

1.2. THEORETICAL PRINCIPLES OF EDUCATION DEVELOPMENT IN EMERGENCY SITUATIONS

Olena Lysenko, Svitlana Mudrynych, Larysa Maslova

Abstract. *The article highlights the theoretical principles underlying the development of education in emergency situations resulting from military conflicts, natural disasters, and global pandemics. The importance of ensuring the continuity of education and maintaining its quality in unstable conditions is highlighted. The essence of the concepts of "adaptability of the education system", "stability of the educational environment", and "crisis management in education" is determined. The approaches of domestic and foreign researchers to building effective models of the educational process in crisis circumstances are analyzed. The characteristics of four leading models, the Resilient Education Model, the Open and Flexible Learning Model, the Supportive Learning Model, and the Crisis Management Model, are presented. It is shown that these models ensure the continuity of education even in situations of infrastructure destruction and contribute to the psychological stability of participants in the educational process. The role of digitalization, innovative technologies, and open educational resources as tools for supporting learning is emphasized. The importance of a psychologically safe environment and pedagogical support for overcoming the effects of stress is highlighted. It is noted that effective crisis management in education involves flexible management decisions and clear communication protocols. Directions for further research aimed at improving the mechanisms for adapting educational systems to emergency conditions are outlined.*

Keywords: *education in emergency situations; adaptability; resilience of the educational environment; distance learning; crisis management; psychological support.*

Introduction

The modern education system is increasingly facing challenges that extend beyond the normal functioning of society and require an immediate response to changes in the external

environment. Pandemics, military conflicts, man-made accidents, natural disasters, and other emergencies disrupt the stability of social institutions, destabilize traditional educational practices, and force the pedagogical community to seek new forms of organizing education. Such circumstances not only change the living conditions of people but also the very structure of the educational process, which is increasingly acquiring signs of flexibility, mobility, and technological openness.

In conditions of constant turbulence, education ceases to be just a tool for transferring knowledge from teacher to student. It becomes an important social institution that ensures the individual's adaptation to new realities, fosters critical thinking skills, psychological resilience, and the ability to self-study. The educational space in crisis situations performs not only educational, but also compensatory, integrative, and therapeutic functions, contributing to the restoration of a sense of security, maintaining social cohesion, and preserving the humanistic values of society.

Thus, modern education appears as a key factor in social stability, capable not only of ensuring the continuity of the educational process but also of serving as the basis for the restoration and development of society after crisis events. That is why the study of the features of educational systems' functioning and transformation in emergency conditions acquires special scientific and practical significance.

The relevance of this study lies in the need for a deep theoretical understanding of the processes of adapting education to crisis circumstances, as well as the development of effective models, mechanisms, and strategies for enhancing educational systems during periods of social, political, or economic uncertainty. Modern emergencies, particularly the COVID-19 pandemic, military conflicts, natural disasters, and man-made threats, have exposed the vulnerability of traditional educational structures that were previously oriented towards a stable environment. At the same time, these challenges have become a catalyst for the intensive implementation of distance technologies, the development of digital competencies among teachers and students, and the modernization of educational content and its organizational forms.

Global and national experience convincingly shows that the sustainability of the educational environment directly depends on its ability to rapidly transform, flexibly respond to external challenges, innovative management decisions, and the psychological readiness of all participants in the educational process to change. In this context, the issue of forming an adaptive, technologically equipped, and human-centered education system that can ensure continuity of learning even in emergency conditions is of particular importance. That is why theoretical research into the patterns of education development in crisis situations is an important scientific and social need of today.

The **purpose** of this study is to theoretically substantiate the principles of developing a modern education system in emergency situations and to determine strategic directions for its adaptation to crisis circumstances. The object of the study is the educational process as a socio-pedagogical system that functions in conditions of instability and external challenges.

The subject of the study is the theoretical and methodological foundations, principles, models, and mechanisms of education development in emergencies, with the aim of ensuring its sustainability, continuity, and efficiency.

Research objectives:

- To analyze the current state of scientific development of the problem of education development in emergencies in the world and domestic scientific thought.
- To clarify the essence of the concept of “education in emergencies”, to determine its content, structure, and key characteristics in the context of global challenges.
- To characterize theoretical and methodological approaches to the study of education development in crisis conditions, humanistic, competency-based, innovative, and continuous.
- To identify the main socio-psychological factors that influence the educational process during crises (stress, uncertainty, information risks), and outline the ways of forming the psychological stability of participants in the educational process.

- To investigate organizational and pedagogical models of education in emergencies, in particular forms of distance, blended, and mobile learning.
- To reveal the management strategies of educational institutions in crisis conditions and the role of digital technologies in ensuring the continuity of the educational process.
- To analyze the regulatory framework and ethical principles that regulate educational activities in emergencies at the international and national levels.
- To outline the prospects for the development of education in the post-crisis period, in particular, the directions of restoring educational infrastructure, improving the professional training of teachers, and increasing the role of education as a factor in the humanitarian stabilization of society.

The methodological basis of the study is a combination of general scientific, philosophical, pedagogical, and socio-humanitarian approaches, which provide a holistic understanding of the processes of education functioning and development in crisis conditions. The work employs a systemic approach, which enables us to view education as a complex, multi-level social system that interacts with its economic, political, and cultural environments. Within the framework of this approach, education is viewed as a dynamic structure capable of self-regulation, transformation, and restoration in the face of external influences. The competency-based approach orients the study towards the development of the ability of all education subjects to act effectively in uncertain conditions, think critically, make informed decisions, and maintain psychological balance. The digital-humanistic approach involves understanding technological innovations not only as a technical tool, but also as a means of preserving humanity, communication, and continuity of learning in a distance format.

