

DOI: <https://doi.org/10.46502/issn.1856-7576/2023.17.03.21>

Cómo citar:

Palshkova, I., Bidyuk, D., Balalaieva, O., Shynkaruk, O., & Karhut, V. (2023). The use of digital resources in the education system of foreign countries. *Revista Eduweb*, 17(3), 245-256. <https://doi.org/10.46502/issn.1856-7576/2023.17.03.21>

## The use of digital resources in the education system of foreign countries

### El uso de los recursos digitales en el sistema educativo de países extranjeros

#### Iryna Palshkova

<https://orcid.org/0000-0002-6710-5232>

ResearcherID: DLZ-3006-2022

Doctor of Pedagogical Sciences, Professor of the Department of Pedagogical Technologies of Primary Education, South Ukrainian National Pedagogical University named after K. D. Ushynsky, Ukraine.

#### Dmytro Bidyuk

<https://orcid.org/0000-0003-3086-5411>

ResearcherID: HWY-4848-2023

Doctor of Philosophy in Pedagogy, Senior Lecturer, Public Organization "Dance Studio "Imperial", Ukraine.

#### Olena Balalaieva

<https://orcid.org/0000-0002-2675-5554>

ResearcherID: H-8629-2018

Candidate of Pedagogical Sciences, Associate Professor, Department of Journalism and Linguistic Communication, National University of Life and Environmental Sciences of Ukraine, Ukraine.

#### Oleksandra Shynkaruk

<https://orcid.org/0000-0002-5494-1370>

ResearcherID: FZS-8389-2022

Candidate of Legal Sciences, Associate Professor, Associate Professor of the Department of Philosophy and International Communication, National University of Life and Environmental Sciences of Ukraine, Ukraine.

#### Volodymyr Karhut

<https://orcid.org/0009-0004-9449-6517>

ResearcherID: IUQ-7922-2023

Candidate of Pedagogical Sciences, Full-time Associate Professor, Associate Professor of the Department of Computer and Software Engineering, Dragomanov Ukrainian State University, Ukraine.

---

Recibido: 11/04/23

Aceptado: 16/06/23

### Abstract

The article examines digital learning technologies, shows the effectiveness of information technologies, introduces the aspects of digitalization of the educational space, analyzes the current state of the use of information technologies in the conditions of digitalization of education. The main goal of digital education is the high-quality and modern preparation of students for their effective participation in professional and social life in the conditions of the information society. The article examines the importance of the concept of digitalization of educational resources is substantiated based on the study of the experience of different countries. Leading features of digital education are proposed: anticipatory nature, quality, flexibility, accessibility, creativity. The leading principles are highlighted and the features of digital education are clarified. The possibilities of digitalization of educational resources in the education system of foreign countries characterized by openness are analyzed. Digitization of educational resources in the education system in foreign countries provides cultural and linguistic education for those seeking education, promotes



the development of informational and communicative competence, provides greater opportunities for quality education and employment of citizens. The leading principles of digitization of educational resources in the education system are defined.

**Keywords:** digitalization, educational resources, education system, foreign countries, open education.

## Resumen

El artículo examina las tecnologías de aprendizaje digital, muestra la eficacia de las tecnologías de la información, introduce los aspectos de la digitalización del espacio educativo, analiza el estado actual del uso de las tecnologías de la información en las condiciones de digitalización de la educación. El objetivo principal de la educación digital es la preparación moderna y de alta calidad de los estudiantes para su participación efectiva en la vida profesional y social en las condiciones de la sociedad de la información. El artículo examina la importancia del concepto de digitalización de los recursos educativos que se fundamenta a partir del estudio de la experiencia de diferentes países. Se proponen las principales características de la educación digital: carácter anticipatorio, calidad, flexibilidad, accesibilidad, creatividad. Se destacan los principios rectores y se aclaran las características de la educación digital. Se analizan las posibilidades de digitalización de los recursos educativos en el sistema educativo de países extranjeros caracterizados por la apertura. La digitalización de los recursos educativos en el sistema educativo en países extranjeros brinda educación cultural y lingüística para quienes buscan educación, promueve el desarrollo de la competencia informacional y comunicativa, brinda mayores oportunidades para una educación de calidad y empleo de los ciudadanos. Se definen los principios rectores de la digitalización de los recursos educativos en el sistema educativo.

