ADVANTAGES AND DISADVANTAGES OF DIGITALIZATION OF HIGHER EDUCATION IN UKRAINE

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Summary

In the global information society, a new economic system is actively being formed – a digital one. The global economy is actively using the advantages of digitization, which replaces old means of electronic communication, and which should be understood as the process of converting various information in all its forms (text, sound, graphics) into a digital format that is understandable modern devices.

The article is devoted to consideration of the advantages and disadvantages of the process of digitization of the educational sphere in Ukraine. The concept of "digitalization", its features and impact on the field of education is studied. The practical significance of the study lies in improving the understanding of the development process of digital transformation, its goals and impact on various areas of the economy. Attention is paid to educational platforms and software products that can be used for blended and distance learning.

Key words: digitalization, development, economy, latest technologies, digitalization, educational platforms, software products.

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1. Introduction

In the modern world, the role of new technologies is growing, which is due to the high rate of scientific and technological progress. The progressive globalization of the economy and increased competition in the markets are changing the problems faced by modernity. To meet modern challenges, it is necessary to change quickly using new technologies. As a result of the beginning of the new industrial revolution, radical changes are expected not only from the point of view of increasing operational efficiency and productivity of production factors, but also from the point of view of new business models that bring economic benefits to entrepreneurs, the economy and the society in general. Their basis is the increasing digitization of the modern world, and primarily the sphere of education. Digitization or digital transformation is the process of integrating digital technologies into all aspects of human activity. It is changing the way we work, learn, interact and do business. Thanks to the availability of digital tools, services, digital infrastructures, artificial intelligence, it is possible to ensure economic growth. For this, it is necessary to clearly understand the essence of digitalization, the prospects of its implementation for enterprises in various spheres of the economy, and above all in the sphere of education.

The concept of "digitalization" was studied by such scientists as S. Bern, E. Brynjolfsson, J. Clerk, H. Lutseva, E. McAfee, , T. Honore, F. Squatto, etc.

According to scientists J. Brennen and D. Kriss, the concept of "digitalization" should be considered as "a process of digitization, conversion of analog data into digital form."

In N. Lane's opinion, digitalization is "the convergence of computer and communication technologies on the Internet and the flow of information and technologies that stimulate the development of electronic commerce and large-scale changes in the organizational structure"*(Lane, 1999).*

Researcher O. Abakumenko points out that the concept of "digitalization" should be understood as "the process of converting a certain information field from analog to digital format for easier further use on modern electronic devices"*(Abakumenko, 2016).*

L. Ligonenko considers the concept of "digitalization" as "the process of transferring information into digital form, i.e. converting paper books into electronic ones, photos into images on the screen, etc." *(Lihonenko, 2018).*

Scientist S. Korol believes that "digitalization is the optimization of the search for information using the Internet, the processing of large data sets, the use of artificial intelligence, the Internet of things in production and other components"*(Korol, 2019).*

So, we can conclude that the concept of "digitalization" is primarily defined by scientists as a process aimed at:

- searching, receiving, processing, using, storing and transmitting information in digital format;
- use of digital infrastructures to support this process;
- automation, artificial intelligence and big data analysis to control the digitization process.

2. Digitalization in the field of education: main advantages and disadvantages

As early as 2015, digitalization of education was named one of the main trends in the development of higher education in Europe, although digitalization of education has been taking place for a long time outside the walls of classical higher education institutions.

This is prompted by the socio-economic processes taking place in our society. These include changes in the labor market, fierce technological competition between states, changes in the nature of communication between people, as well as the need for tools for organizing and processing a continuous flow of information. Educational innovations contribute to the creation of the education of the future, overcoming borders between countries, providing access to educational content on the Internet. Thanks to them, the possibilities of learning new languages, learning new cultures, meeting new people, and making virtual trips are increasing. At the same time, increasing the level of critical thinking and acquiring new knowledge becomes important.

With the development and spread of information technologies, modern education is experiencing irreversible changes. With the beginning of the pandemic, and then the beginning of the war, it became especially noticeable how much the modern world has changed.

Classes have turned from classrooms into video chats, paper textbooks have been replaced by digital ones. The main directions of education development at the current stage are:

– speed, that is, the dynamism of cognitive activity, and not the usual accumulation of knowledge, which has now lost its power;

– motivation, i.e. education is necessary to achieve any goals related to material well-being or status improvement, and teachers become more likely coordinators who guide students in online and offline modes;

– availability of information that simplifies the education process;

– interdisciplinary content that requires combining knowledge from various spheres of human life and activity, just as many professions combine many skills and areas of activity *(Jaakkola, 2016).*

Based on this, various forms of online learning are actively used in the field of education, for example, distance education. The COVID-19 pandemic forced educational institutions to switch to a distance learning format. For this, teachers use various platforms for online learning (Zoom, Googl Meet і т.д.)

As an example of digitalization in education, we can name the replacement of usual methods and forms of learning with Internet technologies: video presentations, learning through special portals, testing, and others.

