



ПРОФЕСІЙНА ОСВІТА

УДК 378.014.242

DOI <https://doi.org/10.57125/pedacademy.2024.04.29.08>

Internationalization of Ukrainian higher education system in the context of the problems caused by the war

Postupaka Yuliia

Postgraduate student of Comparative Education Zhejiang Normal University, Jinhua, China <https://orcid.org/0009-0009-9217-9637>

Прийнято: 15.04.24 | Опубліковано: 29.04.24

***Abstract.** The purpose of the study is to analyze the impact of the war on the processes of internationalization of the Ukrainian higher education system, identify key problems and challenges, as well as develop effective recommendations for overcoming these problems to ensure sustainable development and increase the level of internationalization of Ukrainian universities.*

***Research methods:** analysis of documents and literature, conducting surveys among students, teachers and administrative staff of Ukrainian universities to collect data about their experiences, problems and needs in war conditions, collection and analysis of statistical data, comparative analysis and monitoring and evaluation.*

***The results.** The article analyzes the main consequences of military aggression: forced relocation of students, scientific and pedagogical workers to different cities of Ukraine and beyond, which hinders communication and establishment of constructive interaction in the process of educational activities; complete destruction and partial damage to higher education institutions as a result*



of missile attacks and military actions; reduction of financial support of higher educational institutions and material encouragement of scientific and pedagogical workers of higher educational institutions; in connection with the existing risks of missile or artillery attacks, the instability of the network, which depends on the duration and scale of power outages, which leads to a decrease in the acquisition of educational information, worsens the assimilation of knowledge and reduces the quality of education.

In the course of the analysis, the main directions of modernization of the Ukrainian higher education system in the context of the problems caused by the war were determined: increasing the flexibility (adaptability) of higher education institutions, introducing information technologies for the organization of educational activities, ensuring the development of university science, intensifying international cooperation, optimization of the network of higher education institutions, expansion of financial autonomy of higher education institutions and change in their economic status, which will ensure the development of higher education in Ukraine in the post-war period and contribute to successful integration into the European educational space.

Conclusions have been made that currently the Ukrainian system of higher education in the context of the problems caused by the war needs to be strengthened against military attacks and destruction, in particular, the protection of the important infrastructure of society's vital activities, due to the fact that temporary restrictions on the supply of electricity, accompanied by the absence of the Internet, do not allow higher education institutions to organize training even remotely.

Keywords: *armed conflict, higher education system, distance learning, digital technologies, competencies.*



**Інтернаціоналізація системи вищої освіти України в контексті
проблем спричинених війною**

Поступака Юлія Олегівна

аспірантка порівняльної педагогіки Чжецзянський педагогічний університет,
Цзінхуа, Китай <https://orcid.org/0009-0009-9217-9637>

***Анотація.** Метою дослідження є аналіз впливу війни на процеси інтернаціоналізації системи вищої освіти України, ідентифікація ключових проблем та викликів, а також розробка ефективних рекомендацій щодо подолання цих проблем для забезпечення сталого розвитку та підвищення рівня інтернаціоналізації українських університетів.*

***Методи дослідження:** аналіз документів та літератури, проведення опитувань серед студентів, викладачів та адміністративного персоналу українських університетів для збору даних про їхній досвід, проблеми та потреби в умовах війни, збір та аналіз статистичних даних, порівняльний аналіз і моніторинг та оцінка.*

***Результати.** У статті проаналізовано основні наслідки військової агресії: вимушене переселення студентів, науково-педагогічних працівників до різних міст України та за її межі, що перешкоджає спілкуванню та налагодженню конструктивної взаємодії в процесі навчальної діяльності; повне знищення та часткове пошкодження вищих навчальних закладів внаслідок ракетних обстрілів та військових дій; зменшення грошового забезпечення вищих навчальних закладів та матеріального заохочення науково-педагогічних працівників вищих навчальних закладів; у зв'язку з існуючими ризиками ракетного або артилерійського обстрілу, нестабільністю мережі, яка залежить від тривалості та масштабу відключень електроенергії, що*



призводить до зниження засвоєння навчальної інформації, погіршує засвоєння знань та знижує якість освіти.

