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## Liubov PETUKHOVA,

Doctor of Pedagogical Sciences, Professor, Acting Dean of the Faculty of Pedagogy, Professor of the Department of Pedagogy and Psychology of Preschool and Primary Education, Kherson State University (Ivano-Frankivsk, Ukraine)

### Любов ПЕТУХОВА,

доктор педагогічних наук, професор, в.о. декана педагогічного факультету, професор кафедри педагогіки та психології дошкільної та початкової освіти, Херсонський державний університет (м. Івано-Франківськ, Україна) petuhova@ksu.ks.ua ORCID ID 0000-0002-0751-6961

## Nataliia VOROPAI,

Candidate of Pedagogical Sciences, Associate Professor, Associate Professor of the Department of Pedagogy and Psychology of Preschool and Primary Education, Kherson State University (Ivano-Frankivsk, Ukraine)

## Наталія ВОРОПАЙ,

кандидат педагогічних наук, доцент, доцент кафедри педагогіки та психології дошкільної та початкової освіти, Херсонський державний університет (м. Івано-Франківськ, Україна) nvoropay@ksu.ks.ua ORCID ID 0000-0003-3388-5661

## Anastasiia VOLIANIUK,

Lecturer of the Department of Pedagogy and Psychology of Preschool and Primary Education, Kherson State University (Ivano-Frankivsk, Ukraine)

## Анастасія ВОЛЯНЮК,

викладач кафедри педагогіки та психології дошкільної та початкової освіти, Херсонський державний університет (м. Івано-Франківськ, Україна) avolianiuk@ksu.ks.ua ORCID ID 0000-0002-2890-4787

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# LOGISTICS OF EDUCATIONAL BUSINESS PROCESSES UNDER MARTIAL LAW: DIGITAL SOLUTIONS

**Abstract**. Martial law, which has been ongoing in Ukraine since 2022, has presented higher education institutions with new challenges related to the need to ensure the continuity of the educational process, adapt to changes, and integrate digital solutions. This article is dedicated to the analysis of digital solutions applied in the logistics of educational business processes of higher education institutions in Ukraine under martial law, using the example of Kherson State University. The purpose of the study is to analyze the digital solutions for the logistics of educational business processes, their organization, adaptation, and effective functioning in higher education institutions of Ukraine under martial law. Special attention is paid to identifying key digital tools that contributed to maintaining the quality of education and supporting the academic community in crisis conditions. The article examines the specific features of the educational process in a relocated higher education institution during the full-scale war, in particular, identifies effective communication and feedback channels, as well as the

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role of digital platforms for the educational process in wartime. The research methodology includes the analysis of scientific sources and publications dedicated to the digital transformation of education, a historical review of the experience of Kherson State University in the period 2022-2024, monitoring of digital platforms and their impact on the organization of the educational process, analysis of adaptation strategies of higher education institutions in crisis conditions, and the study of the impact of digital technologies on the quality of education and the mental health of higher education students. The results of the study show that under of martial law, digital solutions have become a key factor in ensuring the continuity and quality of the educational process. Kherson State University has successfully adapted to the new challenges, using distance learning platforms, video conferences, electronic journals, and other digital tools. Effective communication and feedback channels, as well as psychological support for participants in the educational process, have played an important role. The article shows that the digitalization of educational business processes in wartime not only provides technical support but also contributes to the creation of a resilient and adaptive educational environment. The experience of Kherson State University can be useful for other higher education institutions facing similar challenges.

**Keywords**: education logistics, digitalization, distance learning, martial law, educational business processes, digital platforms, education management, adaptive learning models, crisis situation.

