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ADAPTATION OF THE EDUCATIONAL PROCESS IN SECURITY DISCIPLINES IN HIGHER EDUCATION UNDER MARTIAL LAW

Abstract. Safety-related disciplines, particularly “Life Safety”, in Ukraine have a deep historical heritage that has developed over several decades. Their integration into the system of general and higher education was a response to complex threats that posed risks to human life, health, and society. The role of safety disciplines lies in creating a system of knowledge, skills, and values that enables society to effectively resist various internal and external threats.

However, martial law in Ukraine has transformed the approach to developing safety competence among higher education students. Martial law has not merely limited educational opportunities but has stimulated a rapid and large-scale rethinking of the very principle of teaching. This has led to fundamental changes in approaches, teaching methods, and technologies in safety education, including: the ability to quickly shift learning formats (from in-person to remote, and from remote to hybrid); active adoption of international experience and creation of global partnerships for knowledge exchange; a shift of focus from theoretical knowledge to practical survival and protection skills; the development of comprehensive models that integrate physical, psychological, social, and pedagogical aspects of safety; and the accelerated implementation of digital technologies.

Scientific evaluation of the effectiveness of new methods for teaching safety disciplines under martial law is a crucial stage for the long-term development of the educational system. This evaluation should include: assessment of competencies; qualitative and quantitative analysis of graduates’ performance who were trained under the new models; comparative analysis of learning outcomes in crisis conditions with pre-war data; and comparison with the practices of higher education institutions in other countries that have experienced war or terrorist attacks.

Therefore, strategic recommendations and reforms in teaching safety disciplines should aim to establish a flexible, practice-oriented, technologically advanced, and psychologically resilient higher education system. Such a system must be capable not only of addressing internal institutional crises but also of fostering a society prepared to face future challenges.

Keywords: safety discipline, life safety, educational process, changes in teaching the discipline, learning formats and technologies, assessment of the effectiveness of new methods, strategic recommendations.

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АДАПТАЦІЯ ОСВІТНЬОГО ПРОЦЕСУ З БЕЗПЕКОВИХ ДИСЦИПЛІН У ВИЩІЙ ШКОЛІ В УМОВАХ ВОЄННОГО СТАНУ

Анотація. Безпеківі дисципліни, зокрема «Безпека життєдіяльності», в Україні мають глибоку історичну спадщину, що формувалася протягом кількох десятиліть. Їхнє впровадження в систему загальноосвітньої та вищої освіти стало відповіддю на комплексні загрози, які створювали ризики для життя, здоров'я людини та суспільства. Роль безпекових дисциплін полягає в створенні системи знань, навичок та цінностей, яка дозволяє суспільству ефективно протистояти різноманітним внутрішнім та зовнішнім загрозам.

Проте воєнний стан в Україні змінив погляди на формування безпекової компетентності здобувачів вищої освіти в Україні. Воєнний стан не просто обмежив можливості, а стимулював швидке та масштабне переосмислення самого принципу навчання, що призвело до кардинальних змін у підходах, методиках викладання безпекових дисциплін та технологіях, а саме: здатністю швидко змінювати формати навчання (з очного на дистанційний, з дистанційного на гібридний); активного використання міжнародного досвіду та створення глобальних партнерств для обміну знаннями; перенесенням акценту з теоретичних знань на практичні навички, необхідні для виживання та захисту, створення комплексних моделей, які враховують фізичну, психологічну, соціальну та педагогічну складові безпеки; швидким впровадженням комп'ютерних технологій.



Наукова оцінка ефективності нових методик викладання дисциплін безпеки в умовах воєнного стану є важливим етапом для довгострокового розвитку освітньої системи. Вона повинна включати: оцінку компетентностей; якісний і кількісний аналіз даних про успішність випускників, які отримали підготовку за новими моделями; порівняльний аналіз результатів навчання у кризових умовах з даними до війни та з практикою вищої освіти в інших країнах, які пережили війну або терористичні атаки.