To achieve the goal, the following research methods were used:

- Theoretical analysis, synthesis, comparison, generalization, classification, modeling, and systematization of scientific sources;
- Empirical study of pedagogical experience, analysis of regulatory documents, educational strategies and practices, observation of the processes of adaptation of educational institutions during crises;
- Prognostic modeling of possible scenarios for the development of education in emergency situations and determining the directions of its innovative renewal.

Research results

The problem of developing education in emergencies requires an interdisciplinary approach that combines pedagogical, psychological, social, managerial, and information and technological components. The theoretical and methodological basis of the research is grounded in modern concepts of education, which explain its ability to adapt, transform, and ensure sustainable development in crisis conditions.

In global practice, the concept of education in emergencies (EiE) is understood as a system of organizational, pedagogical, and psychological measures designed to ensure access to quality education during wars, natural disasters, epidemics, or social crises (UNESCO, 2023). It is actively developed by international organizations, such as UNESCO, UNICEF, OECD, and the International Network for Education in Emergencies (INEE), which define EiE as the process of ensuring continuous access to quality education for children, youth, and adults affected by a crisis or displaced as a result of it. According to the INEE Minimum Standards for Education (2010, 2024), education in emergencies is not only a humanitarian need but also a means of restoring social stability, psychological safety, and community development.

Domestic researchers (V. Kremen, V. Luhovyi, O. Vorobyova, L. Lukyanova, M. Tkachuk, L. Hrynevych, I. Bekh) define education in such conditions as a tool for restoring and stabilizing society, which performs not only an educational but also

a humanitarian function it supporting social cohesion, psychological balance, and faith in the future. Modern Ukrainian researchers (Hrynevych, 2024; Vorobyova, 2024) focus on building resilient education systems that can ensure the continuity of the educational process even in conditions of war, pandemic, or natural disasters.

Foreign researchers (M. Fullan, A. Hargreaves, T. Anderson, G. Siemens, S. Bonk) emphasize that education during crises should be viewed as an adaptive system capable of transforming in response to changing external conditions. For example, T. Anderson and G. Siemens consider digital learning as a key tool for ensuring the accessibility of education, and the concept of connectivism (Siemens, 2005) justifies a new learning paradigm in which knowledge is created through networked connections between people, technology, and content.

So, theoretically, education in emergency situations is considered a system of adaptive response, which includes flexible educational models, innovative technologies, and a psychologically safe learning environment. Let us consider the main scientific approaches to the development of education in crisis conditions.

The humanistic approach is based on the ideas of C. Rogers, A. Maslow, I. Bekh, and others, who emphasize that in crisis conditions, the most important thing is to preserve the dignity, emotional well-being, and integrity of the individual. The humanistic approach defines the teacher as a person who creates conditions for self-development and psychological safety of students. During distance learning in wartime, the teacher not only performs an educational function but also acts as a source of support, stability, and empathy.

Competency-based approach. According to the works of V. Kremen, O. Pometun, as well as M. Fullan and A. Hargreaves, this approach focuses on the development of key life and professional competencies, specifically digital, communicative, emotional, and stress-resistance skills. In emergency situations, the competency of resilience becomes especially relevant, as it enables the ability to adapt and maintain the effectiveness of activities despite the crisis's effects. Training programs encompass

tasks designed to develop critical thinking, self-organization, and effective team interaction.

The continuous (andragogic) approach, developed by P. Jarvis, M. Knowles, M. Tkachuk, O. Vorobyova, V. Luhovyi, L. Lukyanova, determines that learning continues throughout life (lifelong learning), which is especially important in crisis situations when it is necessary to quickly master new skills or change the professional trajectory. During the COVID-19 pandemic, teachers took advanced training courses in digital literacy in large numbers, ensuring the continuity of education.

The innovative and technological approach is based on the ideas of G. Siemens, T. Anderson, C. Bonk, and O. Spivakovsky. This approach emphasizes the role of digital ecosystems, cloud services, and open educational resources in supporting the educational process during times of crisis. Innovative technologies become not only a tool, but also an environment for the development of pedagogical interaction. Integration of Moodle, Google Classroom, and Zoom platforms, which provide flexible access to education regardless of the applicant's location.

In modern conditions of crisis, challenges, and social instability, the formation of sustainable and adaptive models of education functioning becomes particularly relevant. Based on the generalization of scientific approaches (Anderson, 2011; Siemens, 2005; Bonk, 2006; Rogers, 1983; Bekh, 2003; Fullan, 2001; Jarvis, 2004; Kremen, 2011; Vorobyova, 2024; L. Lukyanova, 2021), four conceptual models can be distinguished that ensure the continuity and quality of the educational process in emergency conditions.

The Resilient Education Model seeks to establish educational structures that can maintain their functionality, adapt to changes, and recover quickly from the impacts of crises. Its essence lies in the formation of a system that combines organizational, technological, psychological, and social resilience. The main principles of the system model include reserving resources, creating alternative learning scenarios, and forming a support network for students and teachers (INEE, 2010; Vorobyova, 2024). The main principles of this model are:

- Decentralized management structure, which allows educational institutions to make decisions independently in crisis situations.
- Flexibility of the educational process, which involves changing formats (online, offline, blended learning) depending on external conditions.
- Multi-platform and data backup, which ensures continuity of learning even in the absence of material infrastructure.
- Social interaction and support as factors of stability of the educational community.

Thus, the Resilient Education Model focuses on creating an educational environment that is resilient to external threats, ensuring the preservation of the educational process even in the event of complete destruction of the material and technical infrastructure (Anderson, 2011).

