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CURRENT SITUATION OF ONLINE EDUCATION AND CHALLENGES FACING EDUCATIONAL INSTITUTIONS IN UKRAINE DURING MARTIAL LAW

ПОТОЧНА СИТУАЦІЯ З ОНЛАЙН ОСВІТОЮ ТА ВИКЛИКИ, ЯКІ СТОЯТЬ ПЕРЕД НАВЧАЛЬНИМИ ЗАКЛАДАМИ УКРАЇНИ ПІД ЧАС ВОЄННОГО СТАНУ

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Філіппов В.Ю., Емерсон Е., Заїченко К.С., Янгулов Е.П. Поточна ситуація з онлайн освітою та виклики, які стоять перед навчальними закладами України під час воєнного стану. Оглядова стаття.

В Україні під час воєнного стану багато дітей навчаються онлайн, а не відвідують фізкультуру. Навчання проводиться дистанційно з дому або в інших місцях, де дозволяють умови. Держава також зіткнулася з низкою проблем, які необхідно вирішувати оперативним і без досвіду вирішення подібних ситуацій. Україна зіткнулася з проблемами дистанційного навчання від початку пандемії, а з посиленням російської агресії ситуація стала ще складнішою, незважаючи на зусилля держави її виправити. Проте Україна за дуже короткий час змогла пройти той самий шлях, який пройшли європейські країни кілька десятиліть тому. Вивчення та аналіз поточної ситуації дозволить сформулювати рекомендації щодо вирішення подібних проблем не лише в Україні, а й в інших країнах, де збройні конфлікти заважатимуть навчальному процесу. Дана стаття є проміжним результатом роботи проекту UUT21 (НДР №1877-01/21) «Онлайн-навчання під час конфлікту та добробут дітей і вчителів».

Ключові слова: ситуація, виклики, навчальні заклади, онлайн, дистанційна, освіта, школа, університет, воєнний стан

Filippov V.Yu., Emerson A., Zaichenko K.S., Yangulov E.P. Current Situation of Online Education and Challenges Facing Educational Institutions in Ukraine During Martial Law. Review article.

In Ukraine, during a state of war, many children are learning online instead of attending physical schools. Learning is conducted remotely from home or other places where conditions allow. The state has also faced a range of problems that need to be addressed promptly and without experience in dealing with similar situations. Ukraine has faced problems with distance learning since the beginning of the pandemic, and with the increase of Russian aggression, the situation has become even more challenging, despite the state's efforts to improve it. However, Ukraine has been able to follow the same path that European countries took several decades ago in a very short period of time. Studying and analyzing the current situation will allow recommendations to be made for solving similar problems not only in Ukraine but also in other countries where armed conflicts will interfere with the learning process. This article is an interim outcome of the UUT21 project (Research Project No. 1877-01/21) "Online Learning during times of conflict and the welfare of children and teachers".

Keywords: situation, challenges, educational institutions, online, distance, education, school, university, martial law

Due to the danger of continuing full-time education in Ukrainian educational institutions of all levels, the government has decided to transfer most institutions that are not equipped with a bomb shelter or a shelter to an education online.

Today, the use of remote technologies is an integral process for all spheres of life: work, study, and leisure. International practice has proven that the use of these processes under appropriate conditions is no less effective than similar in-person processes. Additionally, the possibilities of remote technologies can save money and time for the participants in the process. Some educational institutions of all levels began implementing this technology as early as the first relevant software appeared more than 20 years ago.

Online education in state and municipal educational institutions was practically non-existent in Ukraine before the pandemic and the war. In other words, it existed. Almost every higher education institution had a corresponding section on its website, and certain software was responsible for the section's operation. An example of the use of such software is the Moodle – learning management system and other similar in functionality or virtual learning platforms for managing courses. But in most cases, schools and

other institutions did not even have such sections. So the problem existed even then, and it was the lack of:

- processes for implementing education online tools;
- experience and knowledge of teachers and lecturers in using such tools;
- educational materials in online form.

Active transition processes to education online have begun since the COVID-19 pandemic, which led to significant changes in education throughout Ukraine in 2020-2021.

On February 24, 2022 the full-scale invasion of Ukraine by Russian troops began and the Ministry of Education and Science of Ukraine (MES) suspended the educational process in educational institutions of all levels. The government of Ukraine declared martial law, which has been extended till nowadays. At the same time, the process of complete transition to education online started.

Therefore, it can be concluded that new realities of educational processes have emerged for Ukraine, and the only way to continue them is through education online. However, implementing these processes in practice requires identifying a wide range of problems and means to solve them.

Analysis of recent researches and publications

The Regulation on education online is enshrined in the Order of the Ministry of Education and Science of Ukraine No. 466 "On Approval of the Regulation on Distance Learning" dated April 25, 2013. Since then, the main stages of research on distance and online education in Ukraine over the past 10 years can be divided into three stages: before the pandemic, during the pandemic, and during martial law.