# ЛОГІСТИКА ОСВІТНІХ БІЗНЕС-ПРОЦЕСІВ В УМОВАХ ВОЄННОГО СТАНУ: ЦИФРОВІ РІШЕННЯ

Анотація. Воєнний стан, який триває в Україні з 2022 року, поставив перед закладами вищої освіти нові виклики. пов'язані з потребою забезпечення безперервності освітнього процесу, адаптації до змін та інтеграції цифрових рішень. Стаття присвячена аналізу цифрових рішень, що застосовуються в логістиці освітніх бізнес-процесів закладів вищої освіти України в умовах воєнного стану на прикладі Херсонського державного університету. Метою дослідження є аналітика цифрових рішень логістики освітніх бізнес-процесів, їхньої організації, адаптації та ефективного функціонування у закладах вищої освіти України за умов воєнного стану. Особлива увага приділяється визначенню ключових цифрових інструментів, що сприяли збереженню якості освіти та підтримці академічної спільноти у кризових умовах. У статті розглядаються особливості освітнього процесу в релокованому закладі вищої освіти під час повномасштабної війни, зокрема, визначаються ефективні канали комунікації та зворотного зв'язку, а також роль цифрових платформ для освітнього процесу в умовах війни. Методологія дослідження включає аналіз наукових джерел та публікацій, присвячених цифровій трансформації освіти, історичний огляд досвіду Херсонського державного університету в період 2022-2024 років, моніторинг цифрових платформ та їхнього впливу на організацію освітнього процесу, аналіз адаптаційних стратегій закладів вищої освіти у кризових умовах, а також вивчення впливу цифрових технологій на якість навчання та психічне здоров'я здобувачів вищої освіти. Результати дослідження показують, що в умовах воєнного стану цифрові рішення стали ключовим чинником для забезпечення безперервності та якості освітнього процесу. Херсонський державний університет успішно адаптувався до нових викликів, використовуючи платформи дистанційного навчання, відеоконференції, електронні журнали та інші цифрові інструменти. Важливу роль відіграли ефективні канали комунікації та зворотного зв'язку, а також психологічна підтримка учасників освітнього процесу. Стаття показує, що цифровізація освітніх бізнес-процесів у воєнний час не лише забезпечує технічну підтримку, але й сприяє створенню стійкого та адаптивного освітнього середовища. Досвід Херсонського державного університету може бути корисним для інших закладів вищої освіти, які стикаються з подібними викликами.

**Ключові слова**: логістика освіти, цифровізація, дистанційне навчання, воєнний стан, освітні бізнес-процеси, цифрові платформи, управління освітою, адаптивні моделі навчання, кризова ситуація.

#### INTRODUCTION

**The problem formulation.** The martial law, which has been ongoing in Ukraine since the beginning of 2022, has presented educational institutions with a series of challenges that required prompt and innovative solutions. Educational institutions, especially in regions affected by hostilities, faced the need to ensure the continuity of the educational process, maintain its quality, and provide support to both students and faculty. In this context, the logistics of educational business processes required the implementation of digital solutions, which became key factors in ensuring the resilience of the educational system.

Of particular importance was the ability of universities to organize educational processes in an online environment, maintaining effective communication between higher education students and faculty, and supporting security conditions (to the extent possible). In particular, this ability became critical for relocated higher education institutions.

Under martial law, the logistics of educational business processes are undergoing significant transformations driven by the need for rapid adaptation to new challenges. As researchers S. Trubacheva, O. Mushka, and P. Zamaskina note, "the educational environment of an educational institution is considered as an artificially constructed system, the structure and components of which contribute to the achievement of the goals of the educational process" (Trubacheva S., Mushka O., Zamaskina P., 2023, p.49). In crisis conditions, this approach becomes particularly relevant, requiring effective resource management, process coordination, and the integration of digital solutions.

Research results indicate that martial law has significantly accelerated the pace of digitalization in higher education. Participants in the educational process were forced to quickly adapt to digital, blended, and hybrid learning formats, which, in turn, stimulated the development of interdisciplinary digital skills. Digitalization required rapid action to transform educational scenarios into digital, blended, and hybrid formats. This includes the development of metadigital skills and interdisciplinary competencies of students (Makhachashvili R., Semenist I., Prihodko G., Kolegaeva I., Prykhodchenko O., Tupakhina O., 2024).