Отже, стратегічні рекомендації та зміни викладання дисциплін безпеки повинні бути спрямовані на створення гнучкої, практико-орієнтованої, технологічно орієнтованої та психологічно стабільної системи вищої освіти, яка повинна бути здатною не лише вирішувати внутрішньо-інституційні кризи, а й формувати суспільство, готове до майбутніх викликів.

Ключові слова: безпекова дисципліна, безпека життєдіяльності, освітній процес, зміни викладання дисципліни, формати і технології навчання, оцінка ефективності нових методик, стратегічні рекомендації.

Formulation of the problem. Safety-related academic disciplines, particularly “Life Safety”, have a deep historical legacy in Ukraine, shaped over several decades. Their introduction into the system of general and higher education emerged as a response to complex threats that posed risks to human life, health, and society as a whole.

According to scientific sources, the discipline “Life Safety” was first introduced into higher education curricula in 1991. However, its official regulatory status was established somewhat later. In 1995, the Ministry of Education of Ukraine and the Ministry of Emergency Situations issued Joint Order No. 182/200, which mandated the study of the course “Fundamentals of Life Safety” in higher educational institutions. This step logically continued the earlier trends, as by 1999-2000 a similar course had already been implemented in general secondary schools.

A key document that guided the development of the discipline at the beginning of the 21st century was the Model Curriculum for the Normative Discipline “Life Safety”, approved by the Ministry of Education and Science of Ukraine on March 31, 2011. This curriculum provided the discipline with a clear educational structure, allocating at least 54 academic hours (1.5 ECTS credits) for most specialties. The educational content was based on a broad set of legislative acts, including the Constitution of Ukraine, the Civil Protection Code, and the Laws of Ukraine on Occupational Safety and Health, State of Emergency, and others. The main objective of the discipline was defined as a systematic approach to studying the general patterns of hazard occurrence, their properties and effects on the human body, as well as the development of measures to ensure healthy and safe living conditions.

However, the most significant event that fundamentally changed policy in the field of Life Safety was the repeal, in May 2014, of the Joint Order of the Ministry of

Education and Science, the Ministry of Emergency Situations, and the State Committee for Industrial Safety No. 969/922/216 dated October 21, 2010. This directive of the Cabinet of Ministers granted higher education institutions autonomy in determining the scope, structure, and forms of safety-related training. In practice, this led to a massive reduction in academic workload for the disciplines “Life Safety”, “Occupational Safety”, and “Civil Protection”. As a result, many universities transitioned from separate courses to shorter integrated modules, or even reduced classroom hours altogether, which caused an insufficient level of professional training [1]. This situation was identified as a serious threat to national security, particularly given the legal regime of martial law currently in force in Ukraine.

Analysis of the latest research and publications. Disciplines that shape the culture of life safety hold fundamental importance for ensuring Ukraine’s national security, extending far beyond the formation of basic safety behavior skills. Their role lies in building a system of knowledge, competencies, and values that enable society to effectively confront diverse internal and external threats.

Up to the year 2022, a number of significant educational manuals were published, including those officially recommended by the Ministry of Education and Science of Ukraine. The scientific works of D.V. Zerkalov, V.V. Begun, I.M. Naumenko, V.V. Berezutskyi, L.A. Vaskovets, N.P. Vershynina and others – published prior to 2022 – consistently emphasized that the quality of professional training in these disciplines directly affects national development and resilience. For instance, O.V. Nahaichuk estimated that losses from occupational accidents accounted for more than 2.5% of the country’s GDP [2]. This indicates that safety is not only a social but also an economic factor of primary importance.

However, the introduction of martial law in Ukraine has fundamentally transformed the approach to developing safety competence among higher education students.