Thus, the researches of the first, pre-pandemic, stage [1-4] study foreign experience, emphasize the feasibility of introducing distance online learning for the general economic and digital development of the state, expanding the range of consumers of educational services, including in hard-to-reach, sparsely populated regions, in areas remote from the scientific and cultural centers of Ukraine, improving the quality of education of listeners, students and schoolchildren regardless of their location, creating additional jobs, creation of special courses aimed at professional development and retraining, creation of psychological support programs and courses, the possibility of obtaining education under Ukrainian programs for citizens of foreign countries, implementation of a system of lifelong learning, individualization of education in mass education. Separately, it should be noted the work of the innovator in the field of education Kremen V.G. [5], where he emphasizes the need to develop online education as an integral component of the educational process.

The situation changed radically during the COVID-19 pandemic in 2020-2021, when the issue of distance online education became very acute. This problem has been encountered all over the world. In Ukraine the first who responded to the crisis was the state [6], which began to use the recommendations of

previous scientists everywhere and to reduce the backlog in this area by rapid steps. A number of analytical reports and studies have been developed and conducted on how to quickly overcome the crisis [7-9]. Over the next two years, many authors [10-19], Ukrainian institutions and international organizations such as the Education Ombudsman of Ukraine [20], UNESCO [21], and the European Commission [22] have addressed the issue of transition to education online and provided relevant recommendations.

During martial law, the situation escalated, causing new challenges for education, as evidenced by researches [23-34].

Unsolved aspects of the problem

For children who are living through war, schooling provides a sense of normalcy and a safe place to be children, have social contacts, and continue their academic progress. Therefore, educational institutions of all levels should also focus on the well-being of teachers and lecturers in times of crisis and force majeure so that they can support their students. In Ukraine, many children are carrying on their schooling online rather than in physical schools. Education is conducted from home or other places where conditions allow (for internally displaced people or as refugees).

In Ukraine, problems in education online began to manifest themselves during the pandemic, and with the start of Russia's full-scale invasion, the situation only worsened, despite all the state's efforts to contain the situation. However, in a fairly short period of time, Ukraine has come a long way, which European countries have been going through for several decades.

The aim of the article is to understand the advantages and disadvantages of education online and how they relate to the critical situation in Ukraine. It is necessary to investigate how teachers and students perceive education online and whether it serves academic and psycho-social purposes in emergencies more or less than regular education. It could inform both teaching practice and policy in Ukraine, as well as to inform international practice of education in emergencies. To fully understand the current situation, it is first necessary to conduct a retrospective analysis of the process of introducing education online in Ukraine, because most of the problems that exist today existed before the Russian invasion.

The main part

In 2002, the Ministry of Education and Science of Ukraine implemented an experiment in education online. One of the opportunities opened up to the education system and society by the introduction of distance education was the first Program for the Development of the Distance Learning System for 2004-2006 (Resolution of the Cabinet of Ministers of Ukraine of September 23, 2003, No. 1494). The first Regulation on Distance Learning was developed and approved by Order No. 40 of the Ministry of Education and Science of Ukraine of January 21, 2004, for implementation this program. With the

development of technology, a new Regulation on Distance Learning was approved in 2013. The Regulations on Distance Education and the Concept for the Development of Distance Education in Ukraine regulate the rights and obligations of participants in the educational process.

As defined by the Order of the Ministry of Education and Science of Ukraine of April 25, 2013, No. 466 "On Approval of the Regulation on Distance Learning", distance learning is an individualized process of acquiring knowledge, skills, abilities and methods of human cognitive activity, which takes place mainly through the indirect interaction of participants in the educational process who are remote from each other in a specialized environment that operates on the basis of modern psychological, pedagogical, information and communication technologies.

Before the COVID-19 pandemic, all classes were almost entirely held offline, i.e. in schools, colleges, and higher education institutions. The pandemic has led to significant changes in the education sector in 2020-2021, not only in Ukraine but also around the world. As part of broader measures to contain the spread of COVID-19, since February 2020, 191 countries have taken steps to close educational facilities nationwide, including kindergartens, schools, vocational colleges and universities. During this period, approximately 1.58 billion students were out of school – more than 90% of the total number of students worldwide – an unprecedented situation in the history of education [6].

Ukraine has closed all educational institutions of all levels to the public since March 12, 2020, when the epidemic began and the first cases were confirmed. In accordance with the Resolution of the Cabinet of Ministers (CMU) No. 211 of March 11, 2020, quarantine was introduced throughout the country and students were prohibited from attending educational institutions of all levels.

Initially, the quarantine was set for 3 weeks until April 3, 2020. During the spring of 2020, it was extended three times - first until April 24, then until May 11, and then until May 22. Finally, secondary schools ended the school year remotely. Educational institutions of other levels have begun to resume work after quarantine restrictions were eased.

In particular, kindergartens were allowed to reopen on May 25, and out-of-school education institutions and inclusive resource centers were allowed to reopen on June 1. Also, on June 1, practical training in vocational schools and some training activities in higher education institutions resumed.

During the period of strict quarantine at the end of March, the Ministry of Education and Science sent explanations to the heads of general secondary education institutions on the organization of the end of the 2019/2020 school year. The letter emphasized the autonomy of schools and the decision-making on the forms of distance learning at the discretion of the pedagogical council. However, the Ministry of Education and Science did not offer methodological

recommendations and advice that teachers could follow due to the lack of previous experience in distance learning. In May, recommendations were also sent to higher education institutions on how to organize a session in a distance learning environment.