The virtual educational space during wartime has become, in fact, a tool for organizing learning. Distance learning platforms, such as Google applications, provided flexible opportunities for both teachers and students in virtual and in-person learning. As Humeniuk I. et al. note, blended learning proved to be more effective than traditional methods, as it allows for more efficient use of time and resources (Humeniuk I., Mushenyk I., Popel N., Kuntso O., 2023). Thus, remote platforms have become not only a means of supporting learning but also an important tool for communication in conditions of physical separation.

The digital transformation of education during wartime has become not only a technical challenge but also a stimulus to revise organizational and pedagogical approaches. This includes the creation of information systems for collecting and processing data on educational processes, as well as psychological and pedagogical support for educational activities (Kaplia O., Ostapenko E., Tanko Y., Kaleniuk S., Dulibskyy A., 2024).

Organizing e-learning in wartime requires the development of models that take into account limited resources, shortages, and the need for rapid adaptation to changes. Research by Matviichuk et al. (2022) demonstrates that the implementation of e-learning in Ukraine is developing with these challenges in mind (Matviichuk L., Ferilli S., Hnedko N., 2022). Such models include the creation of educational materials accessible under minimal internet access conditions, as well as the integration of various digital tools for teacher interaction.

Wartime conditions have stimulated the introduction of innovative solutions in education, such as the use of video conferencing, mobile applications, and learning management systems. These innovations ensure the continuity of the educational process and access to knowledge in crisis situations (Zhyhora I., Vdovenko V., Baraniuk I., Kotelianets N., Nikitina O., 2024).

However, the impact of digital technologies on the educational process is not unequivocally positive, as it is accompanied by challenges related to the mental health of students. Military actions in Ukraine have negatively affected the mental health of students, especially in an aggressive digital environment. It is important to follow recommendations for maintaining mental health, using digital technologies and distance learning (Romanova I., Kudin S., Rybak O., Zavalevskyi Y., Pushkarova T., 2022).

The digitalization of professional education has become a necessity for improving the quality of specialist training. This requires a high level of digital literacy from both students and teachers, allowing them to collaborate effectively through digital devices and software (Kovalchuk V., Maslich S., Movchan L., 2023).

Thus, the logistics of educational business processes during wartime require innovative approaches focused on digitalization. Digital solutions play a key role in ensuring the flexibility and adaptability of the educational process, helping to overcome challenges related to military actions. The introduction of e-learning, the development of digital platforms, the creation of new organizational models, and the provision of psychological support contribute to maintaining the quality of education and preserving its accessibility. The war has become a catalyst for changes in the educational sphere, and these changes, despite all the difficulties, form the foundation for future development.

## **RESEARCH GOAL AND OBJECTIVES**

The aim of the article is to analyze the digital solutions for the logistics of educational business processes, their organization, adaptation, and effective functioning in higher education institutions of Ukraine under martial law. The study is based on the experience of the Faculty of Pedagogy at Kherson State University, which was significantly affected by the full-scale war in 2022-2024.

Research objectives:

- 1. To determine the peculiarities of the educational process in a relocated higher education institution during the full-scale war;
  - 2. To characterize the communication and feedback channels effective in martial law conditions;
  - 3. To determine the role of digital platforms for the educational process in wartime.

### **RESEARCH METHODS**

To achieve the set objectives and goals, the following methods were used: analysis of scientific sources and publications dedicated to the digital transformation of education; historical review of the experience of Kherson State University in the period 2022-2024; monitoring of digital platforms and their impact on the organization of the educational process; analysis of adaptation strategies of higher education institutions in crisis conditions; study of the impact of digital technologies on the quality of education and the mental health of higher education students.