The Open and Flexible Learning Model is based on the ideas of openness, accessibility, and autonomy of education seekers. According to the approaches of G. Siemens (2005) and C. Bonk (2006), it involves the use of distance platforms, hybrid learning, adaptive educational programs, and interactive resources, as well as the utilization of open educational platforms (Open Educational Resources, MOOCs) and support for independent learning. Key characteristics:

- Accessibility of educational content regardless of geographical location and social status.
- Use of open licenses (Creative Commons), which ensures legal freedom to share knowledge.
- Individualization of the educational trajectory through digital tools and analytics of educational achievements.
- Mobility and autonomy of the learner, which allows him to independently plan and control the learning process.

The Open and Flexible Learning Model is an effective response to the challenges of the mass transition to a distance format and contributes to the democratization of education during crisis restrictions.

Psychologically Supportive Learning Model emphasizes the importance of emotional well-being, psychological safety, and humanistic interaction in the educational environment. Its ideological principles are based on the humanistic pedagogy of C. Rogers (Rogers, 1983) and the concept of person-centered education (Bekh, 2003).

The main components of this model:

- Creating a safe, emotionally comfortable environment in which the learner can freely express his thoughts and feelings.
- Supportive communication between participants in the educational process, based on empathy, trust, and mutual respect.
- Integration of psychological support into the educational process through consultations, reflective practices, and stress resistance training.
- Development of emotional intelligence skills in teachers and students as a resource for overcoming crisis situations.

The psychologically supportive model provides not only educational outcomes but also fosters the formation of internal balance, motivation, and personal resilience in uncertain conditions.

The Crisis Management Model in Education (Crisis Management Model) is formed within the framework of the theory of educational management and anti-crisis management (Fullan, 2001; Kremen, 2011). Its goal is to ensure effective response of educational organizations to emergency events, minimize risks, and quickly restore stable functioning.

The main elements of the model:

- Availability of security strategies and plans developed at the level of the educational institution.
- Communication protocols that regulate the actions of participants in the educational process in the event of a crisis.

- A system for monitoring risks and regularly updating response plans.
- Training of managers and teaching staff for actions in emergency situations, including crisis training and simulations.

The crisis management model ensures the coordination of actions among all participants in the educational process, increases the system's readiness for extreme circumstances, and reduces the consequences of destabilizing events. Each of the above models has its own logic of construction, but they are all united by a common goal: to ensure the continuity, stability, and humanistic orientation of education, even in the most difficult circumstances. Their combination forms an integrated paradigm of adaptive and safe education, which meets the challenges of the modern world.

Thus, the theoretical and methodological foundations of education development in emergency situations are based on a combination of humanistic, competency-based, continuous, innovative, and technological approaches, as well as on the concepts of stability, adaptation, and openness. These approaches form the basis for further analysis of socio-psychological and pedagogical factors of the functioning of education in crisis contexts.

Socio-psychological and pedagogical factors of education development during emergencies

Education in emergencies is influenced by numerous socio-psychological and pedagogical factors that determine its effectiveness, sustainability, and ability to ensure the development of participants in the educational process. One of the key factors is stress, uncertainty, and information risks, which directly affect the cognitive, emotional, and motivational components of learning.

The impact of stress on the learning process manifests itself in various forms. Chronic or intense stress can reduce concentration, make it difficult to remember and assimilate new information, and negatively affect interpersonal interactions in the

classroom or online environment. Modern works (O. Kresan, S. Smolyaninova, etc.) in the field of pedagogical psychology emphasize that to overcome the effects of stress, it is important to create a safe educational environment, provide support for students and teachers, and integrate elements of emotional regulation, group exercises, and psycho-emotional support.

Uncertainty, a characteristic of crisis conditions, affects students' ability to plan educational activities, evaluate their own achievements, and form realistic expectations. It arises due to a change in the format of learning (transition to distance platforms), unpredictability of curricula, as well as constant changes in the socio-political and economic situation. The competency-based approach in education (O. Pometun, V. Kremen) suggests developing adaptation, critical thinking, and self-regulation skills in students, which allows them to effectively respond to uncertain circumstances.

Information risks include information overload, fake news, manipulation, and media panic. In the educational process, this can manifest itself in loss of concentration, disorientation, and the formation of biased judgments. Modern research on digital education and media literacy (O. Spivakovsky, G. Siemens) emphasizes the need to integrate training modules on the critical evaluation of information, digital security, and effective management of media content.

Pedagogical factors encompass the ability of educators to adapt teaching methods to crisis conditions, apply distance and blended learning approaches, support students' emotional well-being, and create collaborative educational environments. The humanistic approach (M. Tkachuk, I. Bekh) emphasizes concern for psychological safety and the development of intrinsic motivation. Innovative methods, particularly digital platforms and interactive educational resources, enable the continuity of learning and preservation of social interaction in conditions of isolation or limited access to classrooms.

In general, socio-psychological and pedagogical factors are closely interrelated: stress, uncertainty, and information risks affect motivation, attention, and academic achievement, while pedagogical strategies aim to mitigate these negative impacts. To

ensure the effectiveness of education in crisis conditions, it is essential to integrate psychological support, competency-based approaches, elements of continuous learning, and innovative methods, which collectively form a sustainable and adaptable educational system.

During emergencies, the educational process faces serious challenges, one of the most important of *which is ensuring the psychological safety of training participants*. Pedagogical support in this context becomes a key factor that allows maintaining motivation, promoting effective learning, and forming sustainable socio-psychological competencies.

