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O. O. PROKOPENKO[1], PhD (Technical Science), Associate Professor,
Associate Professor of the Department of Automation, metrology and energy-efficient technologies
e-mail: o.o.prokopenko@karazin.ua ORCID ID: https://orcid.org/0000-0002-6834-3056
N. S. ANTONENKO[1], PhD (Technical Science), Associate Professor,
Associate Professor of the Department of Automation, metrology and energy-efficient technologies
e-mail: n.s.antonenko@karazin.ua ORCID ID: https://orcid.org/0009-0000-0879-1642
[1]*V. N. Karazin Kharkiv National University*,
4, Svobody Square Kharkiv, 61022, Ukraine

ANALYZING THE EXPERIENCE OF EDUCATIONAL PROCESS ORGANIZATION DURING THE WAR AND DETERMINING THE PROSPECTS FOR ITS APPLICATION IN THE POST-WAR PERIOD

The article presents materials covering relevant and actual problems of teaching higher education applicants during the war. The features and principles underlying the organization of the educational process using distance learning, the possibility of applying various digital tools and instruments used to provide education to students who are at a great distance from the university, even if they are in different regions or abroad, have been identified. The article analyzes the scientific and pedagogical results in organizing the educational process in the course "Technological schemes and basic equipment of pumping stations" for higher education applicants of the first (bachelor's) level of the specialty Vocational Education (Extraction, processing and transportation of minerals) according to the educational program (EP) "Vocational Education (Oil and Gas)", the model of which was developed at the Department of Automation, Metrology and Energy Efficient Technologies of the Educational and Research Institute "Ukrainian Engineering Pedagogics Academy" in Kharkiv. The article shows that this form to organize the educational process and implement the developed pedagogical model provides a reasonable opportunity to ensure the accessibility and quality of education in the university during the military operations and limited attendance of the educational institution by the participants of the learning process. The relevance of creating and implementing models of the educational process has been substantiated. The main significant principles are determined and the results of the distance course implementation in the Moodle environment have been presented. The main factors and their influence on the effectiveness of the educational process during the war are presented and analyzed. It is substantiated that the educational process organization in the distance course during the war made it possible to meet the requirements for the quality of education despite the influence of negative factors through using various forms and digital means of remote interaction between the teacher and students. An analysis of the experience of organizing the educational process using distance pedagogical technologies accumulated during the war has led to the conclusion as to whether this form of organizing the educational process may have significant prospects in the post-war period, the main ones being the expansion of access to education and the achievement of flexibility in the educational process.

KEY WORDS: *distance form of the educational process, factors influencing the educational process, pedagogical model, effectiveness of the educational process.*

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Problem statement

Higher educational institutions face a number of difficulties and challenges in organizing the educational process during the war.

The main challenge includes the need to ensure the safety of participants in the educational process and the physical inaccessibility of attending regular classes; higher educational institutions can be destroyed or damaged, complicating or completely eliminating the possibility of attending classes, where higher education applicants and teachers might be in danger due to hostilities and attacks.

In the Kharkiv region, a number of higher educational institutions and teachers were forced to leave their homes due to the war, resulting in the separation of educational participants over time and distance. All of them experienced emotional stress and suffered from psychological traumas.

Organizing the educational process in the context of war requires flexible and efficient solutions, requiring effective coordination between the units of educational institutions and participants in the educational process.

These challenges demand a comprehensive approach to overcome them. The development and implementation of modern pedagogical technologies and forms to organize the educational process during the war is an urgent scientific and pedagogical problem, which will ensure the effectiveness of the educational process.

Literature review

Research in the field of multilingualism is conducted by representatives of various scientific fields: Today, scientific publications of domestic and foreign researchers widely discuss various aspects of the use of distance education at different educational levels. The attention of scientists is drawn to the study of models, technologies, methods and forms used in its organisation [9,10], the issue of motivating students to use the opportunities and benefits of distance education [2,15,8], the study of the possibilities and results of introducing digital technologies into the educational process [14], the analysis of the effectiveness of using digital tools to prepare graduates for various activities [5].

In addition, scientific publications widely discuss the possibilities of organising the educational process using distance technologies to ensure access to the world, maintaining its sufficient level in difficult times during critical situations such as a pandemic and war [3,6,12,1].

The analysis of scientific articles on the organization of the educational process in higher educational institutions during the war in Ukraine has been discussed in the fundamental research of modern scholars so far and allows us to determine the different approaches used in Ukraine to make education accessible, including distance learning, hybrid teaching and digital technologies [7]. These methods make it possible to ensure the continuity of the educational process even in difficult conditions such as war.

There is also considerable attention paid to the digitalization of the educational process [11,17], including the implementation of information and communication technologies, the creation of digital learning materials and using online platforms to improve the accessibility and quality of education.