Purpose of the article. The purpose of this article is to examine the recommendations and necessary changes aimed at creating a flexible, practice-oriented, technologically advanced, and psychologically resilient system for teaching safety-related disciplines in higher education institutions of Ukraine.

Presentation of the main material of the study. Safety of Life is a field of knowledge that studies the patterns of hazard emergence, their impact on humans, and develops measures to create a safe environment. This approach, based on a systematic analysis of human interaction with the surrounding environment, is key to building an integrated protection system.

The issue of developing safety competence has become particularly relevant during wartime. According to research conducted in higher education institutions under martial law, about 95% of students consider studying these disciplines important [3]. Modules related to military safety, occupational safety for servicemen, environmental




safety, and first aid gained particular value, with 66% and 63% of cadets, respectively, considering them essential [3]. This indicates that in wartime conditions, theoretical knowledge about hazards transforms into practical skills necessary for survival and the fulfillment of professional duties. The need to develop such competencies has been recognized at the highest state level, leading to legal regulation in the field of civil protection and the initiation of fundamental research on civil protection operations and crisis management in wartime conditions.

Thus, safety disciplines serve as a kind of “systemic antiseptic” for society. They not only teach how to counteract specific threats but also form a general culture of safety encompassing economic, environmental, personal, social, cultural, and political dimensions. In military universities such as the National Academy of the National Guard of Ukraine, these disciplines form essential safety competencies among servicemen, including psychological resilience, knowledge of emergency behavior, first aid skills, and the use of protective equipment [3]. In all universities, they foster citizens capable of adequately assessing risks, making informed decisions, and contributing to the overall security of the nation.

The beginning of Russia’s full-scale invasion of Ukraine on February 24, 2022, became a turning point for the higher education system, including safety disciplines. Martial law not only imposed restrictions but also stimulated a rapid and large-scale rethinking of the very principle of education, resulting in fundamental changes in approaches, methods, and technologies. The first and most evident shift was the mass transition to distance learning. This format became the primary means of ensuring the continuity of education, especially for those studying in relocated universities. According to data from the Ministry of Education and Science of Ukraine [3], by 2023 the proportion of instructors conducting classes online reached 31%, and by the end of the year, it had decreased to 23.3%, while the share of blended learning rose to 47.9%. This indicates a strategic shift from purely online learning to a hybrid model that seeks to balance safety with face-to-face interaction.

The effectiveness of this transition was confirmed by surveys. At the National Academy of the National Guard of Ukraine, about 90% of cadets considered distance learning fully acceptable, and over 80% found it engaging and effective [3]. Moreover, 98.5% of cadets in the 2022/2023 academic year considered grading to be objective, demonstrating high-quality assessment procedures in the online environment. Lecture pace and presentation quality were rated as sufficient and informative by 93% of respondents in 2022/2023 academic year and 83% in 2023/2024 academic year. This indicates that faculty successfully adapted to new conditions, using digital platforms – particularly Moodle, which had already been actively used since 2018 for occupational safety training.

However, despite its wide acceptance, the distance format was not without drawbacks. Identified challenges included the lack of direct communication between



instructors and students and difficulties in maintaining stable access to technological resources. Moreover, about 19% of instructors with access to digital platforms could not use them effectively due to the direct impact of hostilities [4]. This highlights that technology alone does not guarantee success; the key lies in having well-prepared methodological materials and trained instructors capable of using them effectively.

Another important direction was the adaptation of safety curricula to the requirements of martial law. It was found that half of the students preferred online learning, while approximately half also noted a significant impact of martial law on their mastery of these subjects [3]. This led to the revision and updating of educational materials to reflect the current realities of war. Curricula began actively incorporating modules on safe behavior during combat missions, psychological support, cybersecurity, and more [4]. At the Central Ukrainian National Technical University, safety disciplines were modernized and adapted for distance formats. A “safe learning model” was proposed, which includes 50% theoretical preparation (online) and 50% practical work, including exercises on psychological resilience and wartime survival skills.