### **RESULTS OF THE RESEARCH**

The study is based on the experience of implementing digital solutions for the logistics of educational business processes by the team of the Faculty of Pedagogy at Kherson State University in 2022-2024. The Kherson region has been an area of active hostilities since 2022, and was also occupied by russian troops from March to November 2022. These conditions created a new reality, dividing the university's life into "before" and "after" periods. The situation was complicated by the absence of "green corridors" and the fact that at the start of the full-scale war, about 300 students remained in the university dormitories without the possibility to return home. Under these circumstances, a volunteer movement began, aimed at supporting faculty, students, and veterans. Daily explosions, fires, sirens, and uncertainty defined the new reality.

The key tasks for the team of the Faculty of Pedagogy at Kherson State University in organizing the educational process under martial law were:

organization of distance learning;

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- ensuring a high level of quality of the educational process;
- · creating effective communication channels;
- establishing feedback;
- · selecting and using appropriate digital platforms.

The first stage of organizing the educational process under martial law was collecting data on the location of students and faculty, learning conditions, and types of interaction. Weekly monitoring was carried out by the dean's office, which maintained contact with participants in the educational process through video conferences. Faculty deans collected information weekly on the location of faculty and students, and provided constant feedback to staff and students using remote technologies. In conditions of constant risk of communication interruption, multi-channel communication was established. The use of chats in KSU24, corporate mail, and messengers (Telegram, Viber, WhatsApp) allowed maintaining contact with students and responding promptly to their requests.

The educational process was resumed on March 28, 2022, in a remote format, using both synchronous and asynchronous learning methods. Given the situation in the city and region, the university administration decided to provide the educational process using information and communication technologies. To this end, relevant orders were issued, regulating the organization of training and changes to the schedules of the educational process for full-time and part-time students.

Digital platforms, such as KSUonline and multimedia encyclopedias, which were used in peacetime, became the basis of the adapted learning environment (Electronic learning platform of Kherson State University KSU Online, 2024). Even in the absence of a stable connection, students had access to educational materials and tasks, which ensured the continuity of the educational process in wartime. Maintaining a high level of learning quality required the integration of modern educational tools, such as: tests with automatic checking (Moodle, Google Forms) for objective knowledge assessment, multimedia materials (video lectures, interactive tasks) to increase student interest, analytical tools to monitor student progress. Our previous research shows that "the effectiveness of distance learning largely depends on the personal motivation of the student, therefore, innovative technologies should be used during training; the remote format requires the teacher to adapt educational materials and constantly review them, as well as provide quality feedback and a favorable psychological atmosphere in the educational process" (Volianiuk A., 2022, p. 10).

Given the circumstances in which the students of the 4th year of the first (bachelor's) level of higher education found themselves, the academic council of Kherson State University decided to make adjustments to the unrealized part of the current educational-professional programs for 2018 entrants in the section "Form of attestation of higher education students" in accordance with higher education standards in the specialty. In particular, the wording "Attestation of graduates of the educational-professional program is carried out in the form of a comprehensive exam in the specialty (list of modules), defense of a diploma thesis" was replaced with "Attestation of higher education students is carried out in the form of an attestation exam (exams)." Gradually, the form of state attestation also changed, taking on a blitz format, while semester control was carried out remotely with mandatory recording of digital traces. Regarding the procedure of semester control, all control measures (tests, exams, defense of term papers) were conducted by teachers remotely using information and communication technologies with mandatory photo or video recording. Teachers were obliged to ensure reliable identification of students (establishing identity), as well as to keep completed tasks of the educational component and records of control measures. In case of unstable internet connection, students were given the opportunity to take control measures on reserve days during the test-examination session in an asynchronous format with mandatory video recording, identification, and familiarization of students with the results of semester control. This ensured the transparency of the educational process and the identification of students.

The leading task of scientific and pedagogical staff during this period was to provide higher education students with educational and methodological materials from educational components necessary for the implementation of an individual curriculum, using available technical means of communication.

In previous scientific publications, we stated that "the integration of educational technologies using ICT in the educational process improves the quality of higher education" (Spivakovsky A., Petukhova L., Anisimova O., Horlova A., Kotkova V., Volianiuk A., 2020, p.320). Under martial law, these technologies were gradually introduced into most educational components due to the growing awareness of teachers about the need to train specialists capable of being flexible and adaptable, rationally using ICT in their professional activities.

