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RECOMMENDATIONS ON COMPULSORY ONLINE LEARNING FOR EDUCATIONAL INSTITUTIONS DURING WARTIME ON THE BASIS OF THE BEST INTERNATIONAL PRACTICES *

Abstract. The purpose of this article is to research and summarize the best international experience for the development of recommendations for compulsory online education in Ukraine. To achieve this goal, a detailed analysis of a number of scientific publications devoted to the study of advanced distance learning practices among countries that faced similar challenges due to military conflicts or a global pandemic was conducted. Various aspects were investigated, including the structure and content of distance learning, the development of technological platforms for the educational process, ensuring the physical and psychological safety of participants in the educational process, as well as the development of innovative approaches to learning and developing the competencies of students and pupils.

As a result of the analysis, key aspects and directions were identified that can contribute to the successful implementation of the set goal. The experience of such advanced countries as Israel, South Korea, Singapore, Finland and Estonia was studied. Areas for improving the process of forced online education and the future educational process in Ukraine as a whole have been identified. Based on the studied material, recommendations are given regarding possible

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future implementations in the education system of Ukraine.

The need for a comprehensive approach to ensuring the identified aspects of education requires investments in the construction of protective structures, strengthening of the existing infrastructure and the creation of safe spaces for educational activities. Also, the need to equip the technical infrastructure for the effective implementation of distance learning was mentioned. This includes the development and maintenance of educational platforms, provision of Internet access, creation of online resources and availability of learning tools. The importance of creating psychological and professional support centers for students and teachers was outlined. The creation of education and management platforms could simplify the administrative complexities for education workers and establish communication between different stakeholders in education, including students, parents, teachers and senior management. The importance of introducing the subject of cyber security into the educational process from an early age was also noted. At the level of higher education, the need for a gradual shift from a teacher-centered approach to a student-centered approach, with an emphasis on the development of practical competencies and skills in students necessary for life in the real world, is becoming apparent.

Keywords: *military conflict, compulsory online learning, education system, cybersecurity, higher education, digitalization, educational programmes, educational initiatives.*

Introduction. Considering the current global political and social environment, armed conflicts and wars frequently affect all spheres of society, including education. The educational process is one of the important aspects that requires attention and adaptation. Compulsory online learning during a conflict requires steps to ensure the safety of participants in the educational process and the continuity of learning. This topic is especially relevant in the case of Ukraine, that has experienced the devastating impact of the russian federation's invasion and a severe setback to social and economic processes. The education system has been particularly affected by the destruction and damage to infrastructure, loss of professional staff, suspension of the educational process, reduced funding for education, psychological pressure on pupils, students and teaching staff, and a general sense of instability and uncertainty. In order to ensure the sustainability of the educational process and normalise the situation in the Ukrainian education system, it is important to identify approaches and innovative solutions used in countries that have faced similar challenges in order to develop and implement best practices and recommendations that would facilitate effective learning in the context of military conflict.

Analysis of recent research and publications. Recent years the significant focus was on the advancement of online education both in Ukraine and globally. Research related to higher education and its adaptation to difficult socio-political conditions is of great importance for modern society.

Notably, researchers such as T. Shmis, A. Sava, J. Teixeira and H. Patrinos have conducted studies examining the repercussions of the Covid-19 pandemic on education in Europe and Central Asia (Shmis et al., 2020). In paper written by Bekerman Z. presented a comprehensive exploration of peace education, offering an assessment of pivotal initiatives within the Israeli-Palestinian conflict context (Bekerman, 2023). In their collaborative work, Bekerman Z. and Zembylas M. offer a critical analysis of the prevalent essentialized notions surrounding identity, culture, and education within modern peace education discourse. Their paper delves into the repercussions of these assumptions on teacher education within societies affected by conflict and its aftermath (Bekerman & Zembylas, 2014). The transformative potential of peace education finds articulation in Soli Vered's research, envisaging its role in

reshaping the sociopsychological underpinnings of entrenched conflicts (Vered, 2016).