The methodology of teaching safety disciplines at the Central Ukrainian National Technical University developed along several key lines. First, interactive and gamified formats grew in popularity. Under conditions of high emotional stress, traditional lectures lost their effectiveness, and more engaging formats became necessary to maintain attention. Second, the role of practical skills increased, emphasizing the reproduction of real-life scenarios. Third, interdisciplinarity and system thinking became essential, integrating physical, psychological, environmental, and informational aspects of safety in response to the complex nature of modern challenges.

Teaching methodologies also expanded significantly. In addition to lectures and seminars, greater emphasis was placed on case studies, debates, role-playing, and simulations [5, 6]. These methods allow students not only to absorb information but also to analyze it actively, make decisions under uncertainty, and work as part of a team – critical skills in crisis situations. Simulations modeling emergencies became one of the key elements of instruction [5].

The growing role of psychological support was particularly important. It became evident that war profoundly impacts the mental health of both instructors and students. On one hand, motivation to study increased, as students viewed education as a vital element of national recovery. On the other hand, significant psychological challenges – fear, stress, and post-traumatic stress disorder – were identified. Thus, providing psychological support became an integral part of the educational process, creating the need for the development of specific competencies among instructors in moral, emotional, and psychological support.

Finally, the established assessment system also required adaptation. During martial law, an increase in student motivation was observed, as many viewed learning



as a key factor in Ukraine's recovery. This necessitated the implementation of more flexible assessment formats that accounted for the specific conditions of the educational process.

In summary, the war became a catalyst for rapid and large-scale transformation of the educational process, particularly in the teaching of safety disciplines. The system shifted from a theoretical-informational paradigm to a practical-competency-based one. Learning became more flexible, adaptive, and focused on real-world problems. The growing role of VR, simulations, international experience, and psychological support demonstrates that safety disciplines did not merely survive the crisis – they evolved into a crucial element of preparation for life and professional activity under new conditions. This transformation was not mechanical but systemic, demanding from educators not only technical skills but also a new pedagogical approach focused on developing resilience, critical thinking, and self-regulation.


Thus, the adaptation of the educational process during wartime required higher education not merely to survive but to build a new operational model characterized by:

- flexibility: the ability to rapidly shift between face-to-face, distance, and hybrid formats;
- global perspective: active use of international experience and global partnerships for knowledge exchange;
- pragmatism: shifting emphasis from theoretical knowledge to practical skills essential for survival and protection;
- systemic approach: creation of integrated models encompassing physical, psychological, social, and pedagogical dimensions of safety;
- technological innovation: rapid implementation of VR, AR, Moodle, and partnerships with schools for hands-on training.

These changes are not temporary – they represent a profound transition to a new paradigm where higher education acts not only as a source of knowledge but also as a center of resilience, adaptation, and national reconstruction. Research suggests that the continuation of such models is essential, as they respond to the new reality. The war has thus become a large-scale testing ground for innovation, many of which are likely to remain part of higher education practice even after the end of hostilities.

A scientific assessment of the effectiveness of new teaching methods for safety disciplines under martial law is an essential stage for the long-term development of the education system. The analysis of data obtained during research allows certain conclusions to be drawn regarding the effectiveness of the implemented approaches.

However, when it comes to a scientific evaluation of learning effectiveness – namely, the measurement of actually acquired competencies – the available data are more limited. The closest example is the study by Taras Tkachenko [7], who used a pedagogical experiment to assess the impact of information and communication technologies on the formation of professional competence among future life safety



specialists. The experiment, conducted at the Lviv State University of Life Safety, showed that the level of knowledge acquisition in the experimental group, where information and communication technologies were used, reached 80%, while the residual knowledge after one month decreased by only 1.6%, compared to 3.83% in the control group. This finding, which is important for the research context, suggests that a systematic approach to the use of technologies has a positive impact on knowledge retention. It is significant that even under wartime conditions, one of the key issues remains – the loss of up to 80% of acquired knowledge, first identified back in 2014 – which indicates that, despite technological innovations, the fundamental challenges of knowledge preservation remain relevant.