У ході аналізу визначено основні напрямки модернізації системи вищої освіти України в контексті проблем, зумовлених війною: підвищення гнучкості (адаптивності) вищих навчальних закладів, впровадження інформаційних технологій для організації навчання. діяльності, забезпечення розвитку університетської науки, активізації міжнародного співробітництва, оптимізації мережі вищих навчальних закладів, розширення фінансової автономії вищих навчальних закладів та зміни їх економічного статусу, що забезпечить розвиток вищої освіти в Україні в пост-воєнного періоду та сприяють успішній інтеграції в європейський освітній простір.

***Висновки.** Зроблено висновки, що нині українська система вищої освіти в контексті проблем, викликаних війною, потребує зміцнення проти військових атак і руйнувань, зокрема захисту важливої інфраструктури життєдіяльності суспільства, у зв'язку з тим, що тимчасові обмеження постачання електроенергії, які супроводжуються відсутністю Інтернету, не дозволяють вишам організувати навчання навіть дистанційно.*

***Ключові слова:** збройний конфлікт, система вищої освіти, дистанційне навчання, цифрові технології, компетенції.*

Formulation of the problem. According to the Ukrainian Ministry of Education, Russia's attacks on Ukraine have damaged over 2000 educational institutions and destroyed almost 300. Large-scale destruction of the educational infrastructure: damage to the premises of educational institutions, educational material and technical base, educational and production practice bases [12]. According to the data of the interactive map of the Ministry of Education and Science of Ukraine [11], from February 24, 2022, till today, 45 institutions of higher



education have been destroyed throughout the country, namely: in the Mykolaiv region - 25 institutions, in the Chernihiv region - 12, in the Zaporizhia region - 4, in the Donetsk region - 2, in Sumy and Kharkiv - 1 each. As a result of the bombings and shelling, 61 institutions of higher education were damaged, namely: in the Kharkiv region – 23, in the Dnipropetrovsk region – 6, in the Donetsk region – 6, in the Mykolaiv region – 5, in the Chernihiv region – 4, in the Zaporizhia region – 3, in Zhytomyr region – 2, in Vinnytsia region – 2, in Luhansk region – 2, in Sumy region – 1, in Kherson region – 1. At the same time, 33 institutions of higher education were moved to safe regions of Ukraine, where and given resumed their activities based on another institution. Numerous university students, faculty, and staff have been displaced or have joined the war effort.

In Ukraine, universities' revenue largely comes from tuition fees, covered by the government or the students. Both sources have been undermined by the war. The Ukrainian government is understandably directing a lion's share of its resources to war efforts. Universities expect this income source to fall considerably (perhaps by two-thirds or more) in the coming academic year. Many domestic students have left the country, and the parents of many remaining students have been displaced, often losing their jobs, so they will struggle to cover their children's university fees. The previously vibrant international student community is expected to shrink substantially in the next academic year. The end result is that, for many institutions, revenue will be a fraction of what is needed to educate the remaining students.

Analysis of recent research and publications. The study of the internationalization of the higher education system of Ukraine in the conditions of war is extremely important to ensure its sustainable development and adaptation to new realities. Scientists who disclose scientific developments in the researched direction: Andrushchenko V.P., Anishchenko O. V., Terepyschyi S.O., Khomenko,



H.V. Yatsyk M., Pietsch M., Tulowitzki P., Cramer C., Skrypnyk A., Prudchenko, I., Shkatula, O.

Highlighting previously unresolved parts of the overall problem. The main problems of the internationalization of education in the conditions of war are the safety of students and teachers, as well as the destruction of infrastructure and the reduction of international cooperation in the framework of financial difficulties, and to explore ways of improving the internationalization of education.

Formulation of the goals of the article. The purpose of the study is to analyze and assess the impact of the war on the processes of internationalization of the higher education system of Ukraine, as well as to develop recommendations for overcoming challenges and ensuring the sustainable development of internationalization in conditions of armed conflict.

Objectives of the study:

To reveal the impact of the war on the higher education system of Ukraine and the analysis of security problems for students and teachers through the assessment of the level of international cooperation of Ukrainian universities before and during the war. Formulate proposals for the use of online education and distance learning to support international programs and provide an assessment of the effectiveness of implemented recommendations and strategy adjustments based on monitoring results.

Presentation of the main research material. Another challenge posed by the ongoing war is that many institutions do not have enough suitable bomb shelters for safe in-person learning. Online education will therefore be needed in many areas, but that also presents difficulties. The lack of Ukrainian-language content and poor knowledge of English limit the online educational opportunities for Ukrainian students. University servers lack capacity, and increasing it is costly. Effective online exams, difficult in peacetime, are even more challenging in wartime.