Psychological safety is defined as a state of confidence in protection from emotional, social, or cognitive pressure in the learning environment. It creates conditions under which a learner can openly express thoughts, experiment with new ideas, and make mistakes without fear of judgment. Research by M. Tkachuk, I. Bekh, and other educators indicates that a sense of psychological safety has a direct impact on the level of student participation in the learning process and the development of critical thinking and creative abilities. Pedagogical support in crisis conditions includes several interrelated aspects:

- *Emotional support* provides students with the opportunity to express emotions, fears, and anxieties through conversations, group discussions, or psychological exercises.
- *Methodological support* for adapting educational materials and methods to the conditions of limited access to classes, distance learning, or a blended format. This ensures continuity of learning and allows learners to feel a sense of control over their educational trajectory.
- *Social support* forms collective interaction between students, developing collaborative learning, mentoring, and mutual assistance. In times of crisis, social support helps alleviate feelings of isolation and boosts motivation to learn.

Competency and humanistic approaches (O. Pometun, I. Zyazyun) emphasize that pedagogical support is not limited to

the transfer of knowledge. It aims to develop students' ability to adapt to new conditions, self-regulate their behavior and emotions, and form socio-psychological competencies. In this context, the role of the teacher is transformed: he becomes a facilitator of learning, a mentor, a consultant, and a source of stability in a changing environment.

Particular attention should be paid to interaction with students through digital platforms, which allows for maintaining a safe educational space even during periods of distance learning or partial isolation. Interactive methods, the integration of elements of emotional self-regulation, and support for media literacy help students critically evaluate the information field, reduce anxiety levels, and provide psychological comfort.

Therefore, pedagogical support and psychological safety are fundamental factors of effective learning in crisis conditions. They provide emotional, cognitive, and social balance, form the resilience and adaptability of learners, and create conditions for a safe and effective educational process regardless of external circumstances.

Resilience is a key indicator of the ability of educational systems, teachers, and learners to adapt to emergency situations, quickly restore functioning, and maintain an effective educational process. In conditions of crisis, the ability to exhibit psychological, social, and professional resilience becomes one of the main competencies that ensures the continuity and quality of education.

The resilience of teaching staff is fostered through systemic support, professional development, and the cultivation of a corporate culture that emphasizes mutual support and collective decision-making. An important role is played by:

- Psychological training of teachers in emotional self-regulation, stress and conflict management, development of empathy and communication skills.
- Collaborative and supportive, creating a safe environment for discussing difficult situations, sharing experiences, mutual mentoring, and coaching.
- Innovative adaptability, the ability to quickly change teaching methods, integrate distance or blended learning,

and use digital resources to support the educational process.

Learner resilience is shaped by a combination of cognitive, emotional, and social factors. Key components include:

- Emotional regulation and self-control develop the ability to cope with stress, anxiety, and uncertainty, which is especially important during crisis situations.
- Critical thinking and problem-based learning teach learners to analyze information, make informed decisions, and solve practical problems in changing environments.
- Social support and teamwork, engaging in group projects, cooperative learning, and building support networks among peers and mentors.

Research by O. Pometun, O. Vorobyova, and V. Luhovyi demonstrates that the combination of pedagogical support, a competency-based approach, and continuous education fosters the development of resilience in both teaching staff and students. The humanistic aspect provides emotional protection and moral support, the innovative aspect provides prompt response to changes, and the competency aspect develops life skills necessary for adaptation.

Thus, the formation of resilience is an integral element of modern education in emergency situations. It ensures the ability of educational systems to function effectively during crises, supports the psychological well-being of participants in the educational process, and creates conditions for the development of adaptive, critically thinking, and socially responsible citizens.

Organizational and pedagogical principles of education in emergency situations

In modern emergency situations, the traditional organization of the educational process often becomes impossible. Scientists and practitioners distinguish several models of education organization that ensure the continuity of learning and adaptability of educational systems: distance, blended, and mobile.

Distance learning involves the full use of information and communication technologies to organize the educational process outside the traditional classroom. It includes online lectures, webinars, interactive platforms, and virtual laboratories. The main advantages of distance learning in crisis situations:

- ensuring access to education regardless of the location of applicants;
- the possibility of flexible planning of study time;
- reducing risks to the health and safety of participants in the educational process.

Blended learning combines traditional face-to-face classes with distance learning elements, allowing for live interaction between teachers and students while utilizing flexible online tools. This model is especially effective in partial restrictions or during periodic crises, as it enables a swift shift in emphasis between face-to-face and online forms of learning without compromising the quality of education. Researchers (Bonk, 2006; Fullan, 2016) emphasize that blended learning contributes to the development of digital competencies of teachers and students, supports motivation and engagement in the learning process.

Mobile learning (m-learning) utilizes mobile devices (such as smartphones, tablets, and laptops) to enable learners to access knowledge and resources at any time and from any location. This model is particularly relevant in crisis situations where access to traditional educational institutions is limited. Mobile learning supports adaptability, personalization of the educational process, as well as the integration of elements of gaming technologies, online testing, and communication platforms for interaction between students and teachers.

The integration of distance, blended, and mobile learning allows for the creation of *flexible educational environments* that meet the modern requirements of the crisis. The key factors in the effectiveness of these models are teachers' readiness to use digital tools, the availability of infrastructure and access to the Internet, pedagogical support, student motivation, and the integration of adaptive educational materials that cater to the needs of different student categories.

Thus, the organizational and pedagogical principles of education in emergency situations are based on a combination of distance, blended, and mobile learning models, which ensure the continuity of education, the development of digital competencies, and the resilience of education systems in the face of crisis challenges.

In crisis conditions, effective management of educational institutions becomes critically important for ensuring the continuity of the educational process, maintaining the psychological safety of educational participants, and preserving the quality of education. Management strategies should consider the dynamics of crisis phenomena, the uncertainty of circumstances, and the need for prompt decision-making.

