

УДК 378:004.415

DOI 10.11603/m.2414-5998.2022.2.13263

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DIGITIZATION IN EDUCATION: PRESENT AND PROSPECTS

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ДІДЖИТАЛІЗАЦІЯ В ОСВІТІ: СЬОГОДЕННЯ ТА ПЕРСПЕКТИВИ

Abstract. One of the challenges of the digitalized society is the teacher's readiness for the digital transformation of the educational process, the design of an individual learning trajectory and the organization of a modern process of partnership pedagogy between a pupil and a teacher, a student and a teacher, a teacher and parents. Nowadays, information flows are growing at a tremendous speed, technologies for its processing and storage are developing, and real life is becoming more and more "digitized". So a modern person can listen to the most interesting lectures at universities, communicate with colleagues from an other part of the planet, take part in seminars, forums, conferences. Such changes affect all aspects of social life, create new opportunities for development, and the education system is not an exception. The article analyzes the use of digital technologies in the education system of Ukraine to improve its effective functioning. Successful experience has been summarized; the problems of digitalization in education have been highlighted as well. The degree of institutional support for stimulating the development of digitization in education is determined. It has also been emphasized the purpose of providing advisory support to pedagogical staff of educational institutions regarding the implementation of digitalization of the educational space as a means of partner interaction in practical training.

Key words: digitization; educational space; digital technologies; student; practical skills; e-learning.

Анотація. Одним із викликів діджиталізованого суспільства є готовність педагога до цифрової трансформації процесу навчання, проектування індивідуальної освітньої траєкторії та організації сучасного процесу партнерства між учнем та вчителем, студентом і викладачем, педагогом та батьками. Сьогодні зростають потоки інформації, розвиваються технології її обробки та зберігання, реальне життя все більше «оцифровується». Ми можемо прослухати найцікавіші лекції в університетах, поспілкуватися з колегами з іншої точки планети, взяти участь у семінарах, форумах, конференціях. Такі зміни зачіпають усі сторони суспільного життя, створюють нові можливості для розвитку, в тому числі й у системі освіти. У статті проаналізовано використання цифрових технологій в освіті України задля підвищення її ефективного функціонування. Узагальнено успішний досвід, висвітлено проблеми діджиталізації в освіті. Визначено ступінь інституційного забезпечення стимулювання розвитку діджиталізації в освіті. Наголошено на меті здійснення консультативної підтримки педагогічних працівників закладів освіти щодо впровадження діджиталізації в освітній простір як засобу партнерської взаємодії на практичному занятті.

Ключові слова: діджиталізація; освітній простір; цифрові технології; студент; практичні навички; е-навчання.

Introduction. The challenges faced by the modern education system not only in Ukraine, but also in the whole world, made the need for distance education even more intense.

Information technology will not replace the teacher, but only give him new opportunities, allowing this

person to enjoy the process of communication and cognition, help him automate much of his work, freeing up time for search, communication, self-improvement, individual work with students, provide feedback for communication, increase the efficiency of management in the educational process and education in general [9].

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Information and digital competence involves the confident and critical application of information and communication technologies by a person of the XXI century in everyday life, in professional activities, public space and private communication.

The aim. With the introduction of digital technologies the learning process becomes mobile, differentiated and individual. Digital technologies make life easier by optimizing routine processes, leveling borders in the educational space that extends beyond their country and continent. On the other hand, such total implementation increases the requirements for the level of professional training of employees, encouraging competition in the labor market. Meanwhile, there is a need for a highly qualified specialist who has certain competencies, can solve problems independently and (or) as part of a team effectively, show activity, responsibility, perseverance and creativity.

Theoretical framework. Digitization is a reflection of the modern paradigm of society development, when competitiveness and efficiency appear as vital qualities. Digitalization simplifies the educational process, making it more flexible, adapted to the realities of modern times, which ensures the formation of competitive professionals [1, 3, 6].

The issue of forming the information competence is researched in the works of such scientists as V. Bykhov, M. Leshchenko, O. Ovcharuk, S. Sysoeva and others.

Digitization (digitalization) of the educational process for training future doctors is caused by the need for widespread introduction of innovative technologies, the emergence of new requirements for professionals, in particular the formation of key foreign language competencies.

To enable the implementation of reforms and building a country in the digital world, it is necessary to master the art of critical thinking, the basics of media literacy, be ICT literate and able to use digital technologies in professional activities effectively [2].

Digitization of the educational process is caused by the need for widespread implementation of innovative technologies, the emergence of new requirements for specialists, in particular for the formation of key competencies, and a new digital generation with special socio-psychological characteristics. In addition, the conditions for the digitization of education are laid by the Concept of Scientific and Technological Innovative Development of Ukraine [2], which defines the following priorities: formation and support of the innovative orientation of the national education system;

focus on innovative development of the national economy of Ukraine; promotion of expanded reproduction of knowledge based on active and fruitful cooperation of educational institutions, domestic enterprises and scientific institutions, etc.

