



CURRENT CHALLENGES TO THE DIGITALIZATION OF HIGHER EDUCATION IN UKRAINE

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Abstract: *The article examines the peculiarities of digitalization of the educational process of higher education institutions of Ukraine and reveals the impact of the COVID-19 pandemic. It was found that modern world challenges have become a turning point for rapid innovations in the field of education. In particular, the COVID-19 pandemic created a unique opportunity for the unprepared introduction of digital technologies into the educational process, and with the beginning of the war in Ukraine, the digital format of education became almost the only opportunity to obtain higher education. It is noted that in the conditions of digitization of the educational process, distance education has become more and more widespread, the specialty of which is the provision of educational services through the use of modern information and communication technologies in education. The authors emphasize the advantages of distance learning in higher education institutions of Ukraine, the main ones being: temporal, geographical, psychological, ergonomic ones and others. It is highlighted that the problematic aspects in the process of organizing distance learning are related to: the need for high internal motivation of the student; the problem of quality control of education and academic dishonesty; technical flaws; the problem of student identification; lack of live dialogue with the teacher; lack of digital competences, etc. Based on the analysis of secondary data, the dynamics of processes related to the use of digital distance learning technologies in the conditions of nationwide quarantine are outlined; also analysed are the factors that negatively affect the quality of implementation of digital learning technologies in higher education institutions. It was emphasized that owing to digitalization, the educational process becomes more personalized, mobile, accessible and flexible. The authors analysed the opinions of students, professors and educational*

management in order to see the chronological development of e-learning all over Ukraine and in a particular city of Ukraine in the period 2020–2022. The general opinion in the dynamics is that the quality of e-learning is improving, however the local trends are that students need to improve self-management skills, they demand more practically-oriented tasks in digital mode which can potentially develop better digital competence to navigate through elaborate e-learning environments and feel more confident in learning as it is.

Keywords: higher education, digitalization, educational process, distance learning, digital technologies, higher education institutions, students, professors.

INTRODUCTION

In the last few years, the whole world has found itself in the midst of global challenges that have fundamentally changed it. Higher education was not an exception. First, the COVID-19 pandemic, then the full-scale war in Ukraine caused the objective necessity of higher education institutions to switch to distance education. Before the start of the pandemic, distance education was used as a supplement to the main mode of education, whereas since 2020, educators were forced to switch to distance format. In such conditions, there is an extensive growth of educational resources and platforms that rely on the use of digital technologies in their activities in Ukraine and globally. It should be noted that the design of higher education has significantly changed over the past few decades thanks to new information technologies, interactive forms of communication and communication, which introduced major improvements into the way knowledge is reproduced, both from the point of view of the organization of the educational process, and from the point of view of mastering and perception of information. Digitization of education has become one of the priorities of the Ministry of Education and Science of Ukraine in recent years. Owing to a carefully organized digital environment, higher education has become more accessible and comfortable, which is extremely important in the conditions of minimal costs – time, financial, and human resources. And for today's youth, it is also a familiar environment which has all the conditions for its development.

1. THE RESEARCH PROBLEM AND METHODOLOGY

Ukrainian scientific community is intensely discussing the digitalization of the educational process, with the various aspects of it getting more and more attention. However positive the very fact of this discussion is, we would like to stress that a considerable number of scientific works are rather one-sided and somewhat fragmentary, since they are devoted to the introduction of certain information and communication technologies into the educational process either exclusively from the technical side, or from the social one, being a certain reflection of teachers on their own experience of working with the latest teaching aids.

The research into the issue of digitalization of education produced lately a number of the scientific investigations devoted to the creation of digital universities and the introduction of digital campuses.

In particular, there was carried out a comprehensive comparative analysis of the best practices implemented in the European educational space within the “digital campus” project (Buynytska et al., 2020). It is worth studying an elaborate design of a unified information environment of the university providing the information requests of students, teachers, and employees as fully as possible through the digital transformation of educational as well as financial and economic processes at the university (Guzhva, 2019). The advantages and disadvantages of digitalization of higher education in the context of building a digital university are discussed in detail by a research team (Nagorny et al., 2022).

An important contribution to the development of the topic of digitalization of higher education was made by Morze and Smyrnova-Trybulska, who in their numerous publications bring forward the issue of self-assessment of the level of digitalization of an educational institution under the conditions of the transformation of secondary education (Morze, Kucherovska, & Smyrnova-Trybulska, 2020), ways of developing a smart university (Morze, Nepreyenko, & Smyrnova-Trybulska, 2020), the advantages of creating and distributing electronic educational courses (Morze et al., 2021). Another study on the evolution of distance learning claims that at the second stage of the digitalization of the educational process, after adaptation to its features, it is easier to feel the potential of positive opportunities for participants (Shchetinina et al., 2021).

Introduction of new technologies doesn't always go smoothly. Thus, for its effective implementation e-learning needs to be seen as a promise of new opportunities, and not as an environment to reproduce traditional teaching (Ananga, 2020). Researchers emphasize that COVID-19 demands to introduce new ways of teaching (Dominguez-Lloria et al., 2021).