Before the start of the next academic year, the Ministry of Education and Science sent letters to general secondary education and vocational education institutions regarding the organization of the 2020/2021 academic year. However, most of these recommendations concerned sanitary and hygienic standards and compliance with the conditions established by quarantine zones, which are based on the Resolution of the Chief Sanitary Doctor "On Approval of Anti-Epidemic Measures in Educational Institutions for the Quarantine Period in Connection with the Spread of the Coronavirus Disease COVID-19". At the same time, vocational schools are encouraged to use blended learning methods: theoretical classes should be conducted remotely, and practical classes should be held in person in compliance with sanitary and epidemiological standards.

On October 16, 2021, the Regulation on the updated conditions for organizing distance learning developed by the Ministry of Education and Science came into force. This document contained brief explanations of the organizational processes of distance education. Instead, it lacked methodological recommendations for conducting online education for different types of institutions. It is worth emphasizing that granting general secondary education institutions broad autonomy is not enough in this situation, because despite the fact that 7 months of quarantine have passed and teachers have gained some experience in online education, they still need a list of minimum requirements and recommendations for the learning process. It should also be borne in mind that different school subjects and different ages of students require different distance learning methods. The following facts should be noted:

— lack of previous experience in online education among teachers and lecturers. According to a survey conducted by the State Education Quality Service of Ukraine (SEQSU), distance learning was a problem for 55.53% of schools because they had no previous experience with this form of education and were not prepared to teach during the quarantine. 47.5% of teachers (20,590 people) indicated that they had not previously used distance learning technologies in their teaching activities [9].

Instead, as noted earlier, teachers did not receive recommendations on how to conduct distance learning or teaching with the help of online educational tools. At the same time, teachers would benefit from tips on how to explain new material, give feedback, practice skills, assess progress, and determine the length of lessons in a distance learning environment.

— lack of universal access to the Internet and equipment necessary for learning. This problem affected both teachers and schoolchildren.

According to the SEQSU, 62.35% of principals indicated that most teachers and students did not have the necessary equipment at home, and 46.9% indicated a low-speed Internet connection. Most teachers shared a computer with other family members, and 6% of teachers did not have access to high-speed Internet (Figure 1).

The low quality of the Internet connection is reported by 22.3% of parents surveyed. In addition, 8.8% of parents said that their families do not have a

computer. According to a survey conducted by the educational ombudsman, the majority of children (81.6%) used mobile phones, presumably smartphones, more often for distance learning.

Instead, they use laptops (45.6%) and desktop computers (34.3%) less often. At the same time, not all tasks can be performed on a phone, so children may have needed laptops or computers that belonged to their parents (Figure 2).

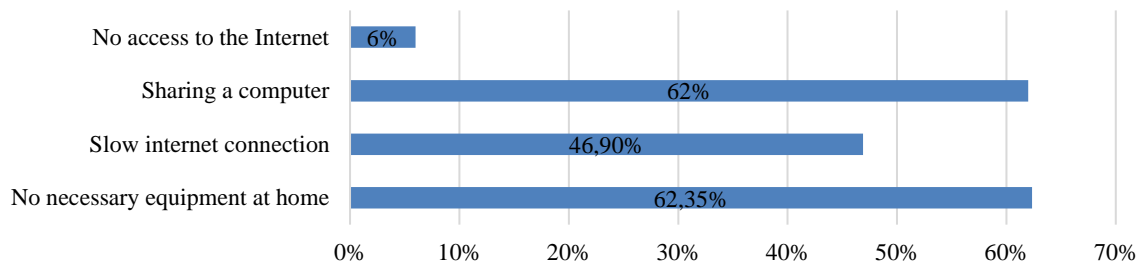


Figure 1. The most frequent problems of teachers and lecturers during the introduction of education online in 2021

Source: compiled by authors on materials [7-9]

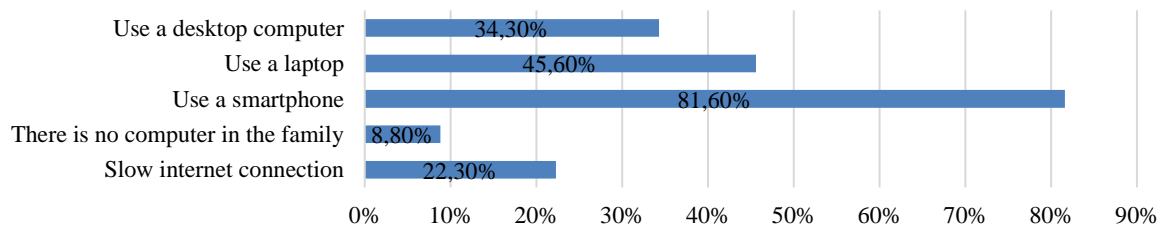


Figure 2. The most frequent problems of schoolchildren and students during the introduction of education online in 2021

Source: compiled by authors on materials [7-9]

If parents also worked remotely, it made both studying and work more difficult. The situation could be even more complicated in families with more than one child of school age.

The same applies to teachers, who may have been forced to share technical equipment with their children or other family members. Students and lecturers of university who had to share education online gadgets with other family members also faced the same problems.