Flexible planning and adaptive management. Educational institutions should develop plans that allow for the possibility of quickly adapting the format of education from full-time to distance or blended learning. This includes adaptive scheduling, the utilization of reserve resources (such as digital platforms, online courses, and mobile applications), and the establishment of operational teams to facilitate informed decision-making in the event of unforeseen circumstances.

Communication strategy and information transparency. In crisis situations, it is crucial to maintain effective communication among the administration, teachers, students, and their parents. Key elements of the communication strategy include regular updates on changes in the educational process, the creation of centralized information channels (electronic platforms, messengers, and webinars), and the provision of feedback to facilitate the rapid identification of problems and needs among education participants.

Support for teaching staff. Crisis conditions increase the level of stress and emotional burden on teachers. Management strategies should include support and professional development systems, such as training teachers in digital and hybrid technologies, providing psychological support and supervision, and creating conditions for sharing experiences and joint problem-solving.

Monitoring and evaluating the quality of education. Managing education in a crisis requires constant monitoring of the educational process's effectiveness and the rapid adjustment of the strategy. This involves assessing the level of student engagement and learning outcomes, utilizing online tools for data collection, and analyzing the adaptability of educational programs to ensure their compliance with participant needs.

Innovative management practices. The integration of digital technologies into the management system ensures efficiency and effectiveness, including automated educational process management systems, platforms for remote coordination of teachers and administration, and the integration of analytics for real-time forecasting and decision-making.

Thus, the management strategies of educational institutions in crisis conditions should be flexible, adaptive, and focused on supporting both the teaching staff and students, with an emphasis on maintaining learning continuity, ensuring transparency of information, and introducing innovative technologies. They form the basis of the sustainability of educational systems and ensure the ability to effectively respond to emergency challenges.

In modern emergency conditions, digital technologies are becoming a critically important tool for ensuring the continuity of learning. They allow you to maintain access to educational resources, support interaction between teachers and students, and ensure the adaptability of the educational process to changing conditions.

Distance and blended learning platforms. Learning Management Systems (LMS), such as Moodle, Google Classroom, Microsoft Teams, and others, provide online classes, access to learning materials, testing, and performance monitoring. Using an LMS enables you to organize learning into modules, provide personalized learning and support for learners, and store data on student progress to analyze educational outcomes.

Using video conferencing and interactive platforms. Using Zoom, Google Meet, Webex, and interactive whiteboards allows you to: conduct synchronous lectures, seminars, and consultations; support live interaction between teachers and

students; and integrate group assignments, discussions, and collaborative projects.

Mobile technologies and educational applications. Mobile devices and specialized applications provide access to educational materials anytime, anywhere. They contribute to learning flexibility (learning on the go), responding quickly to changes in the curriculum or class schedule, and engaging learners in interactive exercises and self-assessment.

Digital resources and content for distance learning. The use of electronic textbooks, video lectures, simulation models, and interactive courses enables the following: ensuring continuity of learning even in the event of physical restrictions on access to educational institutions; adapting materials to the individual needs of students; and integrating multimedia and game elements to increase motivation and engagement.

Assessment and monitoring tools for success. Digital technologies enable online testing, automated task assessment, learning activity analytics, and reporting for teachers and parents. This enables operational monitoring of student progress, facilitates the identification of knowledge gaps early, and enhances the effectiveness of individual support for students.

Thus, the integration of digital technologies into the educational process is a key factor in ensuring its sustainability, flexibility, and continuity in emergency situations. They not only support learning but also create conditions for the development of digital competence of teachers and students, which is a necessary component of the modern educational ecosystem.

Legal and ethical support for education in emergencies

Ensuring the functioning of education systems in emergencies is impossible without clear legal and ethical principles. These principles define the responsibilities of educational institutions, the rights of learners and educators, as well as the procedure for responding to crises and emergencies. A crucial component is the integration of international standards, recommendations from organizations such as UNESCO, WHO, and

UNICEF, as well as national legislation that regulates educational activities in crisis conditions.

UNESCO: reports and recommendations of the International Commission on Education for the 21st Century (for example, "Education: The Hidden Treasure", 1998) define education as a basic human right and a key factor in the resilience of societies during crises. UNESCO also develops guidelines on education in emergencies, including principles for ensuring safety, psychological support, and accessibility of education.

WHO: sets standards for the mental health and safety of children and staff in emergencies, and provides guidance on organizing education during pandemics, disasters, and humanitarian crises.

UNICEF develops programs to support children in crises, including educational models for schools in conflict zones, mobile classrooms, and distance learning initiatives.

INEE (Inter-Agency Network for Education in Emergencies): sets minimum standards for education in emergencies, covering preparedness, response, and recovery of education systems.

In Ukraine, the regulatory and legal support for education in emergency situations is based on:

- The Laws of Ukraine "On Education", "On Complete General Secondary Education", and "On Adult Education", which guarantee the right to education in any circumstances;
- The Ministry of Education and Science of Ukraine: methodological recommendations and orders on the organization of distance and blended learning during war or emergency situations;
- National standards of psychological support, which regulate the creation of a safe educational environment and ensure access to consultations and social assistance for education seekers and teachers.

In addition to legal norms, ethical principles of education play a crucial role in determining the behavior of teachers and administrators in crisis conditions. The main principles are: prioritizing the interests and safety of education seekers; ensuring

equal access to education for all categories of students; respecting the psychological state and personal needs of participants in the educational process; and transparency and responsibility in making management decisions.

