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EDUCATIONAL ENVIRONMENT AS A DIGITAL SPACE

One of the components of the New Ukrainian School is the creation of a modern educational environment, in particular multifunctional flexible spaces that promote various forms of work and motivate learning. One of such spaces is considered to be the digital educational environment. The article reveals the essence of the concept of "digital educational space" from the point of view of the institutional and substantive aspects of understanding the phenomenon. In the institutional framework, the educational space is characterized as a certain part of society, where conditions are created for the development of the individual. Within the substantive aspect, the educational space is defined as the possibility and presence of the formation of the personal space of the subject of the educational process. The article emphasizes that today, at the stage of digitalization of secondary education institutions in Ukraine, rapid information interaction is taking place in the specified area. Information interaction of secondary education institutions is implemented by transitioning to nonlinear and hypertextual presentation of educational material; expanding the types of information interaction between the teacher and the student; increasing student independence; development of self-education in synchronous or asynchronous mode; changing the formats and structure of the presentation of educational material; increasing the level of responsibility of all participants in the educational process for the results of learning. The overarching idea of scientific work is the combination of active forms of learning with distance learning. It is emphasized that such a combination in the educational process is possible due to the digital transformation of vocational education by conducting webinars, virtual discussions on forums, role-playing and business games in the format of web quests, round tables, in chats, blogs, project activities based on wiki technologies and independent work of education seekers. Generalization of the results of the analysis of the understanding of the studied phenomenon from different positions made it possible to determine its integral characteristic as a pedagogical reality in which the meeting, interaction, comprehension and cognition of the educational environment by the individual takes place. The conducted theoretical research gives the author grounds for certain conclusions that the educational space is considered in relation to the individual, since only he is inherent in the activity through which the educational environment is mastered. Understanding the process of mastering as an educational event determines the leading mechanism for the purposeful creation of a digital educational space.

Key words: *digital literacy, digital culture, digital skills, digital competence, educational digitalization.*

Problem setting. The present dictates to us the need to use the latest technologies in various spheres of life, in particular in the sphere of modern education at all its levels.

The current stage of functioning and development of the Ukrainian education system is characterized by the intensive implementation of various digital technologies in order to optimally implement its goals and objectives, ensure accessibility and continuity, and improve quality and efficiency. The importance of digital transformation of the education system in Ukraine is emphasized in a number of documents that define the strategic directions of its reform and modernization. In particular, the draft Concept of Digital Transformation of Education and Science for the period until 2026 indicates the need for fundamental changes in the educational sphere based on the widespread introduction of digital technologies in order to improve its quality and efficiency in accordance with national needs and world standards [4].

Such ideas and priorities for the development of education in Ukraine involve the development of a high-tech digital environment in educational institutions of different levels to modernize their activities in accordance with the requirements of today. The problem of the functioning and development of the digital educational space is the subject of a number of scientific studies. Their results reveal its various aspects, including: the advantages and difficulties of the digital transformation of educational institutions of different levels [2; 3]; changes in the professional activity of a teacher in the conditions of a digital educational environment [10]; structural and organizational features of the digital educational environment [9]; functions and properties of the digital environment of educational institutions [1] etc.

Therefore, the study of scientific literature demonstrates the coverage of many issues regarding the development of a modern digital educational environment. At the same time, in our opinion, the main methodological approaches and principles of its construction require more detailed consideration. In view of this, the purpose of the article is to analyze the principles of organization and functioning of a modern digital educational environment.

The aim of the article is to consider the educational environment as a digital space.

An overview of the main material. In the process of revolutionary formation of the information society, the requirements for modern education are changing dramatically. In addition to a certain amount of knowledge, future citizens of the "digital age society" need developed skills and abilities to search, process and present information using digital tools.

In the State Standard for Basic and Complete General Secondary Education, special attention is paid to the information and communication competence of students, and according to the hierarchical system of competencies, it is classified as key. Information and communication competence is defined as the ability of a student to use information and communication technologies and appropriate means to perform personal and socially significant tasks. Special emphasis is placed on the fact that the formation of information and communication competence of students, the content of which is integrative, occurs as a result of the application of an activity approach during the study of all subjects of the curriculum. The curricula necessarily provide for the contribution of each subject to the formation of the specified competence.