Many of the training material was left for self-study. In many educational institutions, distance learning looked like sending material for self-study from a textbook, written assignments to test knowledge, and evaluating results without discussion, feedback, or explanation.

According to the students surveyed by the SEQSU, teachers sent them a list of paragraphs and exercises from the textbook for individual study (41.2%) more often than they conducted online classes (17.25%). Attempts to pass off self-study as distance learning due to lack of prior experience are also confirmed by the results of the survey on the most frequently used tools in teacher-student interaction. In particular, Viber took the first place, with 92.4% of teachers using it, Google tools – 53.6%, e-mail – 57%, and Zoom – 28.4% [7]. It should be noted that the respondents used some programs in parallel, so they could send topics and tasks for study via the messenger, which is actually self-study, not distance learning (Figure 3).

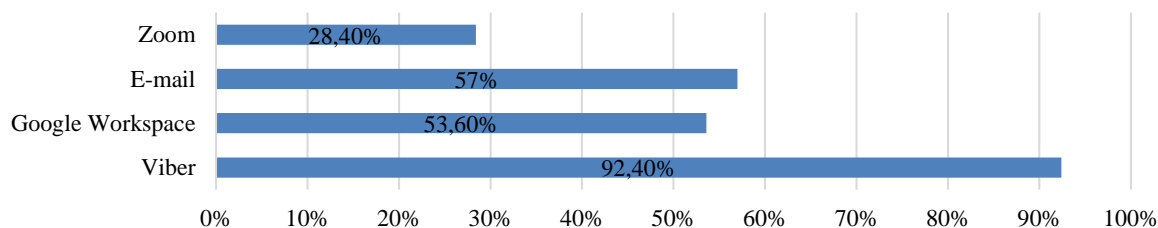


Figure 3. Tools for interaction between teachers and students

Source: compiled by authors on materials [7-9]

No additional payments were made to teachers during the quarantine, despite the different teaching formats and excessive workload. In particular, when some classes go to distance learning, while the rest of the class remains in the classroom, teachers have to prepare presentations of new material, practice tasks, and tests for different forms of learning, which significantly increases their workload.

In addition, being left alone with distance education in the spring, teachers had to spend more resources to learn and implement distance learning methods on their own. Moreover, if a teacher was sick with COVID-19 or went into forced quarantine due to a sick person in the classroom, he or she received only half of his or her salary. Accordingly, such educators need more financial support, especially elderly teachers who are at significant risk from COVID-19.

There was no centralized record of distance learning attendance during the quarantine. Accordingly, due to the variety of forms and methods of distance learning, ways of organizing it in different educational institutions, it is impossible to collect accurate information on what proportion of students have dropped out of the educational process. According to the SEQSU survey, only about 3% of secondary school students did not get in touch at all.

One of the most significant negative consequences of remote schooling during the pandemic and war is the deepening of existing inequalities between students. In accordance with a study concerning educational disparity in Europe and the physical closure of schools during the COVID-19 pandemic, in half of the 21 countries subjected to analysis, 4th-grade students with low socioeconomic status have, at best, only half the chances of accessing the Internet compared to their more privileged peers [23]. Overall, students from economically disadvantaged families have limited access to digital educational resources, such as a personal computer or laptop, high-speed Internet, and a comfortable learning environment, including a separate room or desk, a quiet place for studying, and parental support. In Ukraine, especially in rural areas and small towns, access to the Internet is restricted, which can significantly exacerbate educational inequality.

Forced isolation at home during quarantine restrictions is associated with an increase in the number of cases of domestic violence in Ukraine and around the world.

In the United States, at the beginning of the quarantine, there were 50% more calls to the national child abuse hotline compared to the same period in

2019. In Norway, there has been a sharp increase in the number of calls to the national child helpline, many of them concerning conflicts and tensions at home.

At the beginning of the quarantine, the number of calls to the domestic violence hotline also increased by 30%. At the same time, there has been no increase in the number of police calls regarding domestic violence, which may also be due to the fact that victims of violence spend most of their time in the same space as the aggressor, who can control their access to communication. Since domestic violence can affect women and family members with low socioeconomic status more than others, teachers, the majority of whom are women in Ukraine, as well as students from poor families, are at risk.

In addition to the consequences caused by the pandemic, the language barrier is becoming an additional barrier for educators, as from January 16, 2021, the state language is mandatory in the provision of all educational services – Article 30 of the Law of Ukraine "On Ensuring the Functioning of Ukrainian as the State Language" came into force.

This law stipulates that all employees of educational institutions must be proficient in the state language and that the state language is the working language of communication for educational institutions. This has greatly affected the quality of teaching, as not all employees of educational institutions can communicate professionally in Ukrainian.

According to the data provided by the Institute of Sociology of the National Academy of Sciences of Ukraine in the study "Ukrainian Society: Monitoring of Social Changes", the trend of "Ukrainization" of the population is shown (Table 1), which shows a positive trend in the change of linguistic attitudes of Ukrainians [20].

Thus, the problems that existed before the pandemic were compounded by the following:

- lack of constant access to the Internet, especially outside cities;
- lack of equipment necessary for the learning process;
- poor provision of teaching materials for teachers/lecturers;
- poor communication between participants in the educational process;
- the need for retraining of teachers/lecturers;
- not all educators speak Ukrainian professionally;
- low motivation to work due to low salaries.