The ramifications of the pandemic extend further into South Korea's educational landscape, as elucidated by Byun S. and Slavin R.E. in their joint article. Framed through the lens of risk and resilience, their investigation dissects South Korean educational responses to pandemic-induced school closures (Byun & Slavin, 2020). Seonkyung Choi's study navigates the complex intersection of education and employment, advocating for a reevaluation of South Korea's education strategy (Choi, 2021). Lavonen J., associated with the University of Helsinki, turns the spotlight on Finland's teacher education, illuminating the iterative enhancements that permeate teacher education programs (Lavonen, 2018). With a focus on cybersecurity talent development in Estonia, researchers Kikkas K. and Lorenz B. examine the program of the Estonian Cyber Olympiad/CyberSpike (2017-2019). This study provides insight into how to build a skilled cybersecurity workforce (Kikkas & Lorenz, 2020).

The purpose of the article is to explore and synthesise the best international practices to develop recommendations for compulsory online learning in Ukraine.

Formulation of the main material. Ukraine is experiencing an ongoing military conflict following russia's military invasion of Ukraine on 24 February 2022. This conflict has precipitated profound humanitarian consequences for the nation and its populace. According to statistics, a total of more than 21 million people in Ukraine are affected by its effects. Among them, refugees fleeing Ukraine account for an estimated 5.9 million in Europe. However, the crisis runs deeper and more overtly in the form of internally displaced persons, numbering over 5.1 million. While the harrowing physical and psychological toll of the war is evident, the humanitarian crisis in Ukraine is equally pervasive and conspicuous (OCHA, 2023).

Furthermore, the military conflict in Ukraine is having a serious impact on the country's education system. Reports elucidate that over 3,582 educational institutions, encompassing schools and academic establishments have been affected by bombing and shelling. Among them, 341 institutions being completely destroyed, many children and young people have been left without educational opportunities (Education is under threat, 2022).

The disruption and fragility imposed upon the educational process by the conflict are challenges of significant magnitude. Ukrainian pupils and students have lost the opportunity to access quality education due to the ruination and closure of educational establishments. Notably, educators and pedagogical staff have been compelled to abandon their roles in light of the instability and peril ensuing from the military conflict.

Other pivotal dimensions affected by ongoing military conflict within the education ecosystem are notably manifested as a reduction in government spending on tertiary education and a concomitant constriction of state-sponsored slots within higher education establishments. This leads to a decrease in the accessibility of education for the broader populace. Concurrently, the conflict's depleting economic streams contribute to the practice of "educational migration", in which individuals seek knowledge abroad to take advantage of enhanced educational opportunities. Importantly, the conflict has acted as a catalyst for paradigm adjustments in higher education. Nonetheless, the most

visible ramification has been a shift in educational perception. The growing number of degree holders from higher institutions has eroded the fundamental worth of their accreditations. While the number of university graduates continues to grow, the number of comparable job opportunities is limited. As a result, the landscape has been defined by increased competitiveness and an increase in the rate of graduate unemployment (National Institute for Strategic Studies, 2022).

The continuous armed war in Ukraine has thrown the country into a humanitarian catastrophe, affecting the lives of millions. As the Ukrainian country grapples with complex issues, it becomes clear that urgent and coordinated actions are needed to alleviate the far-reaching impacts of this protracted conflict. The current juncture needs the formulation of precise recommendations, underpinned by the experiential insights gained from educationally advanced nations.

Primarily, a thorough review of the requirements for the technical infrastructure to ensure the effective implementation of compulsory online learning during military conflict is essential in focusing on the optimal use of information and communication technologies, thereby ensuring the robustness of virtual platforms and safeguarding the digital realm against escalating cyber vulnerabilities.

In a report presented by the education search platform Erudera the list of the world's top ten countries with the most educated populations and the share of citizens holding higher education degrees is performed. The inquiry has found scientifically supported association between higher levels of educational attainment and an intersection of important socioeconomic events. These encompass not only economic prosperity, but extend to domains such as overall quality of life and an array of favorable outcomes, including psychological well-being and health.

Particular attention should be paid to the fact that the country of Israel, located in the complex dynamics of the Arab-Israeli conflict, ranks fifth on the list of the world's top 10 leaders among the most educated nations across the world. Israel also finds itself embroiled in the regional Palestinian-Israeli conflict, fundamentally emanating from the juxtaposition of competing territorial aspirations held by Jewish and Arab communities residing within the region of Palestine.