Students were motivated to obtain quality higher education even in conditions of occupation and active hostilities. However, due to technical reasons, there were problems with connecting to the synchronous learning format, so teachers recommended to higher education students educational (training) online platforms, online training courses, etc., the results of which were credited as part of the learning outcomes for educational components.

In addition, students received unlimited access to the resources of the Scientific Library of Kherson State University. In particular, the materials of the Institutional Repository (Repository of Kherson State University, 2024), the possibility of checking scientific and educational-methodological texts for academic plagiarism, obtaining bibliographic references, free access to the electronic catalog and electronic library, to the resources of scientometric databases Scopus and Web of Science, etc., were provided to faculty and students.

The implementation of university business processes also underwent transformation. The university created the electronic service "KSU24," an effective tool for ensuring university business processes related to the educational process (Electronic service of Kherson State University KSU24, 2024). The purpose of its implementation is to improve and automate the organization of the educational process at KSU, which significantly simplified process management, including monitoring

attendance, filling out accounting journals, controlling the implementation of the academic load, and concluding agreements with students. This platform automated many administrative procedures, which is especially important in wartime.

The administration of both the faculty and the university constantly monitored and continues to monitor the quality of the organization of the educational process, the location and living conditions of both faculty and students. This work was mainly carried out in the digital dimension, so the question arose about introducing the position of assistant dean for digitalization.

During martial law, faculty in electronic format on the KSU24 platform were able to create and fill out accounting journals for the work of the academic/study group. The entered results of semester control are automatically generated in the student's individual plan, in their personal account. Based on the results of filling out such journals, it is possible to generate various reports - student attendance at classes, implementation of the academic load by teachers (conducting classes in synchronous or asynchronous format), etc.

The results of semester control are also recorded in the semester control sheet, which is generated by the dean's office employee in the IAS database. The semester control sheet is filled out by the examiner after conducting the control measure in electronic format, certifying it with their signature.

Important for the full implementation of organizational-managerial, financial, educational activities, as well as other processes of Kherson State University's life in conditions of occupation was the decision to temporarily relocate the university's management center to the base of Vasyl Stefanyk Carpathian National University until the end of martial law.

From this period, a new stage in the university's activity began - the functioning of two offices in Kherson and Ivano-Frankivsk. Interaction and communication were established between them, and electronic document management was introduced.

The Department of Quality Assurance of Education systematically conducts various surveys among students and teachers to monitor:

- quality of teaching educational components:
- quality of organization and content of internships;
- quality of the educational process in distance learning conditions:
- quality of educational programs of the first (bachelor's), second (master's), and third (educational-scientific) levels of higher education;
- level of student motivation in distance learning conditions.

Systematic surveys, in our opinion, are an important digital tool and analytics tool in educational processes, as they provide feedback between teachers and students. Regular surveys allow obtaining data on the quality of educational services, student satisfaction, and teaching effectiveness.

We note the following advantages of systematic surveys for the analysis of educational processes: continuous monitoring of learning effectiveness, analysis of the quality of individual educational components, identification of problematic factors in the implementation of educational components (e.g., excessive complexity of material or insufficient interactivity, irrelevant topics). assessment of student satisfaction and motivation, and strategic planning through summarizing survey results at the level of educational programs or faculty. Analysis of survey results is carried out through data visualization, comparative analysis (based on survey results in different courses or groups), and trend analysis (by tracking changes in student survey results during the semester or academic year). We also note that systematic surveys not only contribute to improving the quality of educational services but also strengthen trust between students and the university administration, therefore, they are an important step in building a culture of continuous improvement of educational processes.