Table 1. Dynamics of language attitudes in Ukraine in 2012-2022

Language	Year										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Ukrainian only	42.9	38.7	43.2	43	42.2	41	43.8	45	50.8	51.2	51.8
Ukrainian and Russian equally often	20.9	22.8	24.7	30.4	25.4	29.2	24.8	24.1	21.3	23.5	34.6
Russian only	35.4	37.9	31.2	25.6	32.2	28.7	31.4	30.2	27.6	24.7	12.8
Others	0.8	0.6	0.9	1	0.2	1.1	0.5	0.7	0.3	0.6	0.8

Source: compiled by authors on materials [20]

The pandemic has opened up an additional set of problems related to the process of online distance learning – a new challenge for the state that had to be addressed quickly. But on February 24, 2022, Russian intervention in Ukraine began.

The day after the start of the full-scale invasion of Ukraine by Russian troops, the Ministry of Education and Science of Ukraine (MES) recommended that the educational process in educational institutions of all levels be suspended again and that students and teachers be sent on a two-week vacation.

In regions hosting internally displaced persons, pre-school and secondary education institutions have become shelters for people in need of temporary housing. Internally displaced persons are

accommodated in dormitories of vocational, professional and higher education institutions. Schools and kindergartens are also collecting, sorting and distributing humanitarian aid, and school buses are being used for evacuation.

On March 10, 2022, the Ministry of Education and Science launched an interactive map of educational institutions in Ukraine that were destroyed or damaged by Russia's actions. As of March 31, 2022, 76 were completely destroyed and 722 were damaged [25]. For comparison, as of March 1, 2023, 3156 educational institutions were affected by bombing and shelling, and 370 of them were completely destroyed (Figure 4).

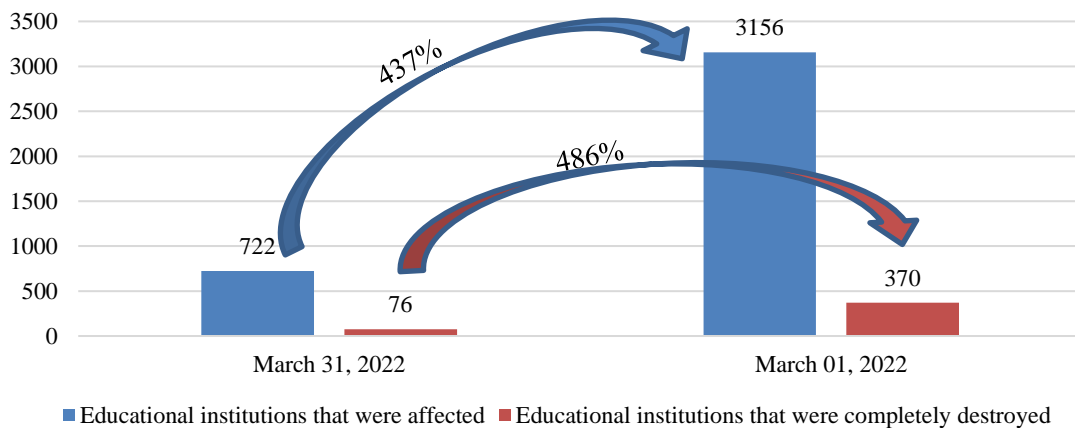


Figure 4. Educational institutions affected by the bombing and completely destroyed

Source: compiled by authors on materials [26]

March 14, 2022 was the starting date for the stabilization of schooling:

- distance learning was resumed. "The Learning Without Borders" project for grades 5-11 has been launched. It was created jointly by the Ministry of Education and Science and the Ministry of Culture, as well as Ukrainian TV channels and online platforms. It broadcasts video lessons and has a separate subject for each day. It is implemented on the basis of the all-Ukrainian schedule of classes for students in grades 1-11, which are held online, where lessons are also available in recording. Private schools and non-governmental organizations joined the organization of distance learning and provided free access to their educational resources. Children who have moved within Ukraine can continue their education in schools at their place of temporary residence. Order of the Ministry of Education and Science No. 274 "On Some Issues of Organization of General Secondary Education and the Educational Process under Martial Law in Ukraine" gives the right to enroll students in educational institutions at the place of temporary residence without documents or on the basis of copies if the family does not have the relevant originals [24].
- an online kindergarten was launched. It was organized by UNICEF and the Ministry of

Education and Science with educational video lessons for children aged 3-6. The project aims to help parents engage their children in cognitive activities.

- the law on state guarantees under martial law was adopted. It guarantees teachers the preservation of their jobs and average earnings, the ability to work from any place where they temporarily reside, including from abroad. The MES also provided clarifications on the specifics of work during this period. Teachers who are unable to teach classes, in accordance with labor law, retain their salaries. The inability of employees to perform remote work due to the lack of appropriate communications cannot be considered a violation of labor discipline. The management of educational institutions should not encourage teachers to take leave at their own expense during martial law. If there are vacant positions in educational institutions in the settlements where internally displaced teachers are temporarily located, they can be employed there if they wish.