The importance of ensuring a high-quality digital educational environment in the organization of the educational process is described in the works of domestic and foreign scientists, in particular L. Lytvynova, P. Fedoruk, K. Frolsh, etc [8].

Digital technologies occupy an important place in the everyday life of every person. Digital literacy and digital culture are integral components of the education system of Ukraine. The digital transformation of Ukraine began with the Law of Ukraine “On the National Program of Informatization”. And the transition to a digital economy in Ukraine began in 2013, when the order of the Cabinet of Ministers of Ukraine “On Approval of the Strategy for the Development of the Information Society in Ukraine” appeared. Later, the Law of Ukraine “On the Digital Agenda of Ukraine” was adopted and implemented, which was an impetus for the implementation of the tasks defined in the conceptual framework of the project “Digital Agenda of Ukraine – 2020” and the development of the economic strategy “Ukraine 2030E – a country with a developed digital economy” [1].

A similar approach is shared by the global pedagogical community, whose representatives are taking measures to make changes to the traditional educational model. The most effective steps to transform the educational space in order to develop in children the qualities that will enable them to become successful in the 21st century are being taken towards the introduction of project-based learning, enriched with information and communication technologies and involving schoolchildren in educational programs that are built on other methodological principles of organizing the educational process. In didactics and methodology, a learning model built on the broad and didactically meaningful use of information and communication technologies is gaining increasing popularity.

Digital technologies have long taken their place in everyday life. (see Fig. 1). And such basic concepts as ‘digital literacy’, ‘digital culture’, ‘digital skills’ have become inseparable components of the education system of Ukraine and are combined into one definition – ‘digital competence’.

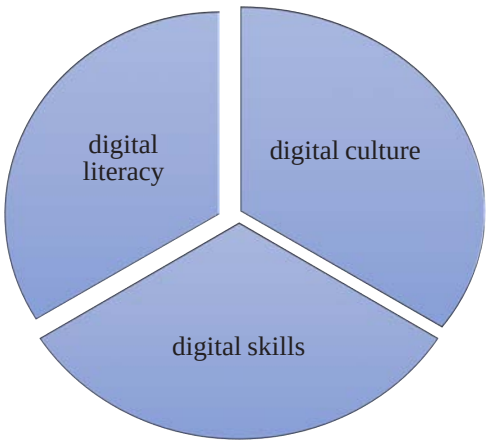

Fig. 1. Structure of digital competence

ICT literacy (digital literacy, technological literacy) is the ability to work individually or collectively, using resources, tools, processes and systems that are responsible for evaluating information received through media resources, and to use such information to solve problems, gain knowledge.

ICT literacy is the use of digital technologies, communication tools or networks to access, manage, integrate, evaluate and create information for functioning in modern society.

The introduced concept of ICT literacy determines what skills and abilities a person must possess in order to be called literate in this sense.

Digital culture is a system of rules of human behavior that he adheres to when using information and communication technologies.

Digital competence is the confident, critical and responsible use and interaction with digital technologies for learning, professional activity (work) and participation in the life of society.

Includes digital and information literacy, communication and collaboration, digital content creation (including programming), cybersecurity and problem solving.

Key knowledge, skills, abilities and attitudes related to digital competence:

1. Knowledge of how digital technologies can support communication, creativity and innovation. Awareness of their capabilities, limitations, impacts and risks.

2. Understanding of the general principles, mechanisms and logic of digital technologies. Knowledge of the basic functions and use of different devices, software and digital networks.

3. Knowledge of legal and ethical principles related to the use of digital technologies.

4. Digital competence involves the ability to use digital technologies to support creativity, active citizenship and social inclusion, and to collaborate with others to achieve personal, social or commercial goals.

5. Skills include the ability to use, access, filter, evaluate, create, program and share digital content.

The ability to protect information, content, personal data, and effectively interact with software, devices, artificial intelligence, or robots is important.

Interacting with digital technologies and content requires an open and forward-looking attitude to their evolution. At the same time, it requires a critical analysis of the validity, reliability, and impact of information and data available through digital means, as well as an ethical, safe, and responsible approach to using these tools.