One of the main advantages of using digital technologies in the learning process is the ability of the teacher not only to control the applied effectiveness of learning, but also the speed at which students master the material, the amount of time spent on a specific task, the level of understanding of new information, etc., while traditional methods of educational control allow only "rough" evaluation of parameters, for example, based on final grades *(Kovalenko, 2020).*

The transition to a new model of education requires effort not only from the teacher, but also from the student of higher education. The teacher's efforts are mainly aimed at the development and support of the distance course. However, the work does not end there, since from the moment the course opens, the teacher must be online every day to answer questions on the course forums, check the work and activate the students. The development of an ideal electronic course is a rather complex process that requires a lot of time, testing, corrections, and reflection with students. In addition, the developed course must meet methodological recommendations for its development and requirements for content and content. Otherwise, either "weakly filled" courses appear, or they are overloaded *(Jaakkola, 2016).*

Greater difficulties regarding the completion of training arise for the student, because they are associated with the expansion of the usual framework of requirements for him. In the new conditions, attending only lectures in classrooms will not be enough to master the educational material of a certain discipline. The practice of working with electronic resources often shows a decrease in the success rate of students of higher education with a mixed form of knowledge acquisition. Therefore, it is advisable to gradually introduce them into the IT learning environment, starting from the 1st year. For any student, future specialist, in the era of rapid development of information technologies, it is important to constantly be "able to learn". Moreover, it is necessary to be able to combine individual components of information, approach solving issues creatively and quickly respond to requiremen *(Abakumenko, 2016).*

Digitization of educational information, on the one hand, speeds up and simplifies the learning process, and on the other hand, it leads to the loss of communication and language skills in both students and teachers. The role of the teacher in the learning process becomes insignificant, because the student independently "manages" the information while learning, the teacher becomes only a coordinator.

In many countries, teachers have already been introduced into the educational system (for example, South Korea). Thus, the director of the Research Center for Innovative Learning Technologies at the University of Florida, Emily Baylor, claims that "unlike a live mentor, we can control all the parameters of a pedagogical agent – change its gender, age, ethnicity, personality, and communication style. This leads us to wide opportunities in modeling and researching different learning styles and learning strategies" *(Jaakkola, 2016).* But the problem of digitalization in education is also that people of different generations perceive something new, which

is dictated to us by the information society, in different ways. Despite the fact that digitalization of education is in full swing, it has other drawbacks.

Thus, when switching to a distance learning format, students lacked communication with their classmates, they emphasized problems with technology, as well as the difficulty of studying at home.

It was especially difficult for those who live in sparsely populated areas with limited access to the network to switch to the distance format of education. Besides, not everything can be taught online.

In technical sciences, up to 50% of skills are lost due to distance learning. After all, for example, in technology, in order to really understand some things, you need not only to hear about them, but to "feel" them. Digitization of education and online learning does not provide practical skills in certain fields, for example, in physics, chemistry, microbiology, medicine, which provokes intellectual collapse and a decrease in creativity. Many acquirers replace their intellectual search with a compilation of fragments of ready-made solutions removed from the Internet, believing that the presence of a gadget will provide them with knowledge *(Kucherak, 2020).*

The technical side of teaching organization became a problem for both students and teachers. This is outdated both home and work computer equipment, which does not "pull" modern software.

Previously, the process of finding the necessary information was quite time-consuming. Nowadays, a PC or tablet is enough to access online lessons and terabytes of educational content on any topic. Today, many useful applications have been developed for tablets – both installed and available for download. They significantly expand the arsenal of tools for the student, which ultimately helps to achieve the educational goals, and for lovers of interactive formats of education, educational videos and video lectures, for example, on YouTube, are suitable. Already in the near future, tablets may replace or supplement textbooks in most educational institutions.

A digital or interactive blackboard has replaced the classic blackboard in many classrooms. The advantage of such a device is that, in addition to recordings, it is also possible to watch various content, interact with other users and use special programs.

The interactive whiteboard makes the work of the teacher and student much easier, allowing you to perform any tasks. But the disadvantage is its rather high cost. Multimedia projectors are used as an alternative with almost the same functionality *(Kucherak, 2020)*.

The next step in the digitization of the educational process is the transition to the electronic form of documents supporting the educational process and the abandonment of paper media. At the same time, the disadvantage of this is the possibility of information loss due to damage to digital media, a virus threat and the possibility of "hacking" of storage by third parties. Despite the fact that the process of digitalization of education does not always go smoothly, all the facts indicate that digital education is the future.

Among the main disadvantages of digitization of education, the following should be highlighted:

– use of insufficiently studied technologies;

– displacement of live communication between teachers and students;

– deterioration of the ability to memorize and rethink the material, loss of skills in writing the main ideas as a result of using electronic versions of educational programs;

– development of screen addicts;

possible narrowing of mental abilities, which some experts interpret as "development of digital dementia";

– system failures;

– manipulation of information;
– threats created by cybercrime.