The educational process has begun to resume in areas where the security situation has allowed it. The decisions about where and in what format to hold classes were made by regional administrations and educational institutions. Pupils and students who have fled their homes can return to their studies in places of temporary residence, both in Ukraine and abroad.

Educators who are able to work can do so from any location within or outside the country. Those teachers who are unable to work will retain their jobs and salaries – the relevant guarantees were enshrined in the March 20 amendments to the education law.

According to the Ministry of Education and Science, as of March 28, 2022, in 13 regions of Ukraine (including Kyiv), the educational process in general secondary education institutions is conducted remotely, in 4 regions the education is partially organized or schools are still on vacation, in 5 more regions the education has resumed remotely, vacations are ongoing or education is suspended depending on the community, and in the remaining 2 regions, schooling has been suspended for security reasons. 5,000 children started school from a temporary location after being forced to leave their homes. A week earlier, as of March 21, the educational process took place remotely in 11 regions: more than 10 thousand secondary schools resumed their work in this format. Almost 3 million students returned to school.

Distance learning makes it possible to organize the educational process in times of war. At the same time, some students and teachers are in dangerous areas, such as the territories of hostilities or the temporarily occupied territories, and may not be able to join it. Students or teachers who are in relative safety may not have access to internet coverage or may not have the technical means. Every day, air raid alerts are announced in most regions of Ukraine (in many of them several times a day), during which it is necessary to take shelter. This can directly affect the organization of the educational process and interrupt it. Collecting data and developing recommendations at the national level on how to organize the educational process in the current martial law environment can be useful.

Ukrainian universities located in the safer regions (Lviv, Ivano-Frankivsk, Ternopil, Volyn, Rivne, Khmelnytsky, and Dnipropetrovs'k regions) announce the admission of internally displaced students. Currently, such training is available only within the framework of academic mobility opportunities, which means that students can join courses in their specialties and, after graduation, receive a document certifying the completion of the courses. However, students cannot actually transfer from their university to another one if there is no studying going on there [26]. There is a need for a longer-term integration strategy and a procedure for transferring students whose universities will not be able to resume their studies in the near future. Some universities also invite teachers who have evacuated from combat zones to join the educational process.

In Ukraine, the war resulting from Russian aggression has disrupted the education of more than 5 million children living in their homes as internally displaced persons or refugees outside of Ukraine. Currently, 1.9 million Ukrainian children have access to education online, and another 1.3 million are enrolled in a combination of online and face-to-face learning [27].

The consequences of education online during the 2020-2021 quarantine were a major challenge for Ukraine, but new ones have been added to the mix. The consequences of school closures and the transition to education online include:

- interrupted learning;
- poor nutrition;
- stress for teachers;
- parents' unpreparedness for distance home education;
- deterioration of childcare;
- economic losses;
- unforeseen burden on the healthcare system;
- increased cases of expulsion from educational institutions;
- increased levels of violence and exploitation;
- social exclusion;
- difficulties in integrating vulnerable groups;
- difficulties in measuring and verifying learning outcomes.

Most of these consequences may also be relevant for higher and vocational education institutions. The existing problems of distance education have been compounded by the Russian invasion of Ukraine:

- The danger of missile or drone attacks (UAVs);
 - frequent air raids, which cause classes to be suspended;
 - frequent power outages due to the destruction of critical infrastructure;
 - lack of or inadequate bomb shelters.
- The consequences of shelling of critical infrastructure should be noted separately:
- lack of electricity in residential buildings;
 - lack of all types of communication;
 - lack of heating and water supply;
 - inability to keep gadgets charged all the time;
 - the need to relocate teachers and students to the "Points of Unbreakability" where energy is generated by gasoline generators.

Another problem may be the processes of digitalization and digitization. According to the State Statistics Service of Ukraine, households in large cities are almost twice as likely to have access to the Internet as rural households – 80% vs. 44%. 79.5% of residents of large cities use the Internet, while 55.9% of rural residents reported this. The Ministry of Digital Transformation investigated access to broadband Internet [29]. It turned out that more than 17,000 settlements out of 28,000 have no optical networks at all. About 65% of villages are not covered by high-quality broadband. Overall, 5.75 million citizens are unable to connect to high-quality fixed broadband. More than 4 million Ukrainians live in villages without high-quality fixed-line internet. 40% of schools, mostly located in villages or small towns, do not have access to high-speed Internet. Digital and Internet skills are worse among students from rural areas.

People with lower incomes use the Internet less often. Only 42.2% of people in the lowest income 10% of households used the Internet at all, while 91.6% of people in the highest income decile did so.

Also, people in the highest income decile are more likely to use the Internet on a daily basis, both at home and at work. This means that members of poor households, including those who are studying, are likely to have poorer Internet skills [30, 31]. In the context of education online, when the Internet is almost the only means of interaction between students and teachers, educational institutions and students, the least privileged categories of schoolchildren, students and educators are the least prepared for distance learning. As a result, inequality in access to digital resources can lead to a gap in educational outcomes among different categories of the population.

The transition to remote learning during emergency situations can have a lasting impact on educational outcomes, particularly among vulnerable population groups. According to researchers from Ukraine, France, Italy, and Germany, the weekly decline in learning outcomes due to the shift to online education will range from 0.82% to 2.3% of the standard deviation. They believe this decline will be reflected in test results due to reduced instructional time compared to what students were receiving before the implementation of quarantine measures and the switch to online formats [23].