**Palabras clave:** digitalización, recursos educativos, sistema educativo, países extranjeros, educación abierta.

## 1. Introduction

In the 21st century, we observe a set of features inherent in society. The most important of them are the introduction of information and communication technologies into the educational sector; globalization of economy, culture, politics, education; increase in network forms of communication, etc. The most popular in modern society is the development of open education, which promotes lifelong learning.

Informatization of society is aimed at solving a significant number of important tasks. The main task is the implementation of digitalization of educational resources in the education system both at the global level and in individual countries. The implementation of digitization of educational resources in the education system contributes to the organization of quality education using digital technologies and inspires and motivates students to eliminate technical problems, and this is a difficult task. Therefore, in today's conditions, the implementation of the digitization of educational resources in the education system, open education, acquired foreign experience in the use of distance learning methods, information and communication technologies, the acquisition of professional competencies, abilities, skills of the future specialist acquire special significance (Osadchuk, 2022).

The main goal of the digitalization of educational resources in the system of training and open education is to prepare students for high-quality and constructive participation in professional and social life in the conditions of the informatization of society. It is open education in the education system during the implementation of digitalization of educational resources that provides an opportunity to expand the educational opportunities of a person and contributes to the creation of a qualitatively new level of unity and openness of the educational system at all levels, in particular, in all types and varieties of external (the connection between the state and society, as well as specific educational institutions and the education

system as a whole) and internal communications (communication between the administration of the educational institution and the teacher and the student of education; students of education; teachers; teacher and student of education) (Leshchenko & Yatsyshyn, 2014).

## 2. Literature Review

The problem of digitalization is especially relevant for researchers in the field of pedagogical sciences, since the results of their research are the theoretical and methodological basis for teaching and educating citizens of a new generation in fundamentally new conditions of digital transformation of social development and digitalization. national education.

In the modern scientific discourse, the attention of scientists to problems related to the development of IT education is constantly growing, in particular A. Yatsyshyn, T. Vdovychyn (2013) and M. Leshchenko and A. Yatsyshin (2014) analyzed normative documents, pointing out the need application of digitization of educational resources in education systems and implementation of open education technologies for quality training of future specialists in educational institutions; outlined the problems of the development of the digital education system and suggested the possibilities of their elimination during the digitization of educational resources in the education system. The openness of education is presented as a process of cyclical improvement of a person's professional and intellectual appearance during his life. N. Voronova (2019) showed the advantage of digital educational resources that work on any digital device. The author's study of the experience of foreign countries proved the possibilities of forming, improving and developing the digital educational environment of the future generation, showed the possibilities of digitalization of educational resources in the education system.

T. Oliinyk, V. Borisov, A. Guba, I. Denysenko, A. Sokolova (2019) substantiated the possibilities of influence of digital educational resources and described the features of the application of digital innovations of the new generation. They showed the importance of digitization of educational resources in the education system and developed a digital literacy course for teachers that meets the civilizational challenges of a sustainable society.

M. Zheludenko and S. Hryniuk (2020) singled out priority educational positions: global and necessary use of digital technologies for learning and teaching; support and assistance of state authorities at all levels and the state in the implementation of digitalization of educational resources in the education system, proposed principles of digital education.

As noted by the above-mentioned authors, informatization significantly affected the process of acquiring knowledge. Digital learning technologies make it possible to intensify the educational process, increase the speed of perception, understanding and the depth of assimilation of huge masses of knowledge.