Israel has ingeniously evolved a suite of resilient strategies and crisis management protocols. Among safety measures implemented in Israel to ensure the physical well-being of its citizens are:

– the construction of protected rooms in homes to provide refuge during rocket attacks;

– the placement of concrete sculptures on streets to serve as protective barriers;

– the incorporation of fortified structures in schools to shield students and staff during crises.

Additionally, specialized training programs are conducted for teachers, community leaders, and first responders to equip them with crisis management skills and safe behaviors. The Israeli army's logistical service is involved in community support during emergencies, and educational institutions conduct regular crisis drills to prepare students and staff for various scenarios. The

emphasis on psychological well-being is evident through specialized training sessions and support provided to the "frontline" professionals who work with people, such as teachers, rescue workers, medical personnel, and police officers (The Israel Innovation Authority)

These initiatives, which combined highlight the society's resilience and readiness for adverse conditions, reflect Israel's proactive posture in navigating the necessities of its geopolitical setting. Furthermore, an important aspect of this comprehensive approach is the development of leadership capacities within local communities, allowing them to disseminate and perpetuate these strategies, fostering a long-term framework conducive to the well-being and sustainability of future generations.

One of the concepts for regulating emotions and reactions in stressful situations, developed in Israel, which holds potential for implementation in Ukraine, is the "4 Elements" framework. This methodology is grounded in four elementary exercises designed to facilitate an individual's reassertion of dominion over their physiological responses and emotional states during instances of stress, crisis, or trauma. This innovative paradigm of self-regulation and stress modulation carries the promise of contributing substantively to the psychological equilibrium and psychological prosperity of the populace amid the throes of uncertainty and adversarial occurrences. The implementation of the 4 Elements concept in educational programmes and trainings in Ukraine may cause increasing the level of psychological resilience among children and youth. Schools and educational institutions can integrate these techniques into the curriculum, helping younger generations to develop the ability to effectively manage emotions and respond to stressful events. This can have a positive impact on the overall psychological well-being and academic achievement of students, preparing them to function effectively in their environment.

Another view on Israel points that Israel is home to various educational initiatives that aim to enhance the quality of education and make it accessible to all. In Israel, education institutions are evolving to prepare students for future job markets by incorporating technology to acquire digital skills. This involves fostering collaborative learning, active participation, and the use of investigative and creative technologies. These attempts address the demand for educational innovation as well as the difficulties in recruiting investment.

The Israel Innovation Authority prioritizes impact investments that generate both social and environmental benefits as well as financial returns. Programs like the 'GovTech' initiative promote creative technological solutions to public-sector concerns such as education. Educational technological advances are influencing the ed-tech scene, with projects aimed at providing relevant educational experiences. Eureka World and Annoto are two examples that are having an influence on students, instructors, and learning methodologies. Eureka World provides a multi-participant 3D creative learning experience with virtual and physical interfaces. It focuses on developing a collaborative, creative, and community-driven learning environment that fosters 21st century skills. Annoto turns passive video viewing into a collaborative and active learning experience. It optimizes student communication and video learning quality, overcoming the limits of one-way online education. Initiatives like the Digital Israel Campus, powered by Annoto, promote equal access to education and foster discussions on important topics, such as multiculturalism, across diverse populations (The

Israel Innovation Authority).

Exploring the experience of Israel, the following recommendations for the Ukrainian education system should be taken into account:

– implementation of safety protocols in educational institutions, such as constructing protected spaces and fortified structures within schools to ensure the physical well-being of students and staff during crises;

– conduction of regular crisis drills to prepare for various scenarios;

– provision of specialized training for teachers, community leaders, and first responders to equip them with crisis management skills and safe behaviors;

– development of specialised trainings and support systems for educators, rescuers, medics and other professionals working with people on the frontline;

– utilising technologies such as virtual and physical interfaces to enable collaborative, creative and community-driven learning, including platforms like Annoto to transform passive video viewing into active, collaborative learning;

– encouraging the adoption of similar tools to overcome the limitations of one-way online education.

The subsequent focus of this comprehensive survey is directed towards the nation of South Korea. South Korea ranked fifth in the 2018 PISA rankings organised by the OECD - Programme for International Student Assessment. This major international survey assesses the knowledge and skills of 15-year-old students in reading, maths and science. Its value is that it also reveals the extent to which students can apply their knowledge to non-standard situations, both inside and outside of school (Yang, 2015).