Bazelyuk stresses that for higher education in modern conditions it is crucial to evolve to non-linear educational trajectories promoting openness; expand beyond the current array of qualifications; support digitization and educational reform; however, widening access to higher education should go hand in hand with the improvement of its quality (Bazelyuk, 2021). Prokopenko and Dotsenko outline the main factors determining the effectiveness of the introduction of digital technologies into the system of higher education, namely, a sufficient level of digital competences among those seeking education, and the functioning of higher education institutions as a space for designing and piloting social reforms aimed at ensuring opportunities for the society to use the advantages of digitalization (Prokopenko & Dotsenko, 2021).

In modern Ukrainian conditions, it is relevant to consider the introduction of distance learning not as an addition to offline learning, but as another form of education. Thus, researchers stress the main advantages of distance learning and outline the difficulties of organizing distance education for higher education institutions, enterprises and organizations (Galetsky & Galecka, 2018); design the concept of distance education, based on the principles of humanism, the priority of the pedagogical approach in the design of the educational process, the pedagogical expediency of the use of information technologies, the security of information that circulates in the distance education system, visibility, systematicity and consistency of distance education, research, accessibility, communicativeness of education, etc. (Grebennikova, 2019). Meanwhile,

a number of scholars emphasize the fact that in Ukraine there are still no clear technological tools for authenticating students, that is, they perform a number of tests and tasks for self-control remotely, but they have to take the final exams “face-to-face” (Danylchuk & Melnyk, 2020). In this context, Prysiazhniuk concludes that along with the shift to distance learning a motivated student saw the advantages of distance learning, instead, an unscrupulous diploma seeker took advantage of difficulties in his or her own way, and usually the difficulties were imaginary (Prysiazhniuk, 2021). The authors of this study previously researched various aspects of the optimization of the educational process in higher education based on the implementation and active use of digital technologies, in particular network communication as a means of teacher-student interaction (Shelomovska et al., 2017); online resources (Shelomovska et al., 2018) and mass media in e-learning conditions (Shelomovska et al., 2019); cloud technologies in the training of students of socio-behavioral specialties and public servants in universities in the conditions of a global pandemic (Shelomovska et al., 2020). However, the academic community of Ukraine is only starting to discuss the ongoing evolution of e-learning and distance learning that is currently observed. Besides, the developments and trends typical of a bigger university might be somewhat different for a smaller university, as well as for those functioning in smaller cities.

Thus, the aim of this review is to demonstrate some considerations as to the developments of digital education in Ukraine in the period 2020–2022 (first quarter), spurred by the global pandemic and currently, war hostilities.

To study the current evolution of online and distance learning we are relying on analytical literature review as well as discussing the main trends of e-learning in Ukraine with specific local trends in Kamianske, assessed by students and professors from all over Ukraine and by the students from Dniprovsky State Technical University.

The theoretical background of the study is shaped by basic principles and provisions in the area of higher education of Ukraine. The review demanded historical-logical and systematic approaches, general and special methods, in particular: monographic and abstract-logical methods; methods of observation and generalization as well as elements of quantitative analysis.

To discuss the opinions of students and staff we involved three anonymous sociological surveys:

- the State Education Quality Service of Ukraine prepared an informational and analytical report on the state of the use of distance learning technologies in higher education institutions of Ukraine (2020);
- Analytical report on trends in the organization of the educational process in institutions of professional pre-higher and higher education under quarantine conditions in the 2020/2021 academic year;
- sociological research conducted among the students of Kamianske (January, 2022).

2. ACADEMIC AND SOCIO-POLITICAL CONTEXT OF E-LEARNING IN UKRAINE

2.1. Distance learning in academic discourse

It is noteworthy that during the 20th century the process of modernization of higher education was mainly understood as updating its content. But the 21st century it became an exception. As a result of the quarantine measures caused by the spread of the COVID-19 pandemic, there grew a need to introduce fundamental improvements into the forms and methods of learning, methods of interpersonal communication, the system of organizing the educational process and the creation of an effective digital educational space enhanced by the digitization of education. As it was stressed by the Minister of Education and Science of Ukraine Serhiy Shkarlet, “Digitalization of education is one of the priorities of the Ministry of Education and Culture for the development of distance learning opportunities. Therefore, among the key tasks for today is the approval of the Concept of digital transformation of education and science, providing educational institutions with digital infrastructure and improving digital competence of academic staff” (Digitalization of education, 2021).

The main tasks of digitalization of education comprise: improving the staff’s digital skills and competences, developing digital infrastructure in higher education institutions; involving digital resources, making a gradual switch from paper to digital media in education and management; developing a system of universal student identification, automated management of his portfolio; elaborating distance learning. Therefore, the digitalization of education will contribute to the fact that classes, reporting, and record books will be transferred to the online format; students will be able to attend classes from their homes; electronic resources will be used instead of traditional textbooks more often; educational institutions will be equipped with modern devices: computers and other gadgets, interactive whiteboards, projectors. Over time, the educational process will undergo significant changes due to the process of digitalization, since the introduction of digital educational technologies involves a complete reformatting of classes in higher education institutions.

In the conditions of modern challenges, the digitalization of the educational process is connected, first of all, with the elaboration of distance learning. A forced rapid transition to this form of education motivated the academic management to take a new look at their professional activities, to realistically assess the level of digital competence of academic staff, to assess the level of electronic, information and digital