The use of computers in education, according to many scientists, will make it possible to qualitatively change the methods and organizational forms of education, which, in turn, will create prerequisites for the maximum intensification and individualization of the education process. In particular, in the article, A. Gurzhii, O. Glazunova, and T. Voloshina (2021) analyzed the possibilities of digitalization of educational resources in the education system, clarified the concept of open education, identified the characteristic features of various types of digital educational content, which are necessary when used in open educational systems universities, substantiated mixed and distance learning in institutions of higher education and the possibility of using electronic educational resources for the educational process. And the authors E. Ivashev, O. Sakhno, V. Hryadushcha, A. Denisova, A. Lukiyanchuk, S. Udovik (2021) presented the conceptual aspects of the study of the essence of digitization of educational resources in the education system of foreign countries and revealed their role in the development of education.

We would like to emphasize that the article by O. Germak (2022) considered the digitization of educational resources in the education system, showed ways of using digital learning technologies, showed the need and proved the effectiveness of information technologies in the educational space, the possibilities of using electronic educational resources, showed mobility in the application of information technologies in the conditions of digitization of education in modern society. And V. Osadchuk (2022) analyzed the phenomenon of digitalization of educational resources in the education system, showed the possibilities of open education, analyzed its weaknesses and strengths.

According to these scientists, the introduction of digital tools into the educational process expanded the theory and methodology of education through the use of new didactic tools. The main directions of using digital resources in the educational process are: development of methodical and didactic materials (presentations, images, animation, etc.); management of the educational process of the higher school; targeted search for educational information on the Internet; conducting an experiment with the help of computer models, mathematical processing of the results of the experiment; organization of students' intellectual leisure; development of educational web-resources (distance learning, massive online courses); development and implementation of pedagogical software tools.

Scientists note that the use of digital technologies allows to significantly increase the effectiveness of the educational process, develops the creative orientation of students' cognitive activity, provides objective self-control and self-checking of the acquired knowledge, helps in the formation of relevant professional competencies and personal qualities.

Despite the significant scientific development in the field of research devoted to various aspects of the development of IT education, the following are still relevant: generalization of the historical experience of the development of domestic IT education during the time of its independence, scientific analysis of problems, trends and prospects for the development of this educational field in the conditions of the post-war recovery of the economy and reforming the education system, clarifying its place and role in the world market of the IT industry.

However, research conducted to solve theoretical and practical issues regarding the use of modern digital technologies in the educational process does not fully reveal all aspects of the construction and use of an electronic educational environment for the training of future specialists. Theoretical analysis of scientific works of leading scientists in the field of education, study of the experience of using digital technologies in education. The analysis of the training of future specialists in information technologies in universities shows that pedagogical conditions that would contribute to the improvement of the quality of the provision of educational services, as a result, to the improvement of the quality of professional education based on modern achievements of digital technologies, along with the existing achievements, require additional scientific research both in theoretical, and in practical aspects.

**The purpose of the article.** Consider digital learning technologies, highlight the aspects of digitalization of the educational process, show the possibilities of using electronic educational resources, and show the application of information technologies in the conditions of digitalization of education in foreign countries.

### 3. Methodology

A complex of methods was used for the conducted research, in particular:

- theoretical: analysis, synthesis, comparison of philosophical and psychological-pedagogical scientific sources; terminological analysis to determine the historical origins of the digitalization of educational resources in the education system; historical and pedagogical analysis to determine the period of digitalization of educational resources in the education system in the process of informatization of the

educational space, comparative analysis of the development of digitalization of educational resources in the education system of foreign countries and the introduction of industry innovations in the educational process of students of education in universities of foreign countries – to identify and generalize the trends of promotion quality training of specialists;

- empirical: pedagogical observation of digitization of educational resources in the education system; conducting problem-based training to check the effectiveness of the digitalization of educational resources in the educational process.

The study is based on the premise that the high-quality training of specialists in higher education institutions requires the generalization of promising foreign experience, the definition of the organizational structure of the digitalization of educational resources in the education system, and the content of the training of future specialists, taking into account modern trends in the development of innovations in education, which makes it possible to promote the formation of professional competence of specialists in terms of European integration of educational processes, modernization changes in foreign universities, further successful professional activity of specialists and their adaptation to the labor market. The study involves effective implementation and ensuring the unity of methodological, theoretical, and technological concepts.