Before the war Ukraine was one of the most popular countries for studying. According to the latest official statistics, there were 80,470 international students in Ukraine. The country has a reputation for having one the best and most affordable education systems in Europe. Ukrainian universities offer many programs at both the undergraduate and postgraduate levels of study for international students. War-related disruptions such as cancelled classes, exams, and damage to university infrastructure negatively impact students' academic performance. Additionally, psychological effects from exposure to violence can impair their ability to learn effectively. These factors contribute to decreased quality of education that affects both short-term and long-term outcomes for graduates.

Data from the Education Ministry indicate that India and Morocco were the top two source countries of international students in Ukraine in 2020, with 18,095 and 8,832, respectively. Other countries of origin of students during the same year include:

- Turkmenistan (5,322 students)
- Azerbaijan (4,628)
- Nigeria (4,227)
- China (4,055)
- Turkey (3,999)
- Egypt (3,048)
- Israel (2,107)
- Uzbekistan (1,585)

Throughout 2020, about 90 percent of international students, or 68,908, were pursuing bachelor's and master's degrees, followed by 4,936 enrolled in preparatory courses, 1,719 in postgraduate education, 974 pursuing PhD degrees, and 11 students arriving in the country for academic exchanges.



One year has passed since Russia invaded its neighboring country Ukraine in February last year. Due to the developments, an exodus of international students, mostly from Asia and Africa, fled the country to either return to their homeland or continue education in other world countries. Over 25,000 educators and nearly 665,000 students fled or took refuge in the neighboring countries, some of those students were so close to graduation. This displacement of students and educators had a significant effect on Ukraine's educational system.

Introduction. The importance of investigating the influence of the war on universities is due to the following facts: this is important for the formation of human and intellectual capital, the formation of national elites, the development of science and culture, and the improvement of national technology to the important level. The formation of modern economy and the establishment of a democratic foundation for social development. As the armed conflict story shows, the education system has become a stage for struggle in each war, because this is a struggle for people's thoughts and world views. Under the conditions for the formation of knowledge society, the worsening of global contradictions and war in the field of education have become particularly important.

The characteristics of the 21st century are the global instability and the expansion of various risks. As described by the research experts of the World Economic Forum (WeF), the research expert releases reports on global risks each year. According to their evaluation, in recent decades, the biggest threat to society is the impact of the risk of society, environmental risks and impact -Earth War (large -scale terrorist attacks and large -scale killing weapons). Ukraine's war is the result of global ideology and political confrontation upgrades under the conditions of fatal weapons and large -scale killing weapons. The war shocked Ukraine, and Ukraine had a negative impact on all areas of the country's social life, which made it necessary to check its reasons and consequences.



Problem statement. One of the key tasks of Ukraine becoming a successful European state and a full member of the European Union is the modernization of the national higher education system in the context of the problems caused by the war and its focus on accelerating integration into the EU, which should be implemented based on coordinated actions of state administration bodies to ensure socio-economic development, health care, language, and culture.

All spheres of the country's life the system of higher education of Ukraine, suffered serious losses and destruction, because of the full-scale invasion of Russia on the territory of Ukraine. Even before the beginning of the invasion, a new stage of the development of the higher education system in Ukraine was observed, namely the adoption in 2014 of the new Law of Ukraine «On Higher Education», which became a determining factor in building the institutional capacity of Ukrainian institutions of higher education and the unity of the educational space of Ukraine and its harmonization with European and world educational spaces.

But because of the spread of the coronavirus infection, the issue of creating a safe educational environment came to the fore, that is, the realization of the right to safe and harmless learning conditions in wartime conditions and the transition to distance learning.

The military aggression of the Russian Federation slowed down the implementation of the modernization of the educational sector, influenced the limitation of education budgets, and caused the outflow of student youth abroad. In this regard, the situation in the higher education system deteriorated sharply: the educational process was suspended, a large part of educational institutions ended up in the territory occupied by the enemy, the large-scale movement of young people both within Ukraine and abroad, became a challenge for the education system in view of the need to ensure equal access to education. Undoubtedly, the war will affect the quality of higher education in Ukraine and the competitiveness of higher educational



institutions, it will accordingly not stimulate young people to obtain higher education at home and will motivate them to choose foreign educational institutions as an alternative [1, p.39]. In addition, the higher education sector of Ukraine itself, due to the excessive number of higher education institutions, the dispersion of resources, the lack of funding and the shortage of students, needs to be modernized to improve efficiency and quality.