Advanced technical infrastructure plays an important role in distance education. In this context, the experience of South Korea is an inspiring example. The time of the COVID-19 pandemic confirmed how important it is to be prepared for the effective use of technology in the educational process. South Korea was able to successfully adapt its educational system to the new realities, providing the pedagogical process with quality online resources and tools. Shift towards online education across nearly all tiers of educational institutions in South Korea has been facilitated by the nation’s exceptional information technology (IT) infrastructure.

Preceding the global outbreak, South Korea had achieved a noteworthy milestone with 99 % coverage of the advanced 4G network, and the ongoing implementation of the cutting-edge 5G network. This technological prowess was further complemented by the accessibility of computer resources within approximately 75 % of households, alongside a staggering 99,5 % penetration of internet connectivity. In response to this dire situation, the administration, led by President Moon Jae-in, has showed a steadfast will to assure the ongoing continuation of educational activities. This dedication has been profoundly manifested through meticulous efforts aimed at augmenting public IT infrastructure, culminating in a significant increase in the scalability of e-learning platforms to efficiently accommodate the exigencies of online education across a large student population, thereby surpassing their previous operational capacity.

Concurrently, efforts have been made to enhance pedagogical proficiency among educators. This is reflected by the launch of initiatives such as piloting and peer-mentoring programs, as well as the "Community of 10,000 Representative Teachers". To enhance distant learning inside schools, this

collaborative platform brings together recognized teachers, the Ministry of Education, provincial education offices, and related organizations. The platform, which is distinguished by collaborative information sharing among educators, exemplifies the educational community's proactive approach to online teaching. Furthermore, the government's proactive approach includes the promulgation of key rules and the provision of real-time support to educators, parents, and students, arming them with the necessary knowledge to navigate the online educational landscape. Concerted efforts have been implemented in collaboration with the corporate sector to address digital inequities, in keeping with the inclusive spirit. This dedication is visible in the supply of no-cost, rentable computer devices to a large number of students, thus meeting the imperatives of accessibility for underprivileged groups within the scope of virtual education.

However, South Korea's experience is not only useful in the context of accessible internet connectivity and developed technical infrastructure, also important is the path of educational reforms. It became necessary following the dissatisfaction of students and parents within the country. The main reasons are:

– according to Korean parents, a poor public education system raises private education costs, and the education system is viewed as incapable of nurturing creative genius;

– according to the teachers, the biggest issue is an enormous administrative load and government intervention;

– exam stress and young unemployment are two of the numerous issues among students (Yang, 2015).

The prospective hazards associated with the erroneous adoption of a universal tertiary education strategy encompass the increase of youth unemployment rates and the potential adverse effects on small and medium-sized enterprises, which could encounter challenges stemming from insufficient skilled labor resources (Choi, 2021).

Educational reforms have engendered a shift from a knowledge-centric pedagogical approach to an instructional framework that is centered on students' competencies. This transition is characterized by a profound emphasis on six essential core competencies: self-management, knowledge-information processing, creative thinking, aesthetic and emotional competence, communication skills, and community competence.

Next point is the fact that South Korea has established Future Education Centers within higher education institutions that offer initial teacher training to further consolidate potential teachers' digital capabilities. These centers are intended to develop digital abilities in pre-service teachers, as well as other skills necessary for students' future success.

The decision to delay the start of the 2020 spring semester for elementary and secondary schools until April 6th stimulated a joint response from the Ministry of Education and the Korea Education and Research Information Service (KERIS) in order to guarantee students' continuous educational progress during this national emergency. KERIS introduced an innovative online learning platform named "School-On", tailored for elementary and middle school educators. This platform serves as a dynamic hub for the exchange of educational resources and ideas among teachers across the nation. It gives instructors the ability to design their own learning resources and share innovative ways for

remote teaching and learning activities. The School-On platform provides extensive information on how to set up, manage, and efficiently run online classes. This resource-rich platform contains links, instructional videos, and user manuals for a variety of online teaching-learning platforms, including KERIS-operated services such as Wedorang and e-Hakseupteo cyber learning services, as well as privately-owned platforms such as Google Classroom, MS Teams, and Classting. As a complementary offering, for grades 3-9, KERIS gives countrywide access to Digital Textbook services in essential areas like as social studies, math, and science.