#### 4. Results and Discussion

In the conditions of the dynamic development of knowledge communities and digital society in the 21st century, an important task of a higher school teacher is to create during professional training the conditions of such a didactic environment that stimulates intellectual progress of students, contributes to the formation of various ways of their thinking, provides conditions for self-directed and interactive heuristically contextual learning. Great opportunities for this are present in modern times electronic educational resources of different countries of the world, creating an educational environment using information and communication technologies.

Digitization of educational resources in the higher education system should accelerate the transformation of higher education institutions into new types of institutions:

- digital universities (digital universities);
- borderless networks of universities.

When digitalizing educational resources in the education system, it is important to understand the importance of design tasks and their application in today's education, the development of the educational, informational, and scientific environment of a higher education institution, the degree to which all participants in the education process possess digital competencies (Babaev et al., 2019). The readiness of higher education institutions for the digitization of educational resources in the education system is determined by the level of digital maturity of both teachers and students and is manifested due to the ratio of investments and management of IT infrastructure to change management. Digitization of educational resources in the education system (in contrast to informatization) involves the creation of new educational services and modern forms of interaction to realize the potential of education seekers, modernizing educational business processes, ensuring targeted development of the state, institution, and economy (Building digital capability, 2023).

If the digitization of educational resources in the education system is carried out both at the global level and at the level of a specific educational institution, then it is necessary to use the development of a comprehensive solution based on the Deming-Shewhart principle (English. «Plan-Do-Check-Act») and a systemic approach by involving experts from among IT specialists, creating educational policy, pedagogical designers and system analysts (Barna & Kuzminska, 2020).

The educational process for training specialists can be diversified by introducing the digitalization of educational resources in the education system using the latest means of open education technology. Today, education lags behind digitalization, which suggests the need to make efforts to use the strengths and tools of new technologies.

Let's pay attention to the formulation of megatrends that will affect higher education during the next ten years, proposed by specialists of the Studyportals International platform, which involves 3,750 world universities and national institutes (Choudaha & Van Rest, 2018).

- ongoing changes in the labor market: the introduction of digitization of educational resources in the training system affects the global workforce;
- the mismatch of skills: mismatch between the employer's needs and what today's education offers;
- stricter immigration policy: more barriers to the digitalization of educational resources in the education system for mobility to those countries with a high level of income;
- changes in the economy: the dependence of the growth of economic prospects on the markets, which have constant development with the help of the introduction of digitalization of resources in the educational system;
- power imbalance: demand in developing economies versus supply in developed economies;
- budgetary pressure: the reduction of state funding affects higher education (EU business, 2021).

Such analyzed megatrends exert a permanent influence on the educational sphere:

- an increase in people, 332 million students by 2030, who are not just involved in higher education, but also implement the digitization of educational resources in the lifelong learning system (we observe an increase of 56% compared to 2015);
- ensuring qualitative changes like the demand: implementation of digitization of educational resources in the lifelong learning system; implementation of blended learning or online education; improvement of educational programs; when monitoring the quality of education, there is a focus on results in professional activity; consolidation, specialization of institutions.

There is a trend towards neo-industrialization, there is development, renewal, application of IT technologies, and digitalization of educational resources in the education system is necessary. Such problems will change professions and highlight the most in-demand professions in the next 5-10 years.

According to world experts who published their proposals in Forbes, BBC, Trade Schools Colleges, and experts of the research group "Digitale Transformation" of the Research Institute for Future Labor Relations in Bonn, the most needed specialists will be able to implement new technologies and a new technique, design, apply digitization of educational resources in the education system taking into account the challenges of the future, as well as professions related to ensuring human health and life. Such trends set the goal: together with the acquisition of IT skills, strengthening the training of future specialists with the mandatory introduction of digitization of educational resources in the education system (Ministry of Education and Science of Ukraine, 2020).