Digitization of education is a complex and complex category; this is caused by many different factors that influence its development [16, p. 76]. The main factors affecting the development of education digitalization can be divided into the following categories: technological, economic, social and political ones.

Technological factors contain the development of information technologies, which also encourages the emergence of new educational technologies (gamification of learning, electronic learning, mixed forms of learning, etc.).

Determinants that detect the quality development of innovative and digital education are: establishment of horizontal and vertical connections between faculties, universities, enterprises, investors; creation of a national educational platform [5, p. 682].

Key changes that can be observed in Ukrainian education today: higher education institutions should not only ensure the educational process, but also become a platform for creating innovations, which is impossible without merging with science and practice; pooling of resources for the implementation of joint projects, creation of scientific and educational online platforms; it became possible to build personalized educational trajectories; development of a level system of thematic modules; on a level with traditional education, society began to use non-traditional, which can be explained by the growth of competences for innovation.

The distance mode of education is becoming more and more widespread, which is facilitated by the development of information technologies and communications. Digitization of education allows to increase the virtual mobility of students, enables students of Ukrainian universities to study in universities of other countries and undergo internships there. Digitization of educational services in Ukraine allows competition within the single European educational space [10].

In the Recommendations of the European Parliament and the Council of Europe on the formation of key competences for lifelong learning [14], it is determined that the basis of digital competence is basic skills in the use of information and communication technologies: using computers to search for informa-

tion, its analysis, storage, production, presentation and sharing, as well as for communication in social networks on the Internet. Taking into account the processes of digitalization both on a global and national scale, the reform of secondary education and the creation of the New Ukrainian School has started in our country. According to the NUS Concept, information and digital competence is defined as one of the key competences, which involves the confident and at the same time critical use of information and communication technologies for creating, searching, processing, exchanging information at work, in public space, and in private communication. It includes information and media literacy, the basics of programming, algorithmic thinking, the ability to work with databases, Internet and cyber security skills, as well as understanding the ethics of working with information (copyright, intellectual property, etc.) [3].

Digital competence is measured in citizens at different levels to determine suitability for study and work conditions. Therefore, the EUROPASS European network proposes to adhere to the following standards of digital competence, the key components of which are:

- information management – knowledge, skills and abilities to search for information, its analysis and use in professional activities, the ability to access information, search for information on the Internet, formulate information needs, find relevant information, choose effective resources, create personal information strategies, evaluate the ability to collect, process, understand and critically evaluate information, manage and store information and its content to facilitate searching, create a database;

- collaboration – knowledge, skills and abilities for participation in various communities, cooperation with other users on the Internet;

- communication – knowledge, skills and abilities to communicate using Internet tools, willingness and ability to share knowledge, content and resources, knowledge of practices and rules for citing information, online interaction to solve professional tasks, search for opportunities for self-development and improvement own digital environment, use of technologies and media for teamwork, establishing collaboration processes, joint creation of resources, management of one or several digital identifiers, ability to operate a database created by several users;

- creation of content and knowledge – personal skills and abilities for professional and creative activities,

- creation of new resources for the use of information technologies, creation of content/content in various formats using multimedia, expression of one's opinion with the help of digital media and technologies, understanding how copyrights and licenses apply to information and content;

- ethics and responsibility – knowledge, skills and abilities of specialists regarding certain behavior on the Internet;

- evaluation and problem-solving – selection of information technologies for evaluation and self-assessment of knowledge and skills in various educational disciplines, solving problems of processing evaluation results using information technologies;

- technical operation – knowledge, skills and abilities of an individual for the effective and safe use of information technologies in their professional activities, activation of personal data protection, understanding of other people's private property, self-protection against fraud on the Internet and possible threats [18].

The benefits of the digital transformation of education are obvious. In particular, it is the provision of favorable conditions for such points as the development of skills to learn independently, to identify the most valuable material for self-development; formation of personality mobility, ability to quickly adapt to changing conditions unpredictably and rapidly; strengthening motivation for self-education and self-development; reaching a diverse audience (content becomes personalized), ensuring cooperation and integrativity; construction of individual educational trajectory; learning in the most comfortable conditions i.e. at a comfortable pace, but with optimal use of time set aside to perform certain tasks. Digitalization provides a transition from “education for all to education for everyone”. Thus, a modern educational space is being developed, which has all the conditions for mastering basic (supra-professional) competencies [15, p. 34].

Back in 2016, the updated Digital Competence framework (DigComp 2.0) presented by the EU identified 5 blocks of competencies. These include information literacy, the ability to evaluate, use and manage data, interact using digital technologies, create, modify and improve digital etiquette, solve problems with computer hardware and software, as well as identify the need for new digital skills [4]. Every year the need to master these competencies only increases.