Starting from 2018, South Korea has been progressively developing the foundation for integrating Artificial Intelligence (AI) education by gradually expanding the scope of software education in primary and middle schools. As of 2020, the nation took a significant step by inaugurating 247 AI pilot schools and designating 34 high schools to spearhead the implementation of innovative AI education models (Yang, 2015).

Considering the experience of South Korea, the following strategies and approaches may be useful for Ukraine's education system in times of war:

– implementation of initiatives to enhance pedagogical proficiency among educators;

– launching pilot programs, peer-mentoring initiatives, and collaborative platforms for information sharing among educators;

– providing real-time support to educators, parents, and students to navigate the online educational landscape effectively;

– collaboration with the corporate sector to address digital inequities for no-cost or rentable supply of computer devices to underprivileged students to ensure accessibility to online education;

– shifting from a knowledge-centric pedagogical approach to one centered on students' competencies;

– exploring the integration of Artificial Intelligence (AI) education in primary and middle schools for future modeling the digital competent society.

Before the onset of the global COVID-19 pandemic, certain countries, such as Singapore, had proactively devised contingency measures for emergency distance learning. Notably, Singapore had developed a comprehensive emergency distance learning framework in response to prior public health emergencies, including the Severe Acute Respiratory Syndrome (SARS) outbreak in 2005. This preparedness strategy encompasses various facets, including the training of educators in effectively orchestrating and overseeing distance learning utilizing pre-established tools and resources. Additionally, both educators and students partake in regular simulations of distance learning scenarios to ensure familiarity and competence in this mode of education delivery.

Singapore proved successful in responding quickly to the challenges posed by the COVID-19 pandemic and efficiently transitioning educational activities to the online domain. In Singapore, the implementation of full home-based learning in response to the COVID-19 pandemic yielded participation from approximately 96 % of all students. As the period progressed, stability improved and educators maintained communication with parents, seeking collaborative solutions. Additionally, school counselors and social welfare officers reached out to students requiring supplementary assistance through various digital

channels (Teng, 2020).

In Singapore Student Care Centres play a crucial role in supporting students' holistic development and well-being. These centers are designed to provide a safe and nurturing environment for students, particularly during non-school hours, such as before and after regular school hours or during school holidays. Student Care Centres offer a range of services and activities that aim to meet students' academic, social, emotional, and physical needs. One of the key functions of Student Care Centres is to provide a conducive space for students to complete their homework and engage in supervised learning activities. Trained staff members assist students with their assignments, ensuring that they have the necessary resources and guidance to excel academically. Additionally, these centers often offer enrichment programs, workshops, and recreational activities to enhance students' interests and skills beyond the academic curriculum (Student care centres in Singapore).

The educational landscape in Singapore features the "Student Learning Space", a digital platform that plays a pivotal role in facilitating learning activities. Introduced across all schools in 2018, the Student Learning Space is a meticulously crafted platform that offers a diverse array of curriculum-aligned digital resources covering a wide spectrum of subjects and grade levels. This platform serves as a valuable repository of high-quality teaching and learning materials, accessible to both educators and students. The comprehensive scope of the Student Learning Space underscores Singapore's commitment to nurturing effective digital teaching and learning practices within its educational framework.

Based on research into Singapore's experience and how effectively remote learning is implemented, the following recommendations for Ukraine's education system during martial law can be suggested:

– development and further implementation of a comprehensive concept for remote learning in emergency situations, which will take into account the training of teachers and students in the use of digital resources and tools;

– collaboration with the community, teachers, parents and students to ensure interaction and exchange of ideas, implementing collaborative practices and mutual support;

– providing access to supplementary materials, books, video lectures and other resources for students' self-development.

In Finland, a notable example of educational support is the implementation of the "tutor-teacher" network, which was funded at the national level from 2015 to 2019. Over the period, the Finnish government allocated a substantial sum of 23 million euros to support this activity. This endeavor was a collaborative effort between the Finnish National Agency for Education and the Ministry of Education and Culture. The implementation of tutor teacher activity was widespread, with 2,300 tutor teachers operating in basic education by 2017. This accounted for about half of the primary schools in Finland, highlighting the significant reach and influence of this program. The program aimed to create a coherent network of tutor-teachers who would act as mentors to their fellow educators. The principal goals of the tutor teacher activity included a broad range of educational progress. This included fostering pedagogical innovation, advocating for the seamless integration of technology into instructional methods, cultivating expertise and collaborative teaching strategies within the school