Thus, the combination of international standards, national regulations, and ethical principles creates a comprehensive legal and moral framework for organizing the educational process in emergencies. This ensures the protection of the rights of students, teachers, and communities, and also supports the resilience of the education system even in crisis situations.

Equal access to education is one of the key principles of sustainable development of education systems and is guaranteed by both international documents (UN Convention on the Rights of the Child, UNESCO Framework Program for Education in Emergencies) and national laws (Laws of Ukraine "On Education", "On Complete General Secondary Education", "On Adult Education"). In emergencies, this principle assumes particular importance, as crises, military actions, natural disasters, or pandemics create additional barriers to accessing education, particularly due to the temporary closure of educational institutions, Internet disruptions, mobility restrictions, and socio-economic difficulties.

The main principles for ensuring equal access to education during crises include:

- The principle of non-discrimination and inclusion: education should be accessible to all categories of learners, regardless of age, gender, social status, ethnicity, physical abilities, or place of residence. Particular attention is paid to vulnerable groups: internally displaced persons, children with disabilities, and low-income families.
- The principle of accessibility of educational resources: ensuring equal access to educational materials (printed and digital), distance and blended learning platforms, internet connectivity, and adapted equipment for students with special needs.
- The principle of flexibility in the educational process: adapting curricula, forms, and learning methods to the specific conditions of the crisis. This includes mobile

educational modules, distance courses, and short-term educational programs that enable maintaining the educational trajectory even in unstable environments.

- The principle of social and psychological support involves ensuring access to psychological assistance, mentoring, and support from teachers, which helps reduce the negative impact of stress and anxiety on the learning process.
- The principle of monitoring and assessing accessibility: systematically collecting data on the level of coverage of education seekers, identifying problem groups, and assessing the effectiveness of measures to ensure equal access. This allows for adjusting educational strategies in real time and eliminating emerging barriers.

The consistent application of these principles creates an educational environment that not only supports the continuity of learning but also contributes to the preservation of equality of opportunities for all learners. In emergency situations, they become the foundation of a democratic, sustainable, and humanistic-oriented education system.

The ethical dimension of education in emergency situations is of particular importance, since technological innovations, distance formats, and information openness create not only new opportunities but also a number of moral challenges. Distance and crisis learning require not only organizational and technical solutions, but also clear ethical guidelines aimed at protecting the rights of learners, ensuring fairness, trust, and psychological safety.

First and foremost, it is essential to adhere to the principle of academic integrity, which encompasses honesty in completing tasks, avoiding plagiarism, and maintaining transparency in assessment. In a distance format, the risk of violating this principle increases, since control by the teacher is limited. Therefore, it is necessary to implement systems of self-reflection, a culture of mutual trust, and the formation of internal responsibility among students.

No less important is the ethics of digital interaction, which involves respect for personal space, confidentiality, and copyright.

Teachers should be aware of the limits on the use of personal data, particularly during online learning, recording classes, or monitoring educational activities. At the same time, it is essential to teach students digital ethics, promote tolerant behavior in online communication, prevent cyberbullying, and observe network etiquette.

The ethical responsibility of a teacher in crisis conditions is to maintain a balance between demandingness and empathy. Educators should consider the emotional state of participants in the educational process, including the consequences of stress, loss, or forced displacement, and provide support that fosters students' internal resilience. In this context, ethics is closely related to humanistic pedagogy, which emphasizes the respect for the dignity of each individual.

Special attention should be paid to the ethical aspects of assessment. In a distance format, it is important to ensure equal access to tests, tasks, and communication tools to prevent discrimination due to technical limitations or socio-economic differences. A flexible approach to assessment is ethical, focused not only on the result but also on the process, motivation, and individual capabilities of the applicant.

Also particularly relevant are the ethical issues of using artificial intelligence in education, including automated assessment, personalized recommendations, and analytics of educational data, which require transparency, user consent, and the prevention of bias. The development of digital literacy should encompass an ethical understanding of technological solutions, the ability to distinguish between reliable and unreliable information, the responsible creation of content, and the critical evaluation of algorithms.

Thus, the ethical aspects of distance and crisis learning form a multidimensional system of norms and practices that encompasses integrity, respect, justice, and humanity. They must be integrated into all levels of the educational process, from policy planning to the everyday interaction of teachers and learners. It is the ethical culture of education that forms the foundation, ensuring its sustainability, trust, and effectiveness in times of global challenges.

Prospects for the development of education in the post-crisis period

After the end of emergencies, hostilities, natural disasters, epidemics, or socio-economic crises, the primary task of state education policy becomes restoring educational infrastructure. This is not only the material and technical restoration of premises and resources, but also the restoration of the social, digital, and psychological components of the educational environment.

Firstly, the restoration process encompasses the physical reconstruction of educational institutions, including the repair or construction of destroyed schools, kindergartens, vocational and higher education institutions, as well as the creation of safe shelters and evacuation zones. A key direction is energy-efficient modernization, the use of environmentally friendly materials, the adoption of autonomous energy sources, and the integration of inclusive architectural solutions. Thus, education becomes part of a broader strategy for promoting sustainable community development.

However, modern restoration is not limited to the material aspect. Restoring digital infrastructure, including high-speed internet access, modernizing computer labs, distance learning platforms, and cybersecurity tools, is crucial. Digital technologies are becoming the foundation for flexible, risk-resilient education that can quickly transition between face-to-face, blended, and distance learning.

At the same time, the human resource potential of education is being restored. After crises, teaching staff often face professional burnout, personnel migration, and the loss of specialists. Therefore, programs of support, retraining, mentoring, and psychological assistance are necessary for teachers. Returning trust in the educational process and a sense of professional dignity is the key to a qualitative renewal of the system.