The studies also emphasize the need to provide psychological support to students and teachers who are experiencing stress and war-related trauma. Among other things, it includes the implementation of psychological assistance and mental health support programs [4].

Considering these features of using pedagogical technologies reflects an integrated approach to the organization of the educational process in higher educational institutions in Ukraine, aimed at ensuring the continuity and quality of education.

However, it should be noted that the experience of using various pedagogical technologies for training students in higher educational institutions requires a more thorough study and analysis of their features to consider the impact of various factors and its successful implementation during the war.

Purpose

The purpose of this article is to analyze and summarize the scientific and pedagogical results of implementing the distance learning (DL) form of organizing the educational process during the war in teaching the course "Technological schemes and basic equipment of pumping stations" for first (bachelor's) level higher education applicants majoring in Vocational Education (Mining, Processing and Transportation of Minerals) according to the educational curriculum (EC) "Vocational Education (Oil and Gas)" at the Department of Automation, Metrology and Energy Efficient Technologies (AMET). The tasks of the work are to highlight the specifics, key pedagogical aspects and factors affecting the educational process in such a form of its organization.

The statement of the main material

The war forced numerous universities to adopt distance learning. It enables students to continue their education.

Analyzing the experience of organizing the educational process at the AMET Department allowed us to identify specific features and evaluate measures aimed at ensuring the quality of education and supporting higher education applicants and teaching staff in difficult war conditions, to substantiate the specifics of their implementation and to identify effective tools for their realization.

The principal features are as follows:

- transition to distance learning;
- using digital technologies, online platforms and services;
- expanding information support for higher education applicants;
- flexibility to consider specific situations in assessing students' progress;
- organization of psychological support for participants in the educational process.

To provide an opportunity for students and teachers to continue their education regardless of their locations, the department was forced to make the switch to distance learning, using synchronous, asynchronous and mixed formats. In the process of transition to distance education, requiring efforts given its urgency, some difficulties and questions certainly appeared, however the right approach and support of teachers and students made it possible to solve them.

In the face of war, all Ukrainian higher educational institutions are actively implementing innovative pedagogical technologies to ensure the continuity of the educational process. Using digital platforms and tools has become a lifeline for education. Online education and other formats previously exclusive or additional are being actively implemented and modernized.

After analyzing the potential of the participants in the educational process, we determined the appropriate tools for distance learning - online platforms such as Zoom, Google Meet, and Google Classroom became the main tool for conducting classes. The peculiarities of the transition to distance education have been considered in revising the training programs.

The technical support of the distance learning process included setting up access to the software from various devices used by participants in the educational process, setting up online platforms for classes and communication. Instructions and support for students and teachers were developed and provided for using these technologies.

Distance education has been widely used in the educational institution before, however not as the basic but as an additional education format, so distance courses have already been developed for all disciplines of the educational program and an information educational environment has been created using the Moodle e-course management system. Thus, it has already been possible to provide the educational process through the necessary well-developed teaching and learning materials, access to which is not limited by the time factor and the students' remoteness from the information sources, to organize feedback between teachers providing various types of course classes and students, to exchange management information and personalize access.

Using the Moodle system provides an effective opportunity to design, create and further manage the information and educational environment resources. At the same time, the quality of education and the success of students' learning process depend on

the effectiveness using all the advantages of Moodle for organizing distance education, based on the possibility of prompt information transfer over any distance of any size and type (visual and audio, static and dynamic, textual and graphic); information storage in the system for the required period of time; the possibility of editing, processing, printing, etc. The quality of mastering the course directly depends on the educational process organization, the high quality of teaching aids and the teachers' skills involved in the process [13].

The Moodle system is focused on distance education, so it has a large set of tools for organizing communication. A positive aspect of using Moodle would be the ease of organizing communication between students and teachers and between them. This is done using different types of communication: asynchronous and synchronous. When using asynchronous communication, information is exchanged at any time. This may include e-mail, forums, bulletin boards, special forms, etc. In synchronous communication, information is exchanged in real time. For this purpose, various tools can be used, such as video conferencing, audio conferencing, chats (text conferences), etc. Implementation of synchronous communications (real-time communications) is more technically complex than asynchronous communications.

The teachers of the AMET Department already had experience in using distance learning methods and digital tools. However, to prepare teachers for using distance education as the basic means of organizing the educational process, the department organized a series of webinars on distance learning methods, application of online platforms and interactive tools, which included the peculiarities of developing and using online courses, from content development to hosting virtual classes.

Three practical trainings were also held for the teachers of the department, where they were able to practice their skills in dealing with various platforms and tools for distance learning. The department's scientific and methodological seminar discussed the experience and best practices of using distance learning courses at the department. Technical support also was organized, giving teachers the opportunity to have consultations with technical specialists. The above were important steps in ensuring an effective educational process using distance technologies.