community, reinvigorating educational institutions' operational cultures, and proficiently implementing the curriculum's core tenets. The breadth of tutor teachers' activities varied depending on the unique needs of various schools and localities, but they always played an important role in the execution of these initiatives. Tutor-teachers undertook responsibilities such as mentoring and training fellow educators, facilitating comprehensive community development through local, regional, national, and thematic networks, focusing on digital competence development, engaging in co-teaching, motivation, and assisting in curriculum implementation. They often collaborated with data management staff, assessed ICT skills of their peers, organized training, and participated in procurement processes. In 2017, the Finnish National Agency for Education conducted a comprehensive survey to evaluate the training and activities of tutor teachers and to gauge the effects of the discretionary government transfers. The survey revealed that respondents expressed a strong desire for ongoing robust support from the government in terms of training and enhancing the competence of tutor teachers. Additionally, they emphasized the necessity for more stable and extended funding mechanisms to replace the current practice of short-term project allocations spanning 1 to 3 years (Hakamies, 2019).

The Finnish experience demonstrates the successful application of the teacher-mentor programme, which can also be implemented in Ukraine and will contribute to the development of the education system by providing teachers with support and reducing their workload. The following recommendations can be applied:

– implementation of a teacher-mentor network at the national level, similar to the Finnish initiative;

– ensuring stable and long-term allocation of financial resources for the implementation of teacher-mentor support programmes;

– providing mentor teachers with opportunities for training, professional development and learning new teaching methods;

– creating networks for mentor teachers to share experiences, ideas and resources;

– ensuring a system for assessing and developing the competencies of mentor teachers.

The PISA 2018 evaluation scores confirm to Estonia's status, with its general education system placing first in Europe. Estonia significantly invested in its educational infrastructure in 2005, which was characterized by the establishment of the educational technologist post.

Educational technologists provide an array of services that combines current educational insights with digital technological expertise. Their role revolves around bridging the gap between conventional educational practices and the dynamic digital era. As facilitators of digital learning, educational technologists act as catalysts for change, guiding educational institutions toward effective integration of technology in pedagogical strategies.

Educational technologists shoulder a range of crucial responsibilities, including:

– evaluating the digital proficiencies of educational staff;

– providing essential insights that blend pedagogical principles with technical expertise;

– curating and sharing relevant digital learning information;

– producing resources that intertwine digital learning with instructional strategies;

– devising comprehensive digital learning strategies;

– ensuring seamless digital learning environments;

– engaging actively in national and international collaborative networks;

– initiating and overseeing digital learning and ICT projects (How did Estonia become a new role model in digital education, 2020).

This strategy reflects the country's overall achievement in e-governance, as seen by the complete infrastructure that offers online access to 99 percent of government services. The entire integration of digital solutions into vital government processes has prepared the path for technology to be incorporated into the educational environment.

In the contemporary educational landscape of Estonia, the school environment has transitioned to the digital realm, effectively residing within the cloud. Remarkably, 95 % of schools in Estonia have embraced e-school solutions, exemplified by platforms such as eKool and Stuudium. These tools simplified educational experience by offering a user-friendly conduit for smooth collaboration and efficient organization of essential information amongst parents, educators, and students. In effect, these innovative solutions have redefined the contours of teaching and learning, fostering a holistic and technologically empowered educational ecosystem.

Commencing in 2014, Estonia embarked with the inception of a lifelong learning strategy, encompassing a comprehensive digital transformation program. This program is meticulously designed to enhance the digital competencies of both educators and students alike with the implementation of IT-training courses and instructional resources. By the year 2000, Estonia rendered every school within the nation digitally connected. In tandem, the government embarked on a strategic endeavor, extending complimentary computer training to 10 % of its adult citizens. This concerted push for digital empowerment brought a remarkable shift, raising the percentage of Estonians harnessing the internet from 29 % in 2000 up to an impressive 91 % in the year 2016 (How did Estonia become a new role model in digital education, 2020).