The conceptual reference model of the teacher's digital competence is DigCompEdu, which was developed

by the research center of the European Commission. It is aimed at professionals at all levels of education, from early childhood to higher education and adult education, including general and vocational training, education for people with special needs and non-formal education [13, p. 72]. The model defines the spheres of a teacher's digital competence and its components, including: professional involvement (use of digital technologies for communication, cooperation and professional development); expanding the opportunities of those who study (introduction of digital technologies to improve inclusive, individual education and active involvement of pupils and students); digital resources (search, creation and distribution of digital resources); learning and teaching (management and organization of the use of digital technologies in education); promoting the digital competence of students (providing opportunities for creative and responsible use of digital technologies for working with information, communication, creating content and solving problems) [11, 17].

On the other hand, such technologies do not exclude the work of a foreign language teacher, as they are not intended to replace him. Their potential is directed to something else i.e. addition, improvement, diversification, optimization. However, the functions of the teacher are changing dramatically. The ability to work with a lot of information, to solve problem situations, to defend one's own position and to be ready for constructive dialogues is a priority. To achieve the digitalization of the education system, such changes should not be limited to the audience or class (using digital technology), they should permeate all areas and activities of the educational institution, ensuring the transition to a fundamentally new, higher level. Digital technologies have didactic potential, which provides the freedom to search for information, its personalization (focus on the needs of students i. e. different levels of complexity, pace, presentation of material), interactivity, multimedia, subculture. Such innovations create a situation of comfort. Accordingly, the formed digital competence allows the teacher not only to use digital technologies for professional interaction with colleagues, students, their parents, their own professional development, providing learning strategies focused on students, their evaluation, improving feedback in the learning process, but also involves the acquisition of skills and experience in the formation of information and digital competence of students [12, p. 91].

The coronavirus pandemic and long-term quarantine and war have become a severe challenge for educa-

tional institutions, especially for those who lack flexibility in the organization of the educational process, but circumstances have forced them to look for effective forms of work and stimulate modernization and introduction of new technologies. Nowadays, digitalization is a key factor in improving the education system. In addition to affecting the effectiveness of the educational process directly, digitalization provides a chain of indirect benefits, in particular the optimal use of time for more effective formation of key competencies.

It is obvious that the classroom form of work in some situations (the student's employment at work during studies, obtaining a second education, dangerous man-made disasters and emergency situations) has begun to give way to distance work. When choosing the form of organization of the educational process, the teacher should focus on the possibilities of education seekers as well as information and communication support. The educational platform Moodle is considered to be traditional for higher education institutions. This resource, firstly, enables full-fledged distance learning with a complete closed cycle (without the presence of a student in the auditorium), or a mixed form of work, when it is a place to place educational material for face-to-face learning, and secondly, it is mostly used in the study of the cycle of disciplines of general or professional training.

Modern regulatory and legal documents allow a student of higher education to form an individual educational trajectory through selective disciplines, which make up to 25 percent of the total number of ECTS credits from the total volume of the educational program. Reading of elective subjects can be ensured by the functioning of electronic distance courses.

The mobile tool is a distance course on the Moodle platform. The materials of the electronic version of the course serve as an extended syllabus of the academic discipline [1, p. 18]. The distance course should be formed according to the principle of separate blocks: recommended literature, theoretical (lectures), practical (for practical, seminar, laboratory classes) blocks, a control block and a block of interesting information. A significant role is played by the block of recommended literature, represented by scientific and educational literature, which ensures the availability of educational information. The technical capabilities of Moodle allow you to attach a downloaded document or give a call for remote access. The advantage of this format is mobility, the possibility of regular, systematic and timely addition, clarification and change of sources.

In the theoretical block, we place presentations with a thesis and schematic presentation of the topics. If the learning process involves an exclusively remote form of work, then video recordings of lectures based on presentation material will be appropriate. The proposed algorithm will be useful in that situation, if the optional course covers material sufficiently represented by publicly available scientific and educational material, for example, on the topic of non-verbal communication, business communication etiquette, the art of public speaking, etc. From many points of view, it would be appropriate to use the “Dictionary” resource, which directs students to a mouthful of lexicographic sources and is a kind of “cheat sheet” for learning basic concepts and categories. As practice proves, repeated involuntary reading contributes to better memorization of not only the meaning, but also the introduction of the lexeme into the active vocabulary of the student of education. Such an approach turned out to be especially convenient for those distance courses that require knowledge and understanding of special professional terminology.

An indisputable advantage of Moodle resources is the ability to place visuals (photo, video, audio

production) necessary for practical / seminar classes, which will emphasize, supplement, and deepen verbal information. The final unit of the course study is the control unit. Its technical content will depend on the pedagogical skill of the teacher, as this platform offers a wide range of technical capabilities of the control organization: from tests to the performance of creative tasks of an analytical and synthetic nature. The Moodle system allows you to create a database of test questions and use it invariantly.

Conclusions and Prospects for Research. Digitalization makes the educational process more personalized, accessible and flexible. This, in turn, provides a comfortable environment for self-study, effective development and career growth.

This study confirmed the relevance of digitalization of educational space in the context of key competencies and proved the need for further development of the problem, including finding more effective ways to implement digitalization as a set of tools that optimize learning, personalization and automation of routine educational processes.

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Received 18.07.22
Recommended 22.07.22

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