No less important is the restoration of the social infrastructure of education, in particular, the formation of safe and supportive communities. In the post-crisis period, a school or university must once again become a space for socialization, communication, and the restoration of a sense of normality. This

requires increased cooperation between educational institutions, communities, local authorities, international partners, and public organizations.

In the context of war and post-war challenges, the reintegration of internally displaced persons (IDPs) into the educational space is of particular importance. It is necessary to create adaptation programs, develop inclusive education, and provide psychological and pedagogical support for children and youth who have experienced traumatic experiences.

The restoration of infrastructure also has a strategic dimension. It presents an opportunity to update the content of education and modernize programs focused on 21st-century competencies, including critical thinking, communication, digital literacy, and civic responsibility. Thus, the reconstruction process becomes an innovative rethinking of education, rather than simply returning to the previous state.

In summary, the restoration of educational infrastructure in the post-crisis period is a multifaceted process that encompasses material reconstruction, digital modernization, social support, and the renewal of pedagogical potential. Its strategic goal is to create sustainable, inclusive, technologically advanced, and humanistic-oriented education that not only survives in crises but also becomes an engine of social recovery.

The professional development of teachers in the post-crisis period is of particular importance, since it is the teacher who is the key figure in restoring the quality of education, creating a safe educational environment, and forming the resilience of participants in the educational process. In modern times, traditional models of advanced training are being gradually replaced by flexible, innovative approaches that take into account the needs of digital transformation, psychological and emotional challenges, and the requirements of continuous learning.

One of the leading directions in the development of pedagogical skills is the concept of continuous professional development (CPD). It involves systematic learning throughout the teacher's professional life, the integration of formal, non-formal, and informal learning. Forms such as online courses, webinars, mentoring programs, and professional communities of

practitioners enable teachers to quickly update their knowledge, exchange experiences, and maintain professional motivation even in challenging social circumstances.

An important component of modern teacher development is a reflective approach, which is based on the ideas of D. Kolb, L. Vygotsky. It focuses on reflecting on one's own pedagogical experience, critically analyzing learning situations, and seeking effective teaching strategies. In crisis and post-crisis conditions, reflective practice enables teachers to adapt to change, develop emotional resilience, and enhance the quality of their interactions with students.

Digital competence is another strategic direction for professional growth among teachers. It involves not only technical skills in using digital platforms, but also pedagogical understanding of the digital environment, the ability to organize distance and blended learning, maintain academic integrity online, ensure cybersecurity, and the digital well-being of students. This concept is developed in the works of O. Spivakovsky, M. Fullan, and A. Hargreaves, who emphasize that digital competence is a combination of technological, communicative, and value-based skills that teachers possess.

The focus of modern pedagogy is also the emotional competence and resilience of teachers. The experience of crisis periods has shown that a teacher's ability to self-regulate, empathize, manage stress, and communicate constructively has a direct impact on the effectiveness of the educational process. Therefore, professional development programs are increasingly including training in psychological support, emotional intelligence, non-violent communication, and conflict management.

Finally, one of the leading trends is the network approach to professional development, which is implemented through the creation of communities of educational practice. Such communities foster horizontal knowledge exchange, cultivate a culture of peer support, and contribute to the dissemination of pedagogical innovations. In the context of post-crisis development, this approach enables teachers to overcome professional isolation, restore confidence in their own strengths, and collectively develop solutions for the new educational realities.

Thus, new approaches to the professional development of teachers are based on the principles of continuity, flexibility, reflexivity, digital, and emotional competence. They aim to form a modern teacher, not only a carrier of knowledge, but also a facilitator, a leader of change, and a creator of an educational community capable of ensuring the restoration and sustainable development of education in the face of crisis challenges.

Education in the post-crisis period acquires strategic importance as one of the key factors in social stabilization and humanitarian restoration of society. In situations where a country is experiencing the consequences of war, natural disasters, or other extraordinary events, it is the education system that acts not only as a medium for the transfer of knowledge but also as a space for psychological support, social unity, and the formation of new value orientations.

Firstly, education serves a social integration function, contributing to the restoration of trust between citizens, maintaining social cohesion, and mitigating the consequences of disinformation or societal polarization. Through educational programs focused on developing civic education, critical thinking, media literacy, and a culture of dialogue, an active and responsible citizen is formed, capable of participating in the democratic restoration of the state.

The second important function of education is psychosocial rehabilitation. Educational institutions become a place of safety and stability for children and youth who have experienced traumatic events. Teachers, school psychologists, and social workers provide the support necessary for emotional recovery, a return to a normal rhythm of life, and the formation of positive behavioral patterns. At the same time, educational programs incorporate elements of socio-emotional learning, which foster the development of resilience, empathy, and mutual support.

From a humanitarian perspective, education is a means of restoring human potential. It provides the opportunity for retraining, the development of new professional skills, and the return of the population to productive activities. Vocational education and adult training programs in post-crisis regions aim to integrate displaced persons, support women, veterans, and

other vulnerable groups. Thus, education contributes to economic stability, reducing unemployment and social inequality.

No less important is the humanistic mission of education, which involves fostering a culture of peace, inclusivity, interethnic understanding, and solidarity. In this context, international initiatives, including those of UNESCO, UNICEF, and INEE, play a significant role in emphasizing the right of every person to education, even in times of crisis. Such approaches emphasize that the restoration of the education system is not only a technical or administrative task, but primarily a value-based process aimed at recreating a humanitarian space of trust, cooperation, and mutual respect.

Thus, education in the post-crisis period appears as a powerful tool for social revival, which combines the functions of training, psychological recovery, civic education, and economic rehabilitation. It ensures not only the restoration of infrastructure but also the spiritual renewal of the nation from the individual level to collective identity, contributing to the formation of a sustainable, solidary, and humane society.