For a scientific assessment of the effectiveness of new teaching approaches, it is necessary to define new metrics that correspond to the new reality. Traditional academic performance indicators should be complemented by the evaluation of competencies such as resilience, self-regulation strategies, and the ability to function under stress and resource scarcity. The model of professional competence for educators proposed by Mark Weintraub [8] includes such components as Adaptive Emergency Skills (AES), Teaching in Extreme Conditions (TEC), and Moral-Emotional-Psychological Support (MEPS). These competencies cannot be assessed using traditional testing methods, yet their development is one of the key outcomes of the educational process during wartime.

The effectiveness of new technologies and teaching methods is determined not by the technologies themselves, but by the way they are integrated into the educational process. For instance, the use of VR and AR in universities for practical training is promising, but their efficiency depends on the quality of the content, access to technology, and the instructors' skills. Similarly, simulations and case studies are effective only when they are based on real emergency situations. Therefore, the scientific evaluation of effectiveness should not be static but dynamic – measuring not only knowledge, but also the ability to apply it in a rapidly changing environment.

Another important aspect is the assessment of the effectiveness of flexible models for managing the learning process. The safe learning model implemented at the Central Ukrainian National Technical University during martial law – which includes 50% theoretical training (online) and 50% practical work – represents not just a change in format but a fundamental transformation. The scientific evaluation of such models should include not only academic performance, but also an assessment of graduates' readiness to act in real emergency conditions, their resilience, and their effectiveness in fulfilling professional duties.

Although existing studies do not yet provide a formal scientific assessment of effectiveness, they offer valuable qualitative data indicating the success of the applied approaches. A high proportion of students who prefer distance learning, positive feedback regarding the quality of lectures and the accessibility of feedback, as well as



high evaluations of grading objectivity – all this demonstrates that the implemented formats meet the needs of the participants in the educational process. However, for scientific validity, more data are needed from empirical studies that analyze the impact of teaching safety disciplines on students' actual behavior and their readiness to act in crisis situations. For example, Taras Tkachenko's study [7], which employed a pedagogical experiment, demonstrated the high effectiveness of information and communication technologies – an approach that should be revived and adapted to current conditions.

Thus, the scientific evaluation of the effectiveness of new methods should move beyond simple knowledge testing. It should include:

- competency assessment: the development and implementation of competency-based models that evaluate not only theoretical knowledge, but also practical skills, psychological resilience, and the ability to act independently;
- quantitative analysis: collecting data on the performance and emergency response skills of graduates trained under new models, including their ability to preserve life and respond effectively to emergencies;
- qualitative analysis: conducting interviews and focus groups with graduates to understand how they apply the knowledge gained from courses such as “Life Safety”, “Occupational Safety”, and “Civil Protection” in real-life situations;
- comparative analysis: comparing learning outcomes under crisis conditions with pre-war data and with higher education practices in other countries that have experienced war or terrorist attacks.

At present, the scientific literature does not yet contain comprehensive results of such studies, but this field is actively developing. The published articles [1 – 8] represent the first steps in this direction, though they require further elaboration. The scientific assessment of the effectiveness of new methods is not merely an academic necessity – it is a crucial step in shaping the long-term strategy of higher education that will meet the new challenges of national security.

The analysis of the experience of teaching safety disciplines during the war in Ukraine makes it possible to formulate a set of strategic recommendations that should serve as the foundation for the further reform of higher education, as well as to identify the strategic transformations that have already taken place. These changes cover three key areas: the content of educational programs, teaching methodology, and personnel training.

The strategic changes that have already occurred are profound and structural. They go beyond individual safety courses and affect the very essence of higher education.