Digitalisation in Estonia has reached both higher education institutions and kindergartens. The ELIIS Kindergarten Platform has been implemented in order to reduce the time spent on paperwork, administration, and curriculum planning. ELIIS liberates teachers from bureaucratic procedures and revitalizes the ability of teachers to devote their time to the proper care of children. The next educational initiative is the eKool school management platform, which aims to connect students, families, schools and regulators. For authoritative bodies, this is an opportunity to study and explore the scope of their activities in depth. Opiq, an acclaimed learning management environment, stands as a cornerstone in the majority of Estonian primary and secondary schools. This comprehensive platform boasts resources, encompassing textbooks, learning kits, a study log, a self-assessment system, and an array of pertinent information tailored for instructors, students, and parents. Of noteworthy significance, Opiq's versatility extends to its accessibility via various devices including cellphones, PCs, and tablets, obviating the need for a separate application. This seamless integration fosters a unified and dynamic learning experience that transcends conventional boundaries. DreamApply is the leading student application management

software. It optimises university admissions by centralising application management and making applications more user-friendly. Integrations, analytics and automation rationalise budgets and reduce workload. The software provides scholarship management, payment integration and customisation. An intuitive interface makes it easy to publish content, while agent access and performance tracking increase transparency.

Cyber education and the ability to withstand cyberattacks has become a particularly important topic in Ukraine during times of war. It is becoming evident that the average person in the era of digitalisation must have the skills to defend against such attacks. Following this logic, cyber education in Estonia starts from kindergarten, which has been significantly influenced by The Centre for Digital Forensics and Cyber Security. In co-operation with partners, they have created a system of interconnected competitions for different school levels, with the aim of teaching children to understand cyber security in a playful way. There are both formal and informal computer science curricula and learning competitions, which promotes the use of digital security awareness in schools and at home. From 2017 to 2021, more than 150,000 students aged 7 and above and 5,000 school teachers have been involved in such programmes. Subsequently, the children will grow up and progress beyond simple computations in the CyberPin competition for little ones to the large-scale CyberDrill and CyberCracker cybersecurity competitions (Cyber security education in Estonia, 2022).

The Estonian experience underlines the significance of advance technological equipment, digitalisation of education from kindergarten onwards, together with the importance of integrating cybersecurity into the learning process. On the basis of the data reviewed, the following recommendations could be provided:

– introducing the position of educational technologist in educational institutions, who will be responsible for promoting the integration of technology into the educational process, supporting teachers in the use of digital resources, and improving technological competencies;

– organising IT training for teachers to improve their digital competencies, as well as providing access to training courses and resources that promote the effective use of technology in education;

– introducing educational platforms such as ELIIS, eKool and Stuudium, which will allow teachers, parents and students to communicate effectively, share information and simplify the learning process;

– facilitating cooperation between teachers, educational technologists and other stakeholders in the educational process;

– engaging parents, students, and the public in the process of implementing digital initiatives, implementing information activities, consultations, and reports;

– incorporating cybersecurity education into the curriculum at different levels of education;

– developing special courses and materials to teach students and teachers about cybersecurity and protection against cyberattacks, and making them freely available;

– organising regular training and simulations of cyberattacks for teachers and students;

– cooperating with cybersecurity experts to receive up-to-date information and recommendations on how to protect against cyber threats.

Conclusions. In conclusion, it is essential to outline the imperative to ensure the continuity of the educational process within a nation during the global pandemic, such as the Covid-19 crisis, and the exigencies of an ongoing armed conflict, as exemplified by russia's incursion into Ukraine in 2022. To realise the continuity of the educational process in conditions of physical danger, destruction and psychological instability necessitates a meticulous exploration of strategies provided by foreign jurisdictions that have navigated analogous contexts of crisis or warfare.

Foremost, the adoption of online education emerges as a salient solution to sustain pedagogical endeavors in times of conflict. The acquisition of insights from the experiences of other nations highlights the paramount significance of prioritizing the physical safety and psychological well-being of both students and educators. Manifestly, a comprehensive approach towards ensuring these facets necessitates investments in the construction of protective structures, fortifications of extant infrastructure, and the establishment of secure spaces for educational activities, thus cultivating an environment conducive to learning. The establishment of multifaceted support centers, encompassing not solely psychosocial aid but also educational reinforcement, serves as a pivotal conduit to alleviate the burdens borne by students in isolation. Moreover, these centers provide a communal platform to address unarticulated challenges, fostering a collaborative atmosphere conducive to resilience. The creation of educational and managerial platforms could streamline administrative complexities for educators, thereby facilitating the process of collecting and checking assignments.

