education. With the help of AI, it is possible to significantly facilitate the work of teachers, automate routine processes, simplify the checking of tasks, “gaming” tasks for students, etc. But, in certain cases, AI can cause more harm than good.

I believe that it is possible to define some aspects of damage from Artificial Intelligence in education within the framework of failure modes - "Unintended harm". In particular, it is:

1. Too much use of automation and algorithms can lead to a loss of human influence and collaboration. The disadvantage in this case is a reduction in the quality of interaction and support that the human factor can provide.

2. A heavy reliance on Artificial Intelligence can overwhelm educational institutions and teachers who cannot always solve problems or understand the decisions made by algorithms. The unfortunate thing in this case is that dependence on technology can cause problems in maintaining effective learning.

3. Increasing the volume of data collection and processing by Artificial Intelligence may lead to a violation of privacy and confidentiality. The pity in this case is that insufficiently protected personal data of students and teachers can become publicly available.

4. Lack of clear regulation and ethical standards can lead to uncontrolled use of Artificial Intelligence in education. The harm in this case is the occurrence of situations where Artificial Intelligence is used unethically and/or violates the rules of academic integrity or helps to falsify data.

5. The automation of learning processes with the help of Artificial Intelligence can lead to the replacement of certain functions of teachers, in particular, the automation of assessment and error correction. The pity in this case is that the loss of jobs and the loss of an important element of interpersonal communication.

In my opinion, in order to minimize the harm from the use of Artificial Intelligence in education, it is important to take into account a number of ethical, social and legal aspects. Also, clear regulatory standards should be established and appropriate training should be provided to those who use these technologies in the educational process.

Regarding technology that negatively affects society; I believe that the best example here is TikTok. Addiction to the TikTok social network threatens teenagers with deterioration of working memory, depression, anxiety and stress. This is reported in an article in the International Journal of Environmental Research and Public Health . Researchers surveyed 3,036 schoolchildren who regularly watch videos on the TikTok social network. The participants also passed tests on the level of depression, anxiety and stress. Those participants who were most addicted to TikTok scored higher on depression, anxiety, and stress scales and did worse than others on a working memory test. So it can be noted that TikTok is a technology that fits the failure modes "Lack of value creation" and "Unintended harm".

In my opinion, the best option is the gradual introduction of digital technologies, their testing, possible replacement of tools and high-quality training of users. My university does its

best to follow this policy, but prefers to give teachers some tools they have to learn to use. Personally, I always wanted to learn and master new things, so that I could personally compare the advantages and disadvantages of certain digital tools. For this reason, I constantly studied, found various tools that can be included in teaching, tried to understand in more detail the peculiarities of the functioning of the technologies available at the university. I can say from experience that it is not always possible to do it gradually, sometimes it is a certain jump that forces you to learn something new very quickly. In this case, I believe that the main thing is not the path we take, but the result we get. There is reason to study further and improve your knowledge in the field of digital technologies.

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У статті розглядається роль та вплив цифрових технологій на сучасну дистанційну освіту. Зазначається, що впровадження технологій у освіту покращило навчання та викладання, особливо під час пандемії COVID-19 та війни в Україні. Окреслюються нові можливості для викладачів, студентів та університетів у контексті майбутньої роботи, нових бізнес-моделей та філософії управління вищою освітою.

Ключові слова: дистанційна освіта, цифрові технології в освіті, управління вищою освітою, етика штучного інтелекту, інтерактивні технології, майбутнє роботи, соціальний вплив ШІ на навчання.