Development of interactive materials and assignments encouraging active participation of students, development and dissemination of methodological recommendations for distance learning, assessment of students' knowledge and use of modern technologies became one more direction of work.

In planning the educational process, we introduced the use of multimedia resources, such as video, animation, interactive simulations and gamification. Providing access to educational materials in various formats (video, audio, texts) creates an opportunity for students to choose the most convenient learning method for themselves and helps make education interesting and effective. Therefore, the department has focused on the development of video lectures, presentations and other educational resources, which can be used by students in asynchronous mode during their studies at a convenient time and when they have access to the Internet, allowing them to review recorded class materials, complete assignments and online tests and better combine learning with other aspects of life at the present time.

Group and individual online consultations have been introduced, as well as flexible deadlines for completing assignments to accommodate possible obstacles that students may face in the context of war. Flexible deadlines allow for more time to complete assignments and receive additional consultations on an individual scheduled basis, which makes it possible to provide assistance to students at a convenient time, consider the current individual circumstances of each student, reduce stress and improve the quality of work performed. Assessment of HEIs' achievements has become more flexible, considering stressful situations and possible technical problems.

The department's teachers have implemented interactive teaching methods, project work (group and individual projects), virtual laboratories, and other innovative approaches. The department also provides participants in the educational process with access to digital libraries, databases, and educational materials in a digital format.

Psychological support of students and

teachers has become an important aspect of the training and educational process, and it helps to create healthy conditions for this process. Academic group supervisors are involved in providing information on the possibility of contacting a psychologist through various platforms. During the online meetings, they explained to the HEIs that contacting a psychological support service for assistance is not a sign of weakness, but a step towards health, balance and mental calm, provided links to services offering psychological support and reducing stress during the educational process in the context of war, and drew the attention of applicants to the fact that in many cases psychological support is available in a convenient format. Providing access to free psychological support services allows HEIs and faculty to cope with stress and emotional difficulties during the educational process and supports them in difficult war conditions.

The following is an analysis of the peculiarities of using distance educational technologies in teaching courses for first (bachelor's) level higher education students majoring in Professional Education (Extraction, Processing and Transportation of Minerals) according to the educational program (EP) Vocational Education (Oil and Gas).

Due to the existence of significant differences in the organization of the educational process at higher educational institutions in peacetime and in the current conditions of martial law in Ukraine and the inability to use other forms of organizing the course work other than distance learning, higher education applicants face difficulties due to the fact that during online lectures, the teacher and student are separated spatially and there is no close feedback between them, the volume of requirements increases compared to secondary education, etc.

Solving these problems becomes possible through the use of innovative pedagogical technologies [16].

The article considers the use of innovative pedagogical technologies in teaching the discipline “Technological schemes and basic equipment of pumping stations”. In the Moodle environment, the distance course contains a teaching and methodological manual and presentations for all the topics covered in the course. Students have access to these resources before the classes start and can use them to prepare for the lectures. They have the opportunity to discuss the educational content between themselves, ask questions to the lecturers and receive answers. This implementation of asynchronous communication makes it possible to conduct a lecture using the dialogue method, a problem-based method of teaching content, and primary analysis. This kind of lecture can be characterized by traditional characteristics, such as science, informativeness, and live communication with the audience. The lecturer has the opportunity to demonstrate his or her skills, provide and discuss unique examples, share his or her own experience, and even express his or her emotions. At the same time, the lecture has such properties as novelty, dialogic nature, the ability to generate close feedback from the lecturer to the audience, and the use of a wider variety of technical potential. Using this form makes the lecture inherently interactive and is certainly quite promising.

Conducting a lecture using synchronous and asynchronous communication capabilities makes it possible to provide more accessible learning material, maintain the logic of presentation, facilitate its assimilation, and draw attention to previously presented points. This form of lecturing allows demonstrating the functioning of various types of technological equipment via video conferencing and simultaneously broadcasting parameters, characteristics and graphical information on its operating modes, as well as much more.

Using this technology creates an opportunity to move away from the usual stereotypes in teaching in higher education, the lecture becomes understandable to students immediately, it is possible to present the material taught by the lecturer in an unusual, visual and accessible way, and to establish emotional contact with the students. At the same time, students no longer need to take notes on the lecture content from the lecturer. They are able to pay more attention to the comprehension of the content.

This technology of using different types of communications has proven to be one of the most attractive because it provides an opportunity to ensure face-to-face communication and visual contact with the audience, which is physically located in different places and at different distances from

the teacher.