Cybersecurity education assumes paramount significance in this digital age, warranting a proactive approach to equip individuals with the competencies essential for safeguarding against cyber threats. This endeavor ensures the cultivation of a technologically adept populace capable of navigating the intricacies of a digitally interconnected world. At the tertiary level, the gradual adoption of a student-centric approach, inspired by the educational paradigm of South Korea, offers a transformative outlook for higher education institutions. By accentuating the development of core competencies and skills, this approach substitutes the traditional knowledge-centered pedagogical model, better preparing graduates for the contemporary professional landscape.

Additionally, novel roles such as tutor-teachers and educational technologists could be introduced to enhance the educational landscape. These specialized positions would assume responsibilities to alleviate the workload of educators while fostering innovative pedagogical strategies and providing technical expertise in online teaching methodologies. The educational outcomes in this publication were created with the support of the EU Erasmus+ program within the framework of projects ERASMUS-JMO-2021-HEI-TCH-RSCH-101048055 "AICE – With Academic integrity to EU values: step by step to common Europe" and ERASMUS-JMO-2022-HEI-TCH-RSCH-101085198 "OSEE – Open Science and Education in Europe: success stories for Ukrainian academia".

Conflict of Interest and other Ethics Statements
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Вікторія ЩЕРБАЧЕНКО,
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РЕКОМЕНДАЦІЇ ЩОДО ВИМУШЕНОГО ОНЛАЙН-НАВЧАННЯ ДЛЯ ЗАКЛАДІВ ОСВІТИ В ПЕРІОД ВІЙНИ НА ОСНОВІ КРАЩИХ СВІТОВИХ ПРАКТИК

Анотація. Мета цієї статті полягає у дослідженні та узагальненні найкращого міжнародного досвіду для розробки рекомендацій щодо вимушеного онлайн-навчання в Україні. Для досягнення зазначеної мети було проведено детальний аналіз ряду наукових публікацій, що присвячені вивченню передових практик дистанційного навчання серед країн, які зіткнулися зі схожими викликами через військові конфлікти або глобальну пандемію. Було досліджено різні аспекти, включаючи структуру та зміст дистанційного навчання, розробку технологічних платформ для освітнього процесу, забезпечення фізичної та психологічної безпеки учасників навчального процесу, а також розробку інноваційних підходів до навчання та розвитку компетенцій учнів та студентів.

У результаті проведеного аналізу було визначено ключові аспекти та напрямки, які можуть сприяти успішній реалізації поставленої мети. Досліджено досвід таких передових країн як Ізраїль, Південна Корея, Сінгапур, Фінляндія та Естонія. Виявлено напрямки, за якими можна покращити процес вимушеного онлайн-навчання та майбутнього освітнього процесу в Україні в цілому. На основі вивченого матеріалу надано рекомендації, щодо можливих майбутніх впроваджень в систему освіти України.

Необхідність комплексного підходу до забезпечення виявлених аспектів навчання потребує інвестицій у будівництво захисних споруд, укріплень наявної інфраструктури та створення безпечних просторів для освітньої діяльності. Також, було зазначено про необхідність оснащення технічної інфраструктури для ефективного впровадження дистанційного навчання. Це включає розробку та підтримку освітніх платформ, забезпечення доступу до Інтернету, створення онлайн-ресурсів та доступність інструментів для навчання. Була окреслена важливість створення центрів психологічної та професійної підтримки для студентів та вчителів. Створення освітніх та управлінських платформ могло б спростити адміністративні складнощі для працівників сфери освіти та налагодити зв'язок між різними стейкхолдерами у сфері освіти, у тому числі учнями, батьками, вчителями та вищим керівництвом. Також було зазначено важливість впровадження предмету кібербезпеки в освітній процес змалечку. На рівні вищої освіти стає очевидною потреба поступового зміщення підходу, орієнтованого на викладача до підходу, орієнтованого на студента, з акцентом на розвитку практичних компетенцій і навичок у студентства, необхідних для життя у реальному світі.

Ключові слова: *військовий конфлікт, вимушене онлайн-навчання, система освіти, кібербезпека, вища освіта, цифровізація, освітні програми, освітні ініціативи*.

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