Based on the analysis of the activities of the Faculty of Pedagogy at Kherson State University, we propose a set of digital solutions for the tasks of logistics of educational business processes in martial law conditions (table 1):

Table 1 Tasks of logistics of educational business processes in martial law conditions and digital solutions

Task	Digital Solution	Functions
Organization of dis-tance learning pro-cess	Moodle (KSUonline) platforms, Web Multimedia encyclopedias, corporate email.	Ensuring planning, scheduling, assignments, and assessment.
Ensuring a high level of educational quality	Use of the ZOOM video con-ferencing platform (secure ac-cess from corporate accounts), availability of access to educa-tional materials in synchronous and asynchronous formats.	Conducting lectures, practical classes, ensuring quality communication.
Creating effective communication channels	Chat groups in Telegram, Viber, Chats in KSU24, corpo-rate email.	Rapid information ex-change and prompt noti-fication.
Establishing feed-back	Surveys using KSU24, Google Forms (via corporate accounts).	Assessment of student needs and requests, re-sults analysis.
Selecting and using appropriate digital platforms	Internal platforms KSUonline and KSU24, involvement of self-education platforms (with the possibility of crediting learning outcomes).	Combination of different platforms for a fully digi-talized educational pro-cess.

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In the conditions of martial law, Kherson State University systematically operates Schools of Professional Development for scientific and pedagogical staff (Schools of Professional Development of Kherson State University, 2024). In our opinion, this is an important element of the educational ecosystem in martial law conditions, which contributes to increasing the digital competence of teachers, optimizes the logistics of managing educational processes, and helps to implement innovative digital solutions. The integration of the above approaches allows ensuring the continuity of education, improving its quality, and creating an adaptive learning system capable of functioning in conditions of uncertainty.

Scientists Ye. Chernovol, A. Chepeliuk, and F. Kurtiak identify four stages of digital transformation of the educational process of higher education institutions: primary digitalization, digital optimization, digital administration, and digital transformation (depending on the role of data, processes, communication, and human resources) (Chernovol Ye., Chepeliuk A., Kurtiak F., 2023). Based on this theory, we conclude that from 2022 to 2024, in conditions of martial law, Kherson State University went through the II and III stages of digital transformation. It should be noted that the first stage (primary digitalization) at Kherson State University was completed in 2022, as the educational process support platform KSU.online and corporate mail were already working, and digitalization processes were particularly active during the COVID-19 pandemic and under the introduction of distance learning.

In 2022-2024, digital processes were improved, their integration into the institution's management system, improvement and filling of Moodle resources, integration of online tools for teaching and assessment took place. The educational process was largely managed through digital technologies, electronic document management systems were developed, scheduling processes, registration of applicants were automated, and chats were created for communication between teachers, students, and administration. We believe that according to these signs, in 2022-2024, Kherson State University went through the stages of digital optimization and digital administration, and the IV stage (digital transformation) began with the introduction of artificial intelligence into the educational process.

#### **CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH**

The experience of Kherson State University shows that the organization of educational business processes in difficult martial law conditions is possible with the use of innovative digital solutions, a flexible approach to management, and active interaction of all participants in the educational process. The logistics of educational business processes involves not only technical support but also the creation of conditions for maintaining psychological resilience, motivation, and mutual support.

The implemented measures have proven their effectiveness, allowing to ensure the continuity of learning and maintain the quality of education. The university has become a center of resilience and innovation, which are key factors for the functioning of education in crisis situations.

Thus, the logistics of educational business processes during wartime require innovative approaches focused on digitalization. Digital solutions play a key role in ensuring the flexibility and adaptability of the educational process, helping to overcome challenges related to military actions. The introduction of e-learning, the development of digital platforms, the creation of new organizational models, and the provision of psychological support contribute to maintaining the quality of education and preserving its accessibility.

The war has become a catalyst for changes in the educational sphere, which forms the basis for future development. An analysis of the experience of the Faculty of Pedagogy at Kherson State University showed that the key factors for successful adaptation were: the introduction of distance and blended learning; ensuring effective communication through digital platforms; the integration of modern educational tools to support the quality of education; support for students and scientific and pedagogical staff.

Thus, digital solutions in educational logistics have become not only a forced measure but also a powerful tool for transforming the educational environment in Ukraine.

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