The first strategic transformation is the transformation of the content of education. The war necessitates a comprehensive revision of all educational materials. Disciplines that previously focused on technogenic and industrial risks must now include modules on military safety, civil-military cooperation, psychological resilience, and adaptation skills for crisis conditions. This change in content is the most profound,

as it redefines the very purpose of higher education – not only to train professionals but also to cultivate citizens ready to defend their country.

The second strategic transformation is a paradigm shift from knowledge formation to competency formation relevant to wartime conditions. As research shows [1 – 8], the teaching of these disciplines has become a means of developing key competencies such as resilience, self-control, adaptability, and the ability to function under uncertainty. This means that higher education institutions must become centers that not only transmit knowledge but also create environments where students learn not just the theory of safety, but also the practice of survival and protection. This requires the creation of new training models that ensure hands-on practice at training grounds, internships under real-world conditions, and the use of advanced technologies such as VR and AR for simulations.

The third strategic transformation is the integration of safety into the entire educational system. The war has led to the realization that safety is a nationwide, interdisciplinary process. It is necessary not only to continue the trend that began in the 2010s with the integration of “Life Safety”, “Occupational Safety”, and “Civil Protection” disciplines but also to expand it into interdisciplinary courses covering topics such as human rights in wartime, the ethics of military service, psychological support, and crisis management. This means that “Life Safety” is evolving from a mandatory regulatory discipline into one of the fundamental pillars of education, essential for every graduate.

The fourth strategic transformation is the recognition of the social role of higher education in the process of national recovery. Universities have become not only centers of knowledge but also institutions that play a key role in shaping national consciousness and preparing personnel for all sectors of the economy and society. This social role requires universities not only to teach but also to engage systematically in the promotion of civil protection, the development of public education programs on safety for the general population, and the creation of systems for training teachers to educate younger generations in safety principles. This strategy is long-term in nature and reflects the country’s need to build a society capable not only of defending itself but also of rebuilding.

Conclusions. Strategic recommendations for the further development of the higher education system in the field of safety disciplines include the following.

1. Development of comprehensive, crisis-oriented educational programs.

It is essential to design and introduce curricula that systematically cover the physical, psychological, environmental, and social dimensions of safety. Such programs should be mandatory for all students, as they shape the overall culture of safety and individual readiness of every citizen. It is also advisable to implement modules dedicated to emergency management, similar to those used in institutions training specialists for the Ministry of Internal Affairs, but adapted for the general student population.



2. Widespread implementation of hybrid learning formats.

Educational programs should be designed so that theoretical material can be studied online (e.g., using Moodle), while practical skills are developed in a hybrid format – through on-site training sessions and simulations. This approach ensures safety during peacetime and provides the necessary hands-on experience during crises. Equal access to digital platforms for both instructors and students must be guaranteed, as lack of access to technology remains a significant barrier.

3. Formation of professional competencies among instructors.

Educators should be prepared not only to act as experts in their disciplines but also as crisis managers, psychologists, and technical specialists in information and communication technologies. It is necessary to introduce professional development programs focused on teaching under emergency conditions, providing psychological support, and managing stress.

4. Establishment of expert networks and partnerships.

International cooperation should be strengthened, particularly with countries experienced in education under conflict conditions (for example, the Israeli model). It is equally important to build partnerships with law enforcement agencies, medical institutions, and non-governmental organizations to create realistic scenarios for training purposes.

In summary, strategic recommendations and reforms should aim to create a flexible, practice-oriented, technologically advanced, and psychologically resilient system of higher education. Such a system must not only address internal institutional challenges but also foster a society prepared for future threats. The implementation of these recommendations is not a temporary measure but a fundamental transformation that will shape the face of higher education in Ukraine for decades to come. It entails not only a change in teaching formats but also a philosophical shift toward an education model centered on life safety as the foundation of national self-sufficiency and security. These transformations must be consolidated at the level of state education policy.

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