As well after Russian invasion, the language issue in Ukraine became hot topic for discussion. It has four basic aspects: everyday use (communication between people), formal and official use (the functioning of the state, particularly the legal and education systems), the commercial aspect (the press, books and electronic media market, and advertisements) and the symbolic and identity aspect. The first aspect is the least important as the Ukrainian and Russian languages are similar in some aspects. The language issue in Ukraine reveals the contradiction between the right of a democratic country to define and impose the language which is compulsory in official, educational and symbolic areas and the right citizens have to choose the language which they want to use, including in contacts with state institutions authorities, and in which they want their children to be taught. In fundamentally monoethnic countries such as Poland or Hungary the solution is simple (limited concessions for few minority groups). In multilingual countries such as Spain and particularly in bilingual countries – Belgium or Ukraine – there appears a problem to which a good and especially universal solution has not yet been found.

Analysis of the latest research. Having analyzed the scientific research of domestic and foreign scientists, the works of such scientists as V. Andrushchenko, L. Verbytska, V. Zhuravsky, V. Lugovoi, L. Fedulova, etc., are of particular importance.

Today, there is a significant number of publications in which the reform of the domestic system of higher education is highlighted, for example, K. Levinsky studied the peculiarities of higher educational institutions and contingents of participants in



the educational process; Y. Rashkevich emphasized the study of standardization of higher education. In addition, the main problems of the organization of the Ukrainian higher education sector are highlighted in the scientific works of Y. Fedorchenko; optimization of the network of higher educational institutions in Ukraine was considered by T. Koroleva and A. Pidgorny, (2017). And such scientists as V. Kremen, V. Lugovii, P. Saukh, Zh. Talanova formed their own model of optimization of the network of higher educational institutions.

Analyzing the scientific research of scientists who studied the impact of war on higher education, it is important to highlight such scientists as A. Shevchuk and I. Shevchuk, who in their scientific works highlighted the destructive impact of war on education and described the distance form of education determined by it. The activities of higher education in wartime conditions were studied by I. Drach, O. Zakharova and Y. Skyba.

The issue of post-war education reforms in various countries was investigated by Holian, Volkmar, Shibita and others.

Thus, after analyzing a significant number of works, currently the main directions of modernization of the Ukrainian higher education system in the context of the problems caused by the war are not sufficiently covered.

Research methodology. In the process of our research, the scientific views of foreign and domestic scientists and teachers who studied the peculiarities of the restoration of the higher education system in Ukraine in the context of the problems caused by the war were analyzed.

In addition, the following methods were used in the research process: theoretical analysis, synthesis, comparison, and comparison for the conceptualization of scientific literature, the study of regulatory documents in the field of higher education; classification and systematization of theoretical data related to the realities of the domestic sector of higher education. Generalization for processing and



interpretation of theoretical sources on the researched problem, state standards of higher education, determination of regularities, formulation of conclusions.

The purpose of the article. Determination of the main directions of modernization of the Ukrainian higher education system in the context of the problems caused by the war.

The main part of the study. The war has a negative impact on the entire higher education system of Ukraine, which is confirmed by the destruction of the educational infrastructure, the use of educational facilities for military purposes, impossibility of organizing training during hostilities, risks to life and health of all participants in the educational process, forced relocation of higher education institutions, teachers, and students to other territories. Russia's military aggression led to significant destruction and losses in the economy and social infrastructure, caused significant changes in the higher education system.

Ukrainian higher educational institutions located in safer regions (Lviv, Ivano-Frankivsk, Ternopil, Volyn, Rivne, Khmelnytskyi regions) announced the admission of internally displaced students. Now, these studies are only available as part of academic mobility opportunities, that is, students can take certain classes according to their specializations and receive a certificate of completion of classes after their completion. But future specialists cannot fully transfer from their university to another if their university does not hold classes. A long-term integration strategy and transfer procedure is needed for students whose universities cannot resume studies in the nearest future. Some universities also invited scientific and pedagogical workers who were evacuated from war zones to join the educational process.