The main goal of the digitization of educational resources in the education system is to prepare students for effective, full-fledged participation in the professional and social life of a person in the conditions of the information society.

The leading signs of digitization of educational resources in the system of training and open education are anticipatory nature, quality, flexibility, accessibility, and creativity (Korzhilova, 2014).



With such a systematic approach, the educational process becomes creative, interesting, and open, while there is freedom of choice, the possibility of providing free access to information resources, an individualized approach, and conditions for creative joint improvement of the world.

Since the digitization of educational resources in the education system provides continuous learning throughout life, changes are taking place in the relationships of participants in the educational process, accessibility, and efficiency in obtaining knowledge are observed.

Successful experience, the latest methods and innovative approaches in the educational process, as well as specific solutions for the digitization of educational resources in the education system, are being actively implemented in many countries and regions (Bykov, 2021).

The concept of digitization of educational resources in the education system aims to create such a model of "digital university", which will make it possible for the university to become a powerful digital institution of higher education, which will rely on educational platforms, show the flexibility of digital technologies, and will be able to implement interdisciplinary programs for the purpose of quality education. A necessary condition for the development of the concept of digitalization of educational resources in the education system is the digitalization of the educational process with the possibility of creating a single international digital educational system that will ensure the effectiveness of education and increase the leadership positions of future specialists. Such a concept sets itself the task of:

- improving the quality of education with the use of digital technologies;
- providing the material base of the educational institution with modern digital technologies;
- introduction of electronic document management into the system of educational institutions with mandatory use of cloud technologies;
- ensuring the appropriate level of digital competence of teachers and students;
- ensuring cyber security (web services, e-learning).

The concept of digitalization of educational resources is aimed at ensuring accessibility to everyone, it is an innovative system of obtaining education, without regularization of periodicity, analysis of its educational environment, time allocated for studying a separate subject, a program that promotes the development of skills and knowledge, their monitoring and transfer when using informational, pedagogical technologies, distance learning (Toru & Vijaya, 2009).

The leading principles of digitization of educational resources in the education system include the following principles:

- activity (organization of the educational process as whole, educational materials for the courses are built around the individual main educational activity of the student and motivate him to further development during his studies);
- interactivity (interaction with other students and teachers under different educational conditions);
- individualization (expressed in the monitoring of the student's knowledge from the beginning of studies, in the implementation of control: incoming and current);
- regularity (first planning takes place, then monitoring of the educational process depending on the student's capabilities and needs).

And then the system's ability to show flexibility and openness occurs. Openness to a person, society, and the whole world - three provisions that are fundamental and to the greatest extent characterize open education in the second half of the last century. To the implementation of these provisions, one can add an educational environment that is necessary and accessible to all segments of the global population, based on the implementation of digitalization of educational resources in the education system. Today, open

universities are preferred over traditional ones. The positives are the quick transfer of information and the possibility of engaging more advanced, new, innovative means of implementing education (Osadchuk, 2022).

The use of ICT provided a new development for the introduction of digitalization of educational resources in the education system, open education systems, enabling the implementation of an individual approach to education in the educational space, while the basic principles of the philosophy of existentialism are: the principle of democracy, the principle of freedom, the principle of flexibility.

According to the published results of the World Economic Forum on the development of digitalization of educational resources in the education system in various countries, Sweden took first place in the ranking according to the index of network readiness, which shows a high level of development of the Swedish open education system (Dutta & Beñat, 2012). Sweden has maintained this leadership position in the introduction of the digitalization of educational resources into the education system, and the use of ICT technologies in various spheres of society for many years (Leshchenko, 2013).

Along with the concepts of "digitalization of educational resources" and "open education", we find the concept of "open access": this is unlimited access to educational materials and scientific publications using computer technologies, in particular the Internet.