In addition, while teaching the course " Technological diagrams and basic equipment of pumping stations", innovative technologies were introduced in preparing students for practical classes, whereby information becomes not the goal, but a means for mastering the actions and operations of professional activity. The teacher, the author of the course, selected material for practical classes that is personally meaningful, i.e. interesting for students, stimulating interest, activating questions about oneself as a future specialist, and affecting the emotional sphere. But at the same time, the educational process is based on the previous student's subjective experience, on his/her value and meaningful part, and provides for the possibility of his/her personal transformation.

To strengthen practical skills and abilities, students are offered to complete practical tasks on their own using methodological guidelines.

The personal component of the content in the academic discipline under consideration is reflected through the implementation of the principle on content variability. The process of knowledge accumulation is highly complex and has the properties of nonlinearity and probability. A condition for its implementation is a combination of multiple factors. For each specific case, the set of these factors is different and depends on the genetically determined qualities of the student's personality and his or her subjective experience.

It is almost an impossible task to select these factors and ensure their implementation for each individual student in a group learning environment. However, using the variability of the course content in creating an educational environment for mastering the discipline "Technological schemes and basic equipment of pumping stations" based on Moodle allows students to choose more appropriate material for them and therefore most successfully "master" the compulsory knowledge. To organize a sufficiently intensive educational environment, the following parameters are considered when selecting the course: the level of preparedness and educational and professional motivation of the applicant; style of information processing (speed and accuracy), development of sensory channels; preferred forms of work and subjective experience.

The variability of educational content providing personalized meaning is ensured by the use of modern information technologies based on Moodle and the creation of appropriate didactic task complexes, the development of which is based on the subject experience of the teachers-developers and is focused on the students' needs and interests.

The development of these task sets is based on clearly defined principles. The most important of them are the principles of developing the creative, reflective and communicative orientation of the student's personality.

Innovative educational technologies are also used in the final test of students' knowledge. Moodle is used for this purpose due to the fact that it has effective tools for organizing knowledge control, it allows you to create banks of questions to automatically generate unique tests for each student. For this purpose, a database of questions for computer-based testing has been developed. Two versions of the test were prepared for the final test: based on the results of the first and second content modules of the course " Technological schemes and main equipment of pumping stations".

Computer testing includes the following types of tasks:

- closed-type tasks:

a) choosing one correct answer from the proposed options for answering the question (usually from four proposed options);

b) choosing all the correct answers from the proposed options (usually three to four options out of six to seven proposed options);

- open-ended tasks (for supplementation), offering to complete the definition of concepts;

- tasks for correlating information in two groups (for example, equipment and its characteristics, etc.).

The questions in the database are developed on the basis of the course curriculum and cover the content of all didactic units of the educational program components. The total number of questions in each version is 240. There are 40 closed-type tasks, and 200 open-type tasks and information ratio tasks. Each test includes 10 tasks, which are selected randomly by the program.

The test's memory settings indicate the time for answering questions - in this case, 60

seconds are allotted for answering each question, but the teacher can also change this amount while creating the test. However, the total testing time is controlled by the program.

At first, some difficulties were experienced when performing open-ended tasks, most often when providing answers related to industry terms. However, a possible way out of this situation was found - when performing open-ended tasks, students must indicate the terms in the nominative case and in the singular, which is necessarily discussed during the briefing before the test.

Using the Moodle system provides flexibility, transparency, and control when conducting final tests in a remote format. It is possible to use a variety of technologies providing convenience and efficiency for both teachers and students, including

- testing with different types of questions, such as multiple choice, matching, essays, numerical answers, etc.,
- completion of tasks, the results of which are uploaded by students in files of various formats, the content of which is then checked by the teacher.
- forums and chats used to conduct interactive exams, where students answer questions from the teacher in real time;
- video conferencing, which is used to organize oral exams or work defenses using plugins such as Zoom.

The positive factors in using Moodle for remote final test of knowledge affecting efficiency and convenience are flexibility and accessibility, a variety of task formats: assessment automation, history storage and results analytics, integration with other services: ability to connect anti-plagiarism programs, video conferencing, etc.

Factors complicating the use of remote technologies in conducting final tests include possible problems connected to the Internet - connection instability can interfere with passing exams, the risk of cheating or unauthorized access to assignments, lack of personal contact - during online knowledge control, students may experience a lack of real-time communication with the teacher, dependence on technical infrastructure - necessity of access to hardware and special software. To minimize the impact of these factors, complicating the use of remote technologies during the final test, the Department of AMET uses such measures as the possibility of postponing the time of control measures for individual applicants in the absence of a normal Internet connection in agreement with the administration of the Institute, developed backup plans, such as the ability to take exams offline or send answers by e-mail when there are problems of Internet during the test, identification of applicants directly at the time of the test. The UEPA has implemented a policy of academic integrity and clearly informs students about the consequences of cheating, as well as the use of interactive elements in online tests and online exams and online defense of coursework. Students receive technical support and advice on setting up equipment while undergoing testing. The implementation of these measures has improved the process of conducting remote final tests and ensured fairness and quality throughout the process.