It should be noted that Ukraine has a developed system of higher education, which is characterized by significant stability. Therefore, military actions caused significant damage to it, but did not destroy it completely, as evidenced by the continuation of the educational process both in schools, as well as in universities,



which in the conditions of war not only provide the educational process, but also hold scientific conferences. The war continues, and the amount of damage to higher education in Ukraine has not yet ended. However, we can already talk about the short-term and distant consequences of the war for the higher education system of Ukraine [5;6].

The war started by Russia caused a number of serious modern problems in Ukrainian higher education, namely: the forced relocation of a significant number of university students and teachers to different regions of Ukraine and abroad, that disturbed the normal process of communication and cooperation in the learning process; the destruction and damage of educational institutions as a result of hostilities and rocket fire - the impossibility of their restoration during the war; a significant decrease in the financial resources of higher education institutions and opportunities to support educational infrastructure and material incentives for employees of higher education institutions; frequent interruptions in the educational process due to hostilities - risks during rocket attacks, lack of electricity and Internet, which leads to a decrease in the amount of educational material, worsens the assimilation of knowledge and lowers the quality of education. All these negative processes led to the fact that the conditions of higher educational institutions of Ukraine significantly worsened due to the loss of material and personnel resources, a decrease in the number of students, which put many universities on the verge of survival [7;9].

At the same time, the war forced higher educational institutions to mobilize and adapt their activities to new challenges and conditions. To ensure the educational process, the Ministry of Education and Science of Ukraine and domestic higher educational institutions implemented a transformation of the organizational forms and methods of obtaining higher education in the conditions of hostilities, which provides



for expanding the autonomy of higher education institutions to organize the educational process [2, p. 24].

Decisions about the study format (online or offline) and its calendar schedule are made by the administration of the higher educational institution from a safe position for students and scientific and pedagogical workers; wide use of digital technologies in the educational process for the implementation of distance education, improving the qualifications of teaching staff in the field of digital skills, developing distance courses; organizational and legal support for the transfer of higher educational institutions from the occupied and front-line territories to safer regions; support of forced national and international academic mobility of students, as well as referral to study at foreign universities; provision of special support to residents of temporarily occupied territories to continue their studies or enroll in higher educational institutions of Ukraine; development of scientific and research activities, including those related to solving problems of crisis situations, with the needs of defense; activation of contacts and expansion of partnerships with foreign universities and colleges in educational and scientific activities, use of various forms of international cooperation to preserve the educational institution and solve its problems.

At this stage, the organization of the educational process in higher education institutions in the online format, which is not new for modern society, is becoming important, because thanks to the partial transfer of higher education to this format in 2020 due to the widespread coronavirus infection of COVID-19.

Distance learning has become an affordable way for students to get a quality higher education, but the need for effective online learning takes on greater meaning and becomes especially relevant for countries that have found themselves in a zone of military conflict or related occupation. In the most difficult time for society as a whole and for the higher education system, which is the period of military conflict,



educators mobilize and demonstrate a high level of professionalism to provide online education. Experience shows that, humanitarian headquarters, and institutions for the accommodation of internally displaced persons are created based on higher education institutions that have successfully continued their studies in the online format. Among the priority tasks of providing education is providing informational support for the teaching staff and students, organizing the transfer of higher education institutions to other regions of the country if necessary, and methodical and methodical support for the work of educators. But today, there is a lack of Ukrainian-language content and a poor knowledge of the English language, which limits the online education opportunities of Ukrainian students. University servers are running out of capacity and increasing it is expensive.

Thus, the development of higher education and science, support of its ability to ensure the realization of the intellectual potential of the country, ensuring the creation and use of achievements of domestic and world science and technology, ensuring safety and social security during military conflicts are only the main direction for the organization of an effective system of online education.

According to the results of research by scientists, to meet the socio-economic, cultural, and other needs of society, to continue the formation of an innovative vector of the economy, especially in the conditions of a military conflict, it is necessary to focus on the following aspects of the development of higher education, namely its online sphere:

- creation of appropriate conditions for scientists and innovators to continue their scientific, scientific-technical, and innovative activities online;
- development of programs, return of scientists and innovators who were forced to leave the country due to martial law.

The development of e-admission and e-examination tools, as well as the establishment of partnerships with foreign higher education institutions to obtain free



online access to their educational materials for domestic higher education institutions, are among the top priorities.

In its March 15, 2022, contingency plan, the MES emphasizes post-war needs and plans for areas of education and science that will require recovery and reconstruction. While the physical destruction caused by the war will be a problem for the recovery of Ukraine.