Now a consortium of colleges has been established in the USA, which aims to unite various educational organizations, universities, and institutions at the national and regional level, the League of Innovations in university education, the Consortium of Open Learning, etc. The goal of such an association is the introduction of digitalization of educational resources into the education system, the development of open educational resources, open courses, and educational programs to ensure the possibility of wide access to education and the possibility of improving learning and teaching throughout a person's life (CCCOER, 2023). In Europe, many organizations have been created that intensify open education: in September 2013, the European Commission for the Development of Open Education launched the project "Open educational resources in Europe", developing possible scenarios for the development of open education until 2030. (Castano Munoz et al., 2023). The project covers the following educational areas: secondary education, higher education, and continuing education.

Having studied and taken into account the experience of foreign countries when constructing the concept of digitization of educational resources and using the analysis of the results of the conducted research, we will outline the directions for the implementation of the elements of open education, which are promising (Bykov, 2008; Vdovichin, 2013) in particular:

- the possibility of active use of elements of open education in distance education and lifelong education;
- the introduction of digitization of educational resources in the education system, information and communication technologies make it possible to simulate a certain educational situation in the short term, to visually demonstrate all the positive results of the educational space;
- facilitating the access of materials of electronic publications to a greater number of educational projects: methodical materials for educational space seekers, teachers, and students; cheaper digital textbook formats can be found freely available.

In this way, a higher level of transparency in the system is ensured through the introduction of digitalization of educational resources into the education system, and this leads to higher and higher quality indicators (Leshchenko & Yatsyshyn, 2014).

The experience of foreign countries in the digitalization of educational resources is powerful, which is important for study and implementation. Let's open it. For the development of open education systems,



the introduction of digitization of educational resources in the education system, the developed countries of the world with powerful economies attach primary importance to information technologies, in particular distance education, and the development of open education systems. This approach is due to the following factors (Ovcharuk, 2006):

- the creation of new opportunities for the development of digitization of educational resources in the education system, pedagogical technologies, and the content of education;
- expansion of access opportunities for all strata of the population to all levels of education, especially for those who, due to lack of physical capabilities or financial difficulties, remoteness from large cities, professional employment, etc., cannot study according to traditional forms in institutions of higher education;
- the creation of conditions for the possible implementation of the concept of lifelong learning;
- the creation of conditions for the implementation of digitization of educational resources in the training system for personal training (Zdioruk et al., 2011).

In 2007, the Cape Town Open Education Declaration (2007) was adopted ("Opening the future to open educational resources"), which noted that "the open education movement ... is based on the principles that everyone should be free to use, adapt, improve, and distribute openly licensed educational materials, textbooks, software, and other materials that support teaching and learning without reservation and develop a culture of learning, creation, promote exchange and cooperation in a rapidly changing society of knowledge."

The 21st century is characterized by the development of digitalization of educational resources in the education system and free access to information that is free. These positions are a guarantee for the further development of education, the entire society, and science, and provide opportunities for integration into the world community. For all students of education, "Open Access" is free online access to monographs, scientific articles, dissertations, and other scientific literature located on the Internet space and everyone has the right to download material, read any literature, copy articles, search methodical material for professional growth, etc. We see opportunities in this approach: the use of any literature for any legitimate purpose without technical, financial, or legal obstacles (Tkachenko, 2012), free online access to scientific information, free use for education, research, and other legitimate purposes of such resources (Yatsyshyn & Vdovychyn, 2013).

Considerable attention is paid to the development of the digitalization of educational resources in the education system, and the introduction of media education for teachers in the following countries: Slovakia, Hungary, the Czech Republic, and the USA. The strategy of professional development of teachers has been replaced by modern information and communication technologies and the constant development of digitalization of educational resources in the education system. This approach made it possible to apply innovative elements in the continuous education of teaching staff: new network and information services. Digital resources, and network libraries, which are actively used by teachers of different countries, acquire a general cultural character, and resource systems of an educational nature for various purposes are formed from them. In the process of self-education of all segments of the population, teachers use services for large-scale information analysis, presentation of knowledge in tabular form, and presentations. The availability of such information and communication capabilities, and the development of digitalization of educational resources in the education system contribute to the formation of new pedagogical network communities (Dyachenko et al., 2016).