Trends in the development of digital and online education will urgently require their organizational design in educational institutions. Therefore, it is necessary to review the very essence of education and determine its purpose.

Therefore, digitalization of education is organically intertwined with the processes of its modernization. In order to increase the efficiency of digitalization, it is necessary to identify problems, challenges, possible negative consequences, and to draw up and implement relevant risk management programs.

3. Modern platforms and software products for the implementation of mixed and distance forms of education

Modern institutions of higher education today have a choice of platforms that can be used for blended and distance learning. The following are the most popular.

1. Moodle is the most popular free LMS with open source code, focused primarily on organizing interaction between the teacher and students, although it is also suitable for organizing distance courses and supporting face-to-face learning.

2, TalentLMS is a cloud-based e-learning platform for training employees, partners and customers, extremely easy to use. This LMS has a simple and clear interface, has a built-in course designer, is intuitive and can be quickly configured, which allows you to access courses without the need to install software.

3. Litmos is a popular, G2 Award-winning 2019 Best Enterprise Multi-Functional E-Learning Platform. It is called the most user-friendly LMS in the world due to its modern design and simplicity.

4. Docebo is a modular LMS, the feature of which is advanced customization and a combination of formal, experimental and social learning with skill management based on the use of artificial intelligence. It consists of 4 modules: Learn (a core module included in the base price), Coach & Share, Extended Enterprise and Perform. The platform supports integration with dozens of external services, including Google Analytics, Slack, WordPress, Drupal, Salesforce CRM, Shopify, etc., as well as popular tools for conducting video conferences, for example, Adobe Connect, Cisco Webex or Onsync. Docebo also has a built-in course builder, however, it is less user-friendly than others.

5. Canvas is a promising e-learning platform originally designed for educational institutions. It is not only LMS, but also many other compatible software *(Koziar, 2009).*

Despite the fact that institutions of higher education can choose their own platforms, most of them use the Moodle distance learning system. However, what concerns the choice of applications and software products for organizing independent work, developing tests, conducting questionnaires, implementing gamification during practical classes, this is determined by the teacher and depends on the type and purpose of the class. Moreover, it is not a principle for students of higher education to use the same software products (68% of respondents say so). So, today's teachers can choose among the following software products

1. Google Classroom – a virtual class with the ability to teach and collect work (set deadlines). You can adjust the calculation of grades, collect written works, give tests in Google forms, publish materials.

2. Google Forms – a tool for creating tests with the ability to set the number of points for tasks and correct answers. You can make the check automatic, but if there are tasks that require

additional checking, you can do part of the check manually and only then issue the result. In this case, you can send the results to the specified mail address.

3. Quizizz – Quiz creation service: the teacher creates a quiz on his computer, and students participate in it with the help of their mobile gadgets. The quiz can be conducted remotely when students are not in the same class. Also, the teacher has a complete picture of success in an Excel table.

4. Surveymonkey – service both for creating simple and small surveys and for mass mailing. The service allows you to quickly create surveys, customize their appearance, swap questions, conduct A / B testing, insert surveys on websites and social networks, etc.

5. Formative – service for creating tasks for assessment. 17 types of tasks are available (audio response, picture, text block, video, all, multiple choice, multiple choice, number / formula entry, etc.).

6. Polleverywhere – an assessment tool for higher education applicants that can be used during a distance workshop. This system allows you to embed interactive actions directly into the presentation. Learners respond online or via SMS on their phones. Limit – 25 students in one group.

7. Socrative – a free web service that allows you to assess students using prepared tasks or questions in a feed. Limit – 50 students in one group.

8. Wooclap – a platform used by universities for teaching and learning, available in 6 languages. Free access (maximum connection of 1,000 users). Instant feedback allows the audience to answer questions in real time.

9. Flippity – a service that allows you to create a variety of interactive exercises for learning. The service is free, the interface is in English, no registration is required, some exercises can be printed, all necessary instructions and demos are provided for each exercise.

10. Online Test Pad – free multifunctional service for testing and training. You can create tests, surveys, crosswords, logic games. The service is completely free

11. Kahoot! – users have the opportunity to take quizzes and participate in games-based projects created by the teacher based on the material covered, as well as independent creativity in creating educational games on the platform *(Shvachych, 2017).*

4. Conclusions

Modern information technologies allow them to be effectively used in the education system for the purpose of teaching, upbringing, developing the creative abilities of students, and organizing their cognitive activities.

Thus, the use of information technologies in the educational process allows preparing a new generation for the future life in the digital world. The learning process becomes more dynamic – due to gamification, personalization and digitalization of content. Higher education institutions are no longer limited by physical boundaries: the Internet allows for the involvement of participants from all over the world in educational programs and research projects. The online education platform will also provide new opportunities for regional universities, broadcasting the best educational materials and practices from leading universities in different countries.

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