In addition, the Ministry of Education and Science of Ukraine detailed the developed plan in the Concept of Restoration of Education and Science of Ukraine during 2022-2032. A number of key directions for the restoration of higher education and adult education are outlined, namely: personality development and decent employment; unity and support of democratic values; training of in-demand specialists and scientists; trust in the educational, scientific and expert activities of institutions of higher education (partly - ZVO); optimization of the network of higher education institutions and the creation of a modern educational space; ensuring the autonomy of higher education institutions; internationalization of higher education of Ukraine; continuous education as the mainstream of modernity; synergy of education and business.

Also, with Ukraine acquiring the status of a candidate for membership in the European Union, it is expected to fulfill its obligations in accordance with the provisions of the Association Agreement and continue the implementation of educational reforms, namely: ensuring high-quality higher education and developing adult education, developing science and innovation. Each of these areas carries out tasks aimed at achieving a common goal: to transform Ukrainian higher education into an innovative environment in which students acquire key competencies needed by every modern person for a successful life, and scientists have opportunities and resources to conduct research that will have a direct impact on the socio-economic and innovative development of the state.



ПЕДАГОГІЧНА АКАДЕМІЯ: НАУКОВІ ЗАПИСКИ

A strong state and a competitive economy can be ensured by a united community of creative people, responsible citizens, active and enterprising. Such citizens should be trained by higher education institutions. The content of professional higher education must be constantly updated taking into account the needs of the labor market. The issue of mobility, competitiveness, and qualification of employees is gaining special relevance. Educational and scientific fields should turn into a lever of social equality and cohesion, economic development and competitiveness of Ukraine.

The challenges caused by the war, in the long term, create new opportunities for bringing the higher education system to a new qualitative level. According to Samera T. Said and Patrick Blessinger, "after the war in Ukraine, higher education institutions will be forced to adapt to new realities and opportunities. The destruction left behind by the conflict will give universities the opportunity to rethink their role and their place in society" [8].

War and devastation should become an impetus to change approaches in the restoration of the higher education system of Ukraine. It should not be just an improvement of the existing system, which in many respects is a legacy of the Soviet Union, but the creation of an innovative model of higher education capable of responding to the challenges of modern society. The National Declaration of Ukraine on the Obligation to Transform Education, posted on the website of the UN national declarations, states: «It is necessary to carry out system-wide transformations, including the use of flexible teaching methods, rapid response to changes in education the security situation, implementation of catch-up programs and tools based on in-depth training and assessment of skills that are lacking» [10].

At present, the adoption of the Strategy for the Development of Higher Education in Ukraine for 2022-2032, which was approved by Order of the Cabinet of Ministers of Ukraine dated February 23, 2022 No. 286, was of particular importance



for the modernization of the Ukrainian higher education system in the context of the problems caused by the war. It is important to note that the specified legislative document is aimed at the period of Ukraine's accession to the EU.

The strategy for the development of higher education in Ukraine for 2022-2032 includes relevant goals and main tasks aimed at rebuilding and continuing the reform of the higher education system in the period of post-war reconstruction. And the implementation of the tasks specified in the Strategy will make it possible to mitigate the destructive consequences that were caused by the armed conflict [3].

As part of the post-war reconstruction process, the goal of the higher education system should be to assist in the recovery process. Higher education is the key to unlocking the potential of a post-conflict country, providing the knowledge and skills necessary for progress and laying the foundation for the future.

Through education, people can develop and share ideas that can help a country prosper both economically and socially. In addition, higher education plays an important role in the peace process, helping to develop trust between the parties and preventing future conflicts.

So, based on the above information, we believe that the Ukrainian higher education system will not just have to be rebuilt, but fundamentally reformed, what are the transformations accelerated by the war, which form new vectors for the development of higher education in Ukraine. Thus, we consider it necessary to present the main directions of modernization of Ukrainian higher education in the context of the problems caused by the war:

I. Flexibility (adaptability) - in the conditions of martial law, there is an increase in the level of flexibility in the organization of the swarm of higher educational institutions. But, in our opinion, this process should be expanded, especially regarding the content of education and the formation of modern key competencies, which must be fundamentally revised in accordance with the trends in



the development of the national economy, the demands of the labor market and the personnel needs of Ukraine as during the war, as well as for the reconstruction of the economy. The Institute of Educational Analytics has developed proposals for changing the directions and scope of personnel training in the war and post-war period [4, p.41].