## 5. Conclusions

The main goal of the development of digitalization of educational resources in the system of training, and digital education is to prepare students for effective, full-fledged, innovative participation in the conditions



of the information society in professional and social life. Digital education, the development of digitization of educational resources in the education system ensures constant changes like relations between participants in educational activities, the continuity of human learning throughout life, and provides opportunities for effective and accessible knowledge acquisition.

Digital learning technologies are considered, the aspects of digitalization of the educational process are highlighted, the effectiveness of information technologies, the possibilities of using electronic educational resources are shown, and the current state of the use of information technologies in the conditions of digitalization of education is analyzed.

The importance of the concept of digitalization of educational resources is substantiated based on the study of the experience of different countries. The main goal of digital education, the development of digitalization of educational resources in the education system is high-quality innovative training of students in the conditions of the information society for full and effective participation in professional and social life.

Developed education systems in the world (Sweden, USA, Great Britain, Slovakia, PRC, Czech Republic, Vietnam, Hungary) are analyzed, which are characterized by the development of digitalization of educational resources in the education system, openness, which ensures the development of informational and communicative competence, cultural and linguistic education, training and employment of all citizens.

It is expedient to direct the following studies to the study of issues of both a methodological and a methodical nature regarding the cyclical renewal of a person's professional and intellectual appearance throughout his life.

## 6. Bibliographic references

- Babaev, V.M., Stadnyk, G.V. & Momot, T.V. (2019). Digital transformation in the field of higher education in the conditions of globalization. *Communal management of cities*, 2, 148. (In Ukrainian)
- Barna, O.V., & Kuzminska, O.G. (2020). Determining the readiness of a higher education institution for digital transformation. *Modern information technologies and innovative teaching methods: experience, trends, prospects. Materials of the 4th International Scientific and Practical Internet Conference (Ternopil, April 30, 2020)*, 92-94.
- Building digital capability. (2023). Individual digital capabilities. Retrieved from: <https://digitalcapability.jisc.ac.uk/what-is-digital-capability/individual-digital-capabilities>
- Bykov, V.Yu. (2008). *Models of organizational systems of open education: monograph*. K.: Attica.
- Bykov, V.Yu. (2021). To the 75th anniversary of his birth: biobibliogr. index. (ed.) Ponomarenko L. O. Vinnytsia: "TVORY" LLC.
- Castano Munoz, J., Redecker, C., Vuorikari, R., & Punie, Y. (2013). Open Education 2030: planning the future of adult learning in Europe. *Open Learning: The Journal of Open, Distance and e-Learning*, 28(3), 171-186.
- Choudaha, R., & Van Rest, E. (2018). Envisioning Pathways to 2030: Megatrends shaping the future of global higher education and international student mobility. *Studyportals*. Retrieved from: <https://acortar.link/7SNK2a>
- CCCOER. (2023) About Us. Retrieved from: <https://www.cccoer.org/about/about-cccoer/>
- Dutta, S., & Beñat, B., (2012). *Global Information Technological Report 2012*. Geneva: SRO-Kundig.
- Dyachenko, L.M., Marusynets, M.M., Pazyura, N.V., Postrygach, N.O., & Pylynskyi, Y.M. (2016). Trends in the professional development of teachers in the countries of the European Union and the United States of America: monograph. Kyiv: Institute of Pedagogical Education and Adult Education of the National Academy of Sciences of Ukraine. (In ukrainian)