Three years of experience in teaching using distance education technologies allows us to conclude that for the successful implementation of the distance form of the educational process, HEIs need to be well-motivated and well-prepared. Each applicant must have the necessary computer skills to use the Moodle system, complete assignments and successfully pass control measures. Ongoing technical support for teachers and students is also important.

Distance learning methods enable higher educational institutions to provide education in extreme war conditions, when traditional forms of organizing the educational process cannot be applied. The spatial separation of higher education applicants and university teaching staff is no longer an obstacle to the knowledge and skills development. A prerequisite for achieving the effectiveness of organizing the distance education process is the requirement for all educational information to be concentrated in one place - in a distance course in the Moodle environment. A teacher implementing a distance learning process is faced today with the challenge of selecting and using a large number of digital resources and tools. By combining various forms and means of remote interaction with the university, the teacher can maximize the result, and the set of these forms and means is not universal and should be selected for a specific course each time to achieve the pedagogical goal. The effectiveness of the organization and delivery of the educational process using distance

learning can be achieved through the most complete and accurate alignment of the requirements imposed by the educational standard and the capabilities of the university and the students. At the same time, an important factor for ensuring efficiency is the teacher's constant control over the process of mastering the content of the university course.

Using the experience of organizing the educational process through distance pedagogical technologies gained during the war may have significant prospects in the post-war period, the main ones being the expansion of access to education and the achievement of flexibility in the educational process. The distance form of organizing the educational process will allow students from different regions or areas of residence to receive quality education without the need to move to the city where the chosen higher education institution is located and will become a key tool for ensuring equal access to education for all citizens of the country. Distance education will also provide an opportunity to combine study and work or other responsibilities, which is especially important in the context of rebuilding the country after the war, and will help to improve the qualifications of the workforce and develop new practical skills.

The experience gained during the war will allow for the integration of new digital platforms and tools into the educational process to improve the efficiency and quality of education, as well as provide continuous access to learning resources. Distance education also opens up opportunities for international cooperation, participation in online courses, and exchange of experience among other countries, and in this way can contribute to the integration of Ukrainian education into the global educational space. In general, using the experience of distance education gained during the war can significantly improve Ukraine's educational system and ensure its resilience to possible future challenges.

Conclusion

Based on the above analysis of the three-year experience of implementing methods and means of distance education at the AMET Department and the results obtained by the authors in the process of their implementation during the war, the following conclusions can be drawn:

1) During the war, distance education became the key form to organize the educational process and provided an opportunity to continue education for a large number of higher education applicants despite the difficulties and negative factors.

2) The development and implementation of distance pedagogical technologies in teaching disciplines at higher education institutions is an actual scientific and pedagogical task.

3) The solution to this problem becomes possible with the development and application of an information educational environment based on models of distance learning courses using the Moodle-based educational resource management system.

4) During the war, the distance form of organizing the educational process has become the main one, allowing higher education applicants to continue their studies despite the danger and instability, and teachers to ensure its effectiveness. In peacetime, the application of DL is an additional tool used to increase the accessibility of education and convenience for HEIs that have experienced temporary problems with attending classes personally.

5) The development of a theoretical pedagogical model and its implementation in the distance course “Technological schemes and basic equipment of pumping stations” for higher education students of the first (bachelor's) level of the specialty Vocational Education (Extraction, Processing and Transportation of Minerals) according to the educational program (EP) “Vocational Education (Oil and Gas)” was implemented on clearly defined principles, the most important of which are the principles of developing the creative, reflective and communicative orientation of the student's personality.

6) Organizing the educational process in a distance form during the war made it possible to meet the requirements for the quality of education in war conditions by using the advantages provided by the Moodle system.

7) The prospects of using the experience to organize the educational process gained during the war in the context of the country's reconstruction after the war have been analyzed and the main directions for using it in the post-war period have been identified, the

main of which are to expand the accessibility of education and achieve flexibility in the educational process.

Prospects for further research

According to the authors, the prospects of using the experience of the distance education process gained during the war can significantly improve the educational system in Ukraine and ensure its resilience to possible future challenges, and the development of the latest pedagogical technologies using the potential of modern digital tools and instruments is the main direction of its development.