II. Wide implementation of modern information and communication technologies - saturation of the physical space of the educational institution with electronic and digital devices, means, systems and the introduction of pedagogical technologies based on the use of information and communication technologies, cloud-oriented technologies and augmented and virtual reality technologies. It is thanks to digital technologies that Ukraine managed to ensure the continuity and safety of the educational process in the conditions of hostilities. All universities have switched to online education. Currently, all university teachers have mastered distance learning methods and developed online courses in their subjects. This policy should be further expanded and deepened, creating an ecosystem of digital education. In addition, the use of artificial intelligence in higher educational institutions, which in today's realities actively involve leading countries to improve the quality of education. Training with the involvement of artificial intelligence allows you to personalize training considering the individual and psychological qualities of students and deepen their content.

III. Development of university science in Ukraine. During the military invasion, the loss of the scientific potential of higher education institutions can be traced. In this regard, better conditions should be created for the generation of new knowledge by scientists of higher education institutions and their implementation both in the educational process and in the field of economic activity. In addition, in our opinion, the development of their scientific and production potential should be ensured and strengthening cooperation with business and foreign partners in the field



of science. It should be noted that in this difficult time, most universities organize and conduct scientific conferences, present their scientific works and, at the same time, involve international partners in them.

IV. Activation of international cooperation. The war gave a powerful impetus to establishing contacts with foreign partners. International academic and scientific cooperation should be strengthened. Many international projects and Ukrainian initiatives contribute to this.

V. Optimization of the network of higher education institutions. Currently, there are an excessive number of various higher education institutions operating on the territory of Ukraine, among which many are small and unable to provide quality educational services. Therefore, it is necessary to unite them to strengthen the educational and scientific potential.

VI. Expanding the financial autonomy of higher education institutions and changing their economic status. As you know, the financial support of the higher education system in Ukraine has always been insufficient. As a result, most institutions of higher education had a shortage of funds, which did not allow to modernize their educational and scientific base and ensure decent remuneration of scientific and pedagogical workers. A low level of financial independence does not allow managing available funds and property, attracting investments from businesses and grants from foundations. The war reduced the state's ability to finance education, and the ability of households to pay for higher education services also deteriorated. In the field of higher education, the task of changing the management system and ensuring financial autonomy is urgent, which is possible through corporatization or privatization of higher education institutions.

The war posed many serious challenges to the education of Ukraine in the field of education functioning and the formation of highly qualified personnel for the war and post-war economy, mainly : creation of safe conditions for training and training



in higher education institutions, which is implemented through the arrangement of safe shelters in educational institutions for the organization of stationary training and the transition to distance education; restoring the normal learning process and improving the quality of education. Therefore, in order not to lose the current generation of young people in education, it is necessary to create conditions for a faster return to classroom forms of education, preserving the contingent of students, including those who have gone abroad, and providing, as far as possible, quality education for the formation of sustainable knowledge and professional competences. This is done by developing modern online courses in all subjects and methodical online provision of practical classes and knowledge control, using individual approaches and flexible asynchronous forms of work, developing educational video content. However, the lack of live contacts does not contribute to the strengthening of the university community, preservation of personnel potential for further development of the higher education system in the war and post-war periods. In this regard, it is necessary to develop programs for the return and support of professors and teaching staff of universities, training of graduate students and doctoral students, implementation of scientific projects, active development of cooperation with foreign universities and colleagues.

Solving most of the current problems of higher education and creating conditions for its development are possible only after the end of the war. At the same time, the development of international cooperation in the field of education is very important.

Conclusions and recommendations

During the research was find out that the influence of the war in Ukraine on the system of higher education, the losses incurred and forced transformational processes, which form new vectors of development and modernization of higher education during post-war reconstruction, were highlighted.



As we said above, the war accelerates educational transformations that form new vectors of higher education development in Ukraine. Among them: increasing the flexibility and adaptability of higher education institutions, wide implementation of information and communication technologies in the organization of the educational process, stimulation of the development of university science, activation of international cooperation, optimization of the number of higher education institutions through their integration and consolidation, expansion of financial autonomy of universities.

This will make it possible to ensure the post-war development of higher education in Ukraine and its effective integration into the European area of higher education.

Currently, higher education in Ukraine needs to strengthen protection against military attacks and destruction, primarily the protection of energy and utility infrastructure, since power outages and the lack of the Internet do not allow universities to organize training even remotely.

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