For students, the quarantine is partly related to attempts to restrict their right to housing – attempts to evict them from dormitories. In March, the media began to spread information that the management of some universities was trying to forcibly evict students from their dormitories during the quarantine period. However, on March 18, 2020, the Ministry of Education and Science published a letter "On the Inadmissibility of Forced Eviction of Students or Providing Such Recommendations to Students," which referred to ensuring the operation of dormitories during the quarantine period, informing residents and staff of dormitories about COVID-19, allocating special places for isolation for students with signs of acute respiratory illness, and tightening the access regime.

On October 12, 2020, the Ministry of Education and Science published a letter "On the Temporary Transition to Distance Learning" with a recommendation to introduce distance learning in higher, vocational, professional (vocational-technical) education institutions from October 15 to November 15, 2020. The letter also recommends that students leave the dormitories for the same period. At the same time, it emphasizes the inadmissibility of forced eviction from dormitories, the necessity to take into account the need for dormitories of some more vulnerable categories of the population, including orphans, persons deprived of parental care, students from the temporarily occupied territories and "red" quarantine zones, foreign citizens and stateless persons. According to the recommendations of the Ministry of Education and Science, students who decide to leave the dormitories should be refunded their accommodation fees.

A dormitory may be the only available opportunity for these students to realize their right to housing, as not all of them have sufficient material

resources to rent part or all of a private residence in the city where their educational institution is located. Moving to a dormitory can also be caused by the inability to live at home due to domestic violence, poor living conditions, or overcrowding. As dormitory residents are a less privileged group than those who have the opportunity to live in their own or rented housing, their vulnerability may increase during the pandemic, including through attempts by the administration of educational institutions to evict them from dormitories.

Both students and employees of educational institutions at all levels may experience a deterioration in mental health due to the transition to education online during the pandemic. The results of the US National Survey of Parent and Child Health during the COVID-19 pandemic show that 27% of parents reported a deterioration in their mental health, and 14% reported a deterioration in their children's mental health. According to a study of the impact of COVID-19 on the mental health of college students in the United States, 71% of students said they experienced increased stress and anxiety due to the COVID-19 outbreak. Research on the impact of the coronavirus pandemic on the mental health and well-being of UK education workers shows that 52% of school teachers reported a deterioration in mental health. Thus, during a pandemic and quarantine restrictions, people may experience stress, anxiety, fear, isolation, and trauma from the loss of a loved one.

In Ukraine, there haven't been specific studies conducted on the mental health of students and professionals in this field. Instead, surveys have been conducted regarding the psychoemotional state of Ukrainians during quarantine. On one hand, the survey results indicate signs of depression, anxiety, panic, fatigue, and sleep disturbances among respondents. On the other hand, according to researchers, the "level of negative emotional states of Ukrainians during quarantine and their dynamics" do not yet raise concerns, as there has not been a significant increase in the number of disorders such as panic or depression [23].

We can assume that in Ukraine, education workers, especially older teachers, who make up a significant proportion of secondary education workers, are at risk of suffering the most from mental health problems. This is due to the difficulties that arise from the transition to distance learning, including a lack of digital resources and skills, reduced communication and psycho-emotional support. In addition, the mental health of students from vulnerable groups may also be at risk. Confirmation of these hypotheses requires further research on the mental health of education professionals and students.

In Ukraine, some pupils and students are entitled to free meals in educational institutions. The transition to education online may have affected the fact that representatives of these categories of the population may not have received adequate and healthy nutrition at home. On the other hand, the

actual nutrition in educational institutions may differ from the recommended one. Since vulnerable students are entitled to free meals, their temporary stay at home during distance learning creates an additional financial burden on their families. As such families may have low incomes, the need to spend unplanned funds in the family budget can worsen their economic status and contribute to an overall increase in economic inequality. An example of a positive initiative aimed at mitigating the negative effects of the pandemic and the closure of educational institutions on poor families is the delivery of free school lunches to their homes. This option has been introduced in Germany, the United Kingdom, and the United States.

In order to support Ukraine in ensuring that teachers and students are supported now and to facilitate their contribution to a strong economic future for Ukraine, it is necessary to study the current situation in detail through a micro-level sociological study. Such a study should aim to get these teachers, lecturers, pupils and students to share their experiences and needs regarding distance learning themselves. The data collected will provide an in-depth analysis of the experience of online learning for children in Ukraine in terms of improving their well-being.

Conclusions

Thus, it was found that it is necessary to check the readiness of schools to switch to a remote format: provision of gadgets, Internet with a quality connection, developed digital skills of teachers and students, and psychological support. However, after a pandemic and a year of war with periodic lockdowns (restrictions on movement) and blackouts (power outages), no such assessment has yet been made of the readiness of Ukrainian educational institutions, teaching staff, and students to work in distance or blended learning, including the level of digital literacy and the provision of gadgets and high-quality Internet to participants in the educational process.