References

1. Advilonienė, Živilė. (2025). Challenges of Remote Learning During the COVID-19 Pandemic: Students' Experiences in the Perspective of M. Buber's I-Thou and I-It Interaction. *Pedagogika / Pedagogy*, 156(4), 188–214. http://dx.doi.org/10.15823/p.2024.156.9
2. Allen, I. E., Seaman, J. (2016). Online Report Card: Tracking Online Education in the United States. *Babson Survey Research Group*. Babson College, 231 Forest Street, Babson Park, MA 02457. https://files.eric.ed.gov/fulltext/ED572777.pdf
3. Alsharah, H., Ghura, H. (2023). Online learning in business education: key lessons from COVID-19 pandemic. *Development and Learning in Organizations*, 37(3), 4–6. https://doi.org/10.1108/DLO-08-2022-0171
4. Antonenko, N. S., Prokopenko, O. O. (2021). Analysis of features and generalization of the experience of vocational education training for the oil and gas industry. *Problems of Engineering and Pedagogical Education*, 73, 5 - 18. https://doi.org/10.32820/2074-8922-2021-73-5-18 (In Ukrainian).
5. Bykov, V. Yu., Burov, O. Yu., Gurzhiy, A. M., Zhaldak, M. I., Leshchenko, M. P., Lytvynova, S. G., Lugovyi, V. I., Oliynyk, V. V., Spirin, O. M., Shyshkina, M. P. (2019). Theoretical and methodological principles of informatization of education and practical implementation of information and communication technologies in the educational sphere of Ukraine: monograph, Kyiv, Komprint. https://lib.iitta.gov.ua/id/eprint/718652/1/%21%21%21%21%D0%92%D0%B8%D0%B4%D0%B0%D0%BD%D0%BD%D1%8F%20%D0%9C%D0%BE%D0%BD%D0%BE%D0%B3%D1%80%D0%B0%D1%84%D1%96%D1%8F-2019.pdf (In Ukrainian).
6. Ericson Nolasco, C. (2022). Online Distance Learning: The New Normal In Education. https://elearningindustry.com/online-distance-learning-the-new-normal-in-education
7. Giltay, L. S. (2019). The impact of digital educational technologies on the modern state of higher education. *Pedagogical sciences*, 145, 37 –47. https://doi.org/10.31392/NZ-npu-145.2019.04 (In Ukrainian).
8. Karlsdóttir, V. (2025). Assessing University Students' Motivation to Choose Distance Learning and the Challenges of Distance Learning. *Pedagogika / Pedagogy*, 156(4), 5–30. https://doi.org/10.15823/p.2024.156.1 .
9. Korbut, O. H. (2015). Distance learning: models, technologies, prospects. *The latest educational technologies* in the context of European integration: materials X international. scientific-practical conf., Kyiv, January 14, 2015. Kyiv: KPI, 2015. http://confesp.fl.kpi.ua/node/1123 (In Ukrainian).
10. Krasnova, A. V., Yaroslavtseva, M. I., Pekhareva, S. V. (2020). Methods and forms of preparation of students for scientific-research activity in the conditions of the distance leatning. *Innovative pedagogy*, 28, 165 – 169. https://doi.org/10.32843/2663-6085/2020/28.30 (In Ukrainian).
11. Kravchenko, O. (2023). Socio-psychological support of mental health of the educational process participants in crisis situations (practical experience). *Social Work and Education*, 10(1), 35–46. https://doi.org/10.25128/2520-6230.23.1.4 (In Ukrainian).
12. Kumar, A., Pathak, P. (2020). The Pros and Cons of Virtual Learning in India: An Insight During 'Covid Lockdown'. *Adhyayan: a Journal of Management Sciences*, 10(01), 08-13.

https://doi.org/10.21567/10.21567/adhyayan.v10i1.2 .
13. Leicht, A., Heiss, J., Byun, W. J. (eds). (2018). Issues and trends in Education for Sustainable Development, United Nations Educational, Scientific and Cultural Organization, Paris. https://doi.org/10.54675/YELO233 https://unesdoc.unesco.org/ark:/48223/pf0000261445
14. Morze, N., Vember, V., Boiko, M. (2019). Using of digital technologies for formative assessment. *Open educational e-environment of modern university. Special Edition «New pedagogical approaches in STEAM education»*, 202–214. https://doi.org/10.28925/2414-0325.2019s19 (In Ukrainian).
15. Oliveira, M. M. S. de, Penedo, A. S. T., Pereira, V. S. (2018). Distance education: advantages and disadvantages of the point of view of education and society. *Dialogia*, (29), 139–152. http://dx.doi.org/10.5585/dialogia.N29.7661
16. Prokopenko, O., Antonenko, N. (2023). Analyzing the specifics and summarizing the experience of implementing innovative educational technologies in the teaching of the course «Technological schemes and basic equipment of pumping stations». *Problems of Engineering Pedagogic Education*, 78, 66-72. https://doi.org/10.32820/2074-8922-2023-78-66-72 (In Ukrainian).
17. Vasilyeva, T. A., Petrushenko, Yu. M. (eds). (2022). Digital technologies in education: modern experience, problems and prospects: monograph, Sumy, Sumy State University. https://essuir.sumdu.edu.ua/bitstream-download/123456789/89990/1/Vasylieva_education.pdf;jsessionid=393E6078E96054747D22D2F7876A58D2 (In Ukrainian).