Conclusions

Analysis of scientific sources on Education in Emergencies (EiE) reveals that modern education serves not only as a means of knowledge transfer but also as a powerful tool for social stabilization, humanitarian recovery, and psychological support. In international practice, EiE is considered a set of organizational, pedagogical, and psychological measures that ensure access to quality education during war, crises, pandemics, or natural disasters. Ukrainian researchers emphasize the humanitarian function of education, supporting social cohesion, psychological well-being, and faith in the future.

Theoretical and methodological approaches to the development of education in crisis conditions include:

- The humanistic approach, which focuses on preserving the dignity, emotional well-being, and psychological safety of participants in the educational process. In this approach,

the teacher becomes a mentor and facilitator who provides stability and moral support to students.

- The competency approach aims at the formation of key life and professional competencies, including digital, communicative, emotional, and stress resistance. The ability to resiliently adapt and effectively function in crisis conditions is especially important.
- A continuous (andragogical) approach, which involves lifelong learning, ensures the prompt acquisition of new knowledge and skills in emergency situations.
- The innovative and technological approach which emphasizes the importance of digital ecosystems, cloud services, and open educational resources to support the continuity of learning and flexible organization of the educational process.

Based on these approaches, several models of education adaptation to crisis conditions have been proposed in the scientific literature: system adaptation model, which provides flexible interaction of components of the education system and resource reservation; the resilience model, which forms the resilience of students and teachers, technological readiness, and the ability to quickly restore functioning; humanitarian-oriented model, which creates a psychologically safe and supportive learning environment; technological-innovative model, which integrates digital platforms, hybrid learning, and adaptive educational resources; competency-oriented model, which aims to develop critical thinking, self-regulation, and vital skills.

Socio-psychological and pedagogical factors of the effectiveness of education in crisis conditions include: stress, uncertainty, information risks, psychological support, and teacher competence. Psychological safety and pedagogical support create an environment that fosters open learning, the development of critical thinking, and the cultivation of creative abilities.

Building resilience is crucial to ensuring the effectiveness of the educational process, as it encompasses psychological and emotional resilience, critical thinking, social interaction, and the ability of both teachers and students to adapt to change. The combination of humanistic, competency-based, continuous, and innovative approaches creates a holistic theoretical

and methodological foundation for the development of modern education in emergency situations.

Appendix A

Table 1

Organizing education in emergency situations and the post-crisis period

<i>Category</i>	<i>Key Elements</i>	<i>Purpose / Functions</i>	<i>Examples / Tools</i>
Learning Models	Distance Learning	Continuity of education, safety, and flexibility	Online lectures, webinars, virtual labs
	Blended Learning	Maintaining live interaction, developing digital competencies	Combination of in-person and online classes, interactive platforms
	Mobile Learning	Learning anytime/anywhere, adaptability	Smartphones, tablets, interactive apps, online quizzes/tests
Management Strategies	Flexible Planning and Adaptability	Rapid change of learning format	Adaptive scheduling, backup resources, and rapid-response teams
	Communication and Transparency	Effective information exchange, feedback	Centralized platforms, messengers, webinars
	Teacher Support	Professional and psychological support	Digital technology training, supervision, and experience sharing
	Monitoring and Assessment	Evaluating effectiveness, adjustments	Online monitoring tools, student progress analytics
	Innovative Practices	Responsiveness, effective management	Automated LMS, coordination platforms, and real-time analytics

<i>Category</i>	<i>Key Elements</i>	<i>Purpose / Functions</i>	<i>Examples / Tools</i>
Digital Technologies	LMS (Learning Management Systems)	Organization of learning, personalization	Moodle, Google Classroom, Microsoft Teams
	Video Conferencing Tools	Synchronous interaction	Zoom, Google Meet, Webex
	Mobile Applications	On-the-go learning, interactivity	Kahoot!, Quizlet, educational games
	Digital Content	Continuity, motivation	E-textbooks, video lectures, simulations
Regulatory Framework	International Standards	Guaranteeing the right to education, safety, and psychological support	UNESCO, WHO, UNICEF, INEE
	National Legislation	Regulating education in crisis contexts	Laws of Ukraine "On Education", Ministry of Education orders
Ethical Principles	Academic Integrity	Honesty, transparency, trust	Anti-plagiarism tools, online supervision, and self-reflection
	Digital Ethics	Privacy, respect, safety	Cybersecurity, netiquette, and data protection
	Psychological Support	Empathy, resilience of students and teachers	Individual support, training, and social-emotional learning
Equal Access to Education	Inclusion	Non-discrimination, support for vulnerable groups	IDPs, children with disabilities, and low-income families
	Resource Accessibility	Equal access to learning materials	Printed and digital resources, internet access, and assistive equipment

Category	Key Elements	Purpose / Functions	Examples / Tools
	Flexibility and Adaptation	Programs adapted to crisis conditions	Mobile modules, distance courses, short-term programs
	Accessibility Monitoring	Identifying vulnerable groups, strategy adjustment	Systematic data collection, analytics
Post-crisis Development	Infrastructure Restoration	Physical, digital, social reconstruction	School reconstruction, LMS modernization, and safe shelters
	Professional Development of Teachers	Continuity, reflection, digital and emotional competence	CPD, online courses, mentoring programs, communities of practice
	Social Integration	Restoring trust, social cohesion	Civic education, critical thinking, media literacy
	Psychosocial Rehabilitation	Support for children and youth, psychological recovery	SEL programs, psychologists, social workers, and adaptation programs

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