The digital transformation of Ukraine began with the Law of Ukraine "On the National Informatization Program," and the transition to a digital economy in Ukraine began in 2013, when the Cabinet of Ministers of Ukraine issued a resolution "On Approval of the Strategy for the Development of the Information Society of Ukraine." The next step was the adoption and implementation of the Law of Ukraine "On the Digital Agenda of Ukraine", which served as an impetus for the implementation of the goals defined in the Conceptual Framework of the project "Digital Agenda of Ukraine – 2020" ("Digital Agenda" – 2020) and the development of the economic strategy "Ukraine 2030E – a country with a developed digital economy". The Law of Ukraine "On Education" states that "…the purpose of education is the comprehensive development of a person as an individual and the highest value of society, his talents, intellectual, creative and physical abilities, the formation of values and competencies necessary for successful self-realization, the upbringing of responsible citizens who are capable of conscious social choice and directing their activities for the benefit of other people and society, the enrichment on this basis of the intellectual, economic, creative, cultural potential of the Ukrainian people, the improvement of the educational level of citizens in order to ensure the sustainable development of Ukraine and its European choice". This characterizes education and upbringing as a single continuous process and means that the main task of a higher educational institution is not only the training of highly qualified specialists, but also the formation of the personality of students with harmoniously combined professional, moral-aesthetic, psychological qualities. As a result, society is filled with specialists with high professional and moral qualities, and the elite of society is formed from the best graduates. These tasks must be solved simultaneously, the leading role in this is played by high qualifications, moral character and authority of the pedagogical worker.

It is easy to imagine that the nearest period in vocational education will be devoted to the formation of a new generation of specialists who possess digital competencies and are ready to function in the digital space. Therefore, the modernization of the vocational education system will take place, there will be a need to update the material and technical support of educational institutions with modern digital equipment, digital educational technologies and, accordingly, pedagogical workers capable of transforming the entire educational process.

Already today, the transition to distance education has caused a rapid change in information interaction in the field of education:

– Transition to nonlinear and hypertextual presentation of educational material;

– Expansion of types of information interaction between the teacher and the student;

– Growth of the student's autonomy;

– Development of self-education in synchronous or asynchronous mode;

– The formats and structure of the presentation of educational material have changed;

– The level of responsibility of all participants in the educational process for the results of learning has increased.

All these processes require the vocational education system not only to constantly master and implement digital learning tools, means and technologies of learning, but also to rethink its role and take responsible organizational measures, both internally and in interaction with the external environment, taking into account the peculiarities of the educational process.

One of the promising directions of modernization of vocational education is the development of a digital educational environment, which will allow each student to have access to education at any time and build an individual learning trajectory. Such an approach will fully comply with the student-centered approach.

To achieve these goals, the vocational education system must solve the following tasks:

– Develop uniform requirements for the structure and content of the digital educational environment;

– Within the framework of each educational program, determine the level of application of digital education in the educational process and for each specific discipline;

– Identify the possibilities of using existing resources and ensure their quality improvement if necessary;

– Form an algorithm for the digital transformation of the educational process;

– Develop and, subject to successful testing, implement a model for organizing the educational process using a digital educational environment.

The educational process within the framework of the digital transformation of vocational education should be based on a mandatory combination of active forms and remote classes: conducting webinars, virtual discussions in forums, role-playing and business games in the format of web quests, round tables in chats, blogs, project activities based on wiki technologies and independent work of education seekers.

Also, for the digital transformation of vocational education, it is necessary to divide the educational process into two parts, which will take place with partial use of the educational environment (conducting laboratory work and performing practical tasks on real equipment) and the study of which will be fully implemented using the digital educational environment, where credits without evaluation are established as an intermediate certification in these disciplines in the curriculum. Electronic educational modules are being developed for all types of classroom and extracurricular work in these educational disciplines, which must be placed in the digital environment.

The main advantages of the digital transformation of the educational process specifically for vocational education are as follows:

A flexible work schedule is created for students to complete their educational work and, accordingly, the ability to choose an individual pace of movement according to the curriculum;

The digital educational space changes the structure of the teacher's activities. The main functions that occupy most of his time are: designing educational work, preparing educational tasks for independent work on the entire content of the discipline, control tasks with degrees of protection of the reliability of the results, individual consulting in remote mode, monitoring and evaluating the results of educational work.