Similarly, despite the urgent need, there has been no general study of children's knowledge and losses (gaps) in knowledge and skills due to the military learning environment, and there is no official information on this. It is equally important to support teachers and parents in mastering new digital tools through trainings or individual meetings. In addition to providing technical tools for remote learning, it is important to master the skills of using these tools - the digital literacy of participants in the educational process. For example, the European Commission has approved the Digital Education Action Plan for 2021-2027 [34]. It focuses on two important areas of work:

— promoting the development of an effective digital education system (infrastructure, communication,

technical means, development of teaching and learning competencies, high-quality educational content);
 — improving digital skills (basic digital skills from an early age, combating disinformation, ensuring equal access to digital learning for women and girls, etc.).

The adoption of such an action plan is sorely needed in Ukraine. One of the key recommendations is to establish rules for education online, namely the development of questions, tests and exercises to monitor the learning process and provide feedback from students without the help of parents. In the process of urgently organizing education online, the problem of insufficient interaction between participants in the educational process became apparent in order to maintain control over learning, as it was in pre-war times.

Among the simple and relatively affordable tools for creating tasks and exercises are such services as Formative. To more fully structure the online learning process, distance/mixed learning systems (e.g., Moodle) have come to the rescue, allowing for flexible and transparent knowledge control, feedback collection, and even grade logging. However, in order to deploy such a system and acquire the skills to use it, it is important to implement the theses from the previous paragraph (ensuring technical capabilities, faculty readiness to work with new tools, compensating for the additional time spent on digitalizing educational material, etc.), along with the availability of specialized specialists for its periodic technical support and updating. In the new learning environment, it is important to monitor and set limits on the workload of teachers, students, and apprentices.

Thus, possible recommendations may include revising the curriculum to adapt it to distance learning, adjusting the types and number of tasks that can actually be completed and tested (time management). Setting time limits on computer work for teachers and students (e.g., no more than 6 hours for full-time students and breaks every 30-45 minutes of classes). Dividing tasks into synchronous (real-time meetings in Zoom, MS Teams, Google Meet, etc.) and asynchronous (homework), providing clear instructions for their implementation, selecting appropriate online tools, etc. This is especially true for schools, since the mode of blended learning (some students study full-time, some study remotely) requires teachers to have materials for both formats ready at the same time and to work with them in parallel, which overloads educators.

Special attention should be paid to psychological support, and the possibility of professional burnout among teachers and lecturers cannot be ruled out.

Abstract

Due to the risk associated with maintaining traditional in-person education in Ukrainian educational institutions at all levels, the government has opted to shift the majority of institutions lacking bomb shelters or protective facilities to online education.

Today, the utilization of remote technologies is seamlessly integrated into various aspects of life such as work, study, and leisure. International practices have demonstrated that under suitable conditions, remote processes can be equally effective as their in-person counterparts. Moreover, remote technologies offer potential cost and time savings for participants. Some educational institutions of all tiers embraced this technology over two decades ago, with the advent of the first relevant software.

In Ukraine, prior to the pandemic and conflict, online education in state and municipal educational institutions was largely underdeveloped. While certain higher education institutions featured corresponding website sections, often powered by systems like Moodle and other similar virtual learning platforms, the majority of schools and institutions lacked such provisions. This existing problem stemmed from the absence of:

- processes for integrating online educational tools;
- teachers' and educators' familiarity with these tools;
- availability of educational materials in online formats.

The active shift towards online education gained momentum during the COVID-19 pandemic, resulting in substantial educational changes across Ukraine in 2020-2021. Subsequently, on February 24, 2022, the large-scale invasion of Ukraine by Russian forces prompted the Ministry of Education and Science of Ukraine (MES) to suspend in-person educational activities at all levels. Martial law was declared by the Ukrainian government, an order that remains in effect to this day. This situation catalyzed a comprehensive transition to online education.

Hence, it is evident that Ukraine's educational landscape has evolved due to these new circumstances, with online education emerging as the sole viable option. Nonetheless, successful implementation of these processes necessitates the identification of a wide array of challenges and strategies to overcome them.

The study emphasizes assessing educational institutions' readiness for remote learning, covering technology access, digital skills, and psychological support. Amid pandemic challenges and conflicts with disruptions, Ukrainian schools lack thorough evaluations of preparedness for distance or blended learning. This void includes digital proficiency assessment and equitable internet access. Similarly, students' learning effects due to conflicts lack comprehensive analysis. Educators and parents need support with new digital tools through training. Beyond technology, fostering digital literacy is vital.

The European Commission's Digital Education Action Plan serves as an example. Protocols for online education, independent of parental guidance, are vital. Incorporating tools like Formative is cost-effective. Platforms like Moodle aid comprehensive online learning but require technical readiness and support. Balancing workloads is key. Recommendations include adapting the curriculum, recalibrating tasks for feasibility, and limiting screen time. Categorizing tasks and supporting educators' well-being are vital, especially in blended learning.

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Визнання:

UK-Ukraine twinning grants scheme – програма подвійних грантів (<https://www.twinningukraine.com>) для партнерства між Великою Британією та Україною у сфері наукових досліджень і розвитку, що фінансується Research England за підтримки Universities UK International та UK Research and Innovation. Координується Фондом Президента України з питань освіти, науки і спорту (<https://presidentfund.gov.ua>).

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