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О. О. ПРОКОПЕНКО[1], кандидат технічних наук, доцент,
доцент кафедри автоматизації, метрології та енергоефективних технологій
e-mail: o.o.prokopenko@karazin.ua ORCID ID: https://orcid.org/0000-0002-6834-3056
Н. С. АНТОНЕНКО[1], кандидат технічних наук, доцент,
доцент кафедри автоматизації, метрології та енергоефективних технологій
e-mail: n.s.antonenko@karazin.ua ORCID ID: https://orcid.org/0009-0000-0879-1642
[1]*Харківський національний університет імені В.Н. Каразіна,*
майдан Свободи, 4, м. Харків, 61022, Україна

АНАЛІЗ ДОСВІДУ ОРГАНІЗАЦІЇ ОСВІТНЬОГО ПРОЦЕСУ ПІД ЧАС ВІЙНИ ТА ВИЗНАЧЕННЯ ПЕРСПЕКТИВ ЙОГО ВИКОРИСТАННЯ У ПІСЛЯВОЄННИЙ ПЕРІОД

У роботі представлено матеріали, що висвітлюють важливі й актуальні проблеми підготовки здобувачів вищої освіти під час війни. Визначено особливості та принципи, на яких базовано організацію освітнього процесу з використанням дистанційної форми, можливості використання різних цифрових засобів і інструментів, використовуваних для отримання освіти здобувачами, які перебувають на значній відстані від ЗВО, навіть якщо вони перебувають у різних регіонах або за кордоном. Проведено аналіз науково-педагогічних результатів при організації освітнього процесу з курсу «Технологічні схеми та основне обладнання насосних станцій» для здобувачів вищої освіти першого (бакалаврського) рівня спеціальності Професійна освіта (Видобуток, переробка та транспортування корисних копалин) за освітньою програмою (ОП) «Професійна освіта (Нафтогазова справа)», модель якого розроблено на кафедрі Автоматизації, метрології та енергоефективних технологій Навчально-наукового інституту «Українська інженерно-педагогічна академія» Харківського національного університету ім. В.Н. Каразіна. Показано, що така форма організації освітнього процесу і реалізації розробленої педагогічної моделі надає реальну можливість забезпечення доступності та якості освіти у ЗВО під час бойових дій та обмеженості відвідування навчального закладу учасниками освітнього процесу. Обгрунтовано актуальність створення і впровадження моделей освітнього процесу. Визначено основні значущі принципи і наведено результати реалізації дистанційного курсу в середовищі Moodle. Наведено і проаналізовано основні фактори та їх вплив на ефективність організації освітнього процесу під час війни.

Обґрунтовано, що організація освітнього процесу за дистанційною формою під час війни дозволила забезпечити вимоги до якості освіти попри вплив негативних факторів через використання різних форм та цифрових засобів дистанційної взаємодії викладача із здобувачами вищої освіти. Аналіз досвіду організації освітнього процесу з використанням дистанційних педагогічних технологій, набутого під час війни, дозволив дійти висновку, що така форма організації освітнього процесу в подальшому може мати вагомі перспективи в післявоєнний період, основними з яких є розширення доступності освіти і досягнення гнучкості освітнього процесу.

КЛЮЧОВІ СЛОВА: *дистанційна форма освітнього процесу, фактори впливу на освітній процес, педагогічна модель, ефективність освітнього процесу.*

Конфлікт інтересів

Автори заявляють, що конфлікту інтересів щодо публікації цього рукопису немає. Крім того, автори повністю дотримувалися етичних норм, включаючи плагіат, фальсифікацію даних та подвійну публікацію.