- EU business (2021). Official documents from EU institutions. Retrieved from: <https://www.eubusiness.com/documents>
- Germak, O. L. (2022). The current state of digitization in the training of workers in vocational education institutions of Ukraine. The image of a modern teacher, 2(203), 26–29. <http://isp.poippo.pl.ua/article/view/253911>
- Gurzhii, A., Glazunova, O., & Voloshina, T. (2021). Digital educational content for the open education system. Modern information technologies and innovative teaching methods in training specialists: methodology, theory, experience, problems, 22–30. <https://doi.org/10.31652/2412-1142-2020-55-22-30>
- Ivashev, E.V., Sakhno, O.V., Hryadushcha, V.V., Denisova, A.V., Lukiyanchuk, A.M., & Udovik, S.I. (2021). Development of digital competence of teaching staff of professional (vocational and technical) education institutions using information and communication technologies: training manual. Bila Tserkva: BINPO. (In Ukrainian)
- Korzhilova, O. Yu (2014). Open education as a global educational system: status and development. Pedagogical sciences: theory, history, innovative technologies, 3(37) Retrieved from: <http://repository.sspu.sumy.ua/bitstream/123456789/2546/1/Vidkryta%20osvita.pdf>
- Leshchenko, M. P., & Yatsyshyn, A. V. (2014). Open education in the categorical field of domestic and foreign scientists. Information Technologies and teaching aids, 39(1), 1-13.
- Leshchenko, M.P. (2013). Informatization of continuous pedagogical education in Sweden. International Journal "Educational Technologies and Society", 1, 800-845. [http://ifets.ieee.org/russian/periodical/V\\_161\\_2013EE.html](http://ifets.ieee.org/russian/periodical/V_161_2013EE.html)
- Ministry of Education and Science of Ukraine (2020, October 2). Development of higher education in Ukraine. Retrieved from <https://acortar.link/SDwZjm>
- Oliinyk, T.O., Borisov, V.A., Guba, A.V., Denysenko, I.D., & Sokolova, A.V. (2019). Peculiarities of building a digital educational environment based on humanistic pedagogy. Pedagogical heritage of V. O. Sukhomlynskyi: materials of the scientific conference. Kharkiv, September 27. 2019. Kharkiv: KhNPU, 86-91.
- Osadchuk, V. (2022). The development of open education as a phenomenon of the 21st century. Adult education: theory, experience, perspectives, 21, 58-67. (In Ukrainian)
- Ovcharuk, O.V. (2006). Conceptual approaches to the application of open education and distance learning technologies in foreign countries and their role in the processes of education modernization. Information Technologies and teaching aids, 1, Retrieved from: <http://journal.iitta.gov.ua/index.php/itlt/article/view/292/278>
- The Cape Town Open Education Declaration. (2007). Cape Town Declaration on Open Education: Opening the Future to Open Educational Resources' Cape Town, South Africa. Retrieved from: <http://www.capetowndeclaration.org/translations/ukrainian-translation>
- Tkachenko, N. (2012). The experience of creating an open electronic archive at the Donetsk National Technical University. Visnyk of Lviv University, 7, 310-313. (In Ukrainian)
- Toru, I., & Vijaya, K. (2009). Open education. Kyiv: Nauka.
- Vdovichin, T.Ya. (2013). Application of open education technologies for informatization of the educational process. Information technologies in education, 16, 134-140. (In Ukrainian)
- Voronova, N. (2019). Digital educational resources in the theory and practice of modern foreign education. Teacher professionalism: theoretical and methodical aspects, 9, 37–47. <https://doi.org/10.31865/2414-9292.9.2019.174534>
- Yatsyshyn, A., & Vdovychyn, T. (2013). The problem of open education technologies in the educational process. Scientific notes. Series: Problems of the methodology of physical, mathematical and technological education, 4(1), 96-101. <https://phm.cuspu.edu.ua/ojs/index.php/NZ-PMFMTO/article/download/578/658>

- Zdioruk, S.I. Ishchenko, A.Yu., & Karpenko, M.M. (2011). Formation of a unified open educational and scientific space of Ukraine: optimal use of means of ensuring anticipatory development. Analytical report. Retrieved from: <https://acortar.link/QrDGaX>
- Zheludenko, M., & Hryniuk, S. (2020). Education as a strategic resource for ensuring the stable development of society in the conditions of covid-19: state, potential opportunities. *Adult education: theory, experience, perspectives*, 18(2), 43-53. [https://doi.org/10.35387/od.2\(18\).2020.43-53](https://doi.org/10.35387/od.2(18).2020.43-53)