The organization of learning and management of the educational process is changing. The organization of training for independent work of students and coordination of their activities using remote means come to the fore. The main efforts are directed at organizing the educational process taking into account the characteristics, intentions and abilities of each student.

Academic mobility and digital education will allow students to change their educational trajectory at any time with minimal time loss and maximum preservation of academic achievements obtained at previous stages of education.

Therefore, one of the main tasks of modernizing the vocational education system is to create conditions for high-quality learning. It is the implementation of measures to introduce a digital educational environment that will create conditions for the formation of a specialist's digital competence, will allow the digital economy to be competitive and function effectively.

High-quality education requires that a graduate be capable of constant intellectual work, flexible change of specialization, and further education throughout life. Along with the acquired professional knowledge, a graduate must take care of his own internal qualities, such as morality and spirituality, multiply inherited national traditions, culture, etc. Education is also a process of forming skills and abilities, cultivating a culture of thinking and cognition, the ability to self-study and self-education.

Conclusions and proposals. So, the digital educational environment reflects a generally complex, multi-component, purposefully built system of digital educational and information resources and digital tools for organizing and managing the educational process. It provides an open set of digital information and communication tools designed to ensure various tasks of the educational process, in particular, organizing the interaction of all its participants in different modes, ensuring operational access to educational information in various formats, automated control of the results of its processing, etc.

In this regard, such an environment is characterized by wide functional capabilities, the key to the implementation of which is compliance with a number of principles in the process of its construction. Among them, the principles of integrativity, systematicity, modularity, hierarchy, technological richness, technological openness, web-orientation play a particularly important role.

Given the multitasking of such an environment, the importance of its constant updating in accordance with dynamic changes in the field of education, this list requires further clarifications and additions, moreover, from different perspectives – pedagogical, psychological, technical, etc.

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Дін Дзіпін. Освітнє середовище як цифровий простір

Однією зі складових Нової української школи є створення сучасного освітнього середовища, зокрема багатофункціональних гнучких просторів, які сприяють різноманітним формам роботи та мотивують до навчання. Одним із таких просторів вважається цифрове освітнє середовище. У статті розкривається сутність поняття «цифровий освітній простір» з точки зору інституційного та змістовного аспектів розуміння феномену. В інституційних рамках освітній простір характеризується як певна частина суспільства, де створюються умови для розвитку особистості. У межах змістовного аспекту освітній простір визначається як можливість і наявність формування особистісного простору суб'єкта освітнього процесу. У статті підкреслюється, що сьогодні на етапі цифровізації закладів середньої освіти в Україні відбувається швидка інформаційна взаємодія в означеній сфері. Інформаційна взаємодія закладів середньої освіти реалізується переходом до нелінійного та гіпертекстуального викладу навчального матеріалу; розширенням видів інформаційної взаємодії між викладачем і студентом; зростанням самостійності учня; розвитком самоосвіти в синхронному або асинхронному режимі; зміною форматів та структури подачі навчального матеріалу; підвищенням рівня відповідальності всіх учасників освітнього процесу за результати навчання. Наскрізною ідеєю наукової роботи є поєднання активних форм навчання з дистанційними заняттями. Наголошується, що таке поєднання в освітньому процесі можливе за рахунок цифрової трансформації професійно-технічної освіти шляхом проведення вебінарів, віртуальних дискусій на форумах, рольових та ділових ігор у форматі веб-квестів, круглих столів. у чатах, блогах, проектній діяльності на основі вікі-технологій та самостійної роботи здобувачів освіти. Узагальнення результатів аналізу розуміння досліджуваного феномену з різних позицій дало змогу визначити його інтегральну характеристику як педагогічної реальності, в якій відбувається зустріч, взаємодія, осмислення та пізнання особистістю освітнього середовища. Проведене теоретичне дослідження дає автору підстави для певних висновків про те, що освітній простір розглядається стосовно особистості, оскільки тільки їй притаманна діяльність, через яку освоюється освітнє середовище. Розуміння процесу засвоєння як освітньої події визначає провідний механізм цілеспрямованого створення цифрового освітнього простору.

Ключові слова: *цифрова грамотність, цифрова культура, цифрові навички, цифрова компетентність, освітня цифровізація.*