Список використаної літератури

1. Advilonienė, Živilė. Challenges of Remote Learning During the COVID-19 Pandemic: Students' Experiences in the Perspective of M. Buber's I-Thou and I-It Interaction. *Pedagogika / Pedagogy*. 2025. Vol. 156(4). Pp. 188–214. DOI: http://dx.doi.org/10.15823/p.2024.156.9
2. Allen, I. E., Seaman, J. Online Report Card: Tracking Online Education in the United States. *Babson Survey Research Group*. Babson College, 231 Forest Street, Babson Park, MA 02457. 2016. URL: https://files.eric.ed.gov/fulltext/ED572777.pdf
3. Alsharah, H., Ghura, H. (2023). Online learning in business education: key lessons from COVID-19 pandemic. *Development and Learning in Organizations*. 2023. Vol. 37(3). Pp. 4–6. DOI: https://doi.org/10.1108/DLO-08-2022-0171
4. Антоненко, Н. С., Прокопенко, О. О. Аналіз особливостей та узагальнення досвіду підготовки магістрів професійної освіти для нафтогазової галузі. *Проблеми інженерно-педагогічної освіти*. 2021. № 73. С. 5 - 18. DOI: https://doi.org/10.32820/2074-8922-2021-73-5-18 .
5. Биков, В. Ю., Буров, О. Ю., Гуржій, А. М., Жалдак, М. І., Лещенко, М. П., Литвинова, С. Г., Луговий, В. І., Олійник, В. В., Спірін, О. М., Шишкіна, М. П. Теоретико-методологічні засади інформатизації освіти та практична реалізація інформаційно-комунікаційних технологій в освітній сфері України: монографія. Київ: Компринт, 2019. 214 с. URL: https://lib.iitta.gov.ua/id/eprint/718652/1/%21%21%21%21%D0%92%D0%B8%D0%B4%D0%B0%D0%BD%D0%BD%D1%8F%20%D0%9C%D0%BE%D0%BD%D0%BE%D0%B3%D1%80%D0%B0%D1%84%D1%96%D1%8F-2019.pdf
6. Ericson Nolasco, C. Online Distance Learning: The New Normal In Education. 2022. URL: https://elearningindustry.com/online-distance-learning-the-new-normal-in-education
7. Гільтай, Л. С. Вплив цифрових освітніх технологій на сучасний стан вищої освіти. *Наукові записки. Педагогіка.* 2019. Вип. 145. С. 37 –47. https://doi.org/10.31392/NZ-npu-145.2019.04 .
8. Karlsdóttir, V. (2025). Assessing University Students' Motivation to Choose Distance Learning and the Challenges of Distance *Learning. Pedagogika / Pedagogy*. 2025. Vol. 156(4). Pp. 5–30. DOI: https://doi.org/10.15823/p.2024.156.1 .
9. Корбут, О. Г. Дистанційне навчання: моделі, технології, перспективи. Новітні освітні технології в контексті Євроінтеграції: матеріали X міжнар. наук.- практ. конф. (Київ,14 січня 2015), Київ: КПІ, 2015. URL: http://confesp.fl.kpi.ua/node/1123
10. Krasnova, A. V., Yaroslavtseva, M. I., Pekhareva, S. V. (2020). Methods and forms of preparation of students for scientific-research activity in the conditions of the distance leatning. Innovative pedagogy, 28, 165 – 169. https://doi.org/10.32843/2663-6085/2020/28.30 (In Ukrainian).
11. Кравченко, О. Соціально-психологічна підтримка ментального здоров'я учасників освітнього процесу в кризових ситуаціях (практичний досвід). *Social Work and Education*. 2023. Том 10(1). С. 35–46. DOI: https://doi.org/10.25128/2520-6230.23.1.4
12. Kumar, A., Pathak, P. (2020). The Pros and Cons of Virtual Learning in India: An Insight During 'Covid Lockdown'. *Adhyayan: a Journal of Management Sciences.* Vol. 10(01). Pp. 08-13. DOI: https://doi.org/10.21567/10.21567/adhyayan.v10i1.2

13. Leicht, A., Heiss, J., Byun, W. J. (eds). Issues and trends in Education for Sustainable Development, United Nations Educational, Scientific and Cultural Organization. Paris, 2018. DOI: https://doi.org/10.54675/YELO233
14. Морзе, Н., Вембер, В., Бойко, М. Використання цифрових технологій для формального оцінювання. Відкрите освітнє е- середовище сучасного університету. Спецвипуск. 2019. С. 202–214. DOI: https://doi.org/10.28925/2414-0325.2019s19
15. Oliveira, M. M. S. de, Penedo, A. S. T., Pereira, V. S. (2018). Distance education: advantages and disadvantages of the point of view of education and society. *Dialogia*. 2018. No 29. Pp. 139–152. DOI: http://dx.doi.org/10.5585/dialogia.N29.7661
16. Прокопенко, О. О., Антоненко, Н. С. Prokopenko, O., Antonenko, N. (2023). Аналіз особливостей та узагальнення досвіду впровадження інноваційних освітніх технологій при викладанні курсу «Технологічні схеми та основне обладнання насосних станцій». *Проблеми інженерно-педагогічної освіти*. 2023. № 78. С. 66-72. DOI: https://doi.org/10.32820/2074-8922-2023-78-66-72
17. Цифрові технології в освіті: сучасний досвід, проблеми та перспективи : монографія / Т. А. Васильєва та ін. ; за заг. ред. д-рки екон. наук, проф. Т. А. Васильєвої, д-ра екон. наук, проф. Ю. М. Петрушенка. Суми : Сумський державний університет, 2022. URL: https://essuir.sumdu.edu.ua/bitstream-download/123456789/89990/1/Vasylieva_education.pdf;jsessionid=393E6078E96054747D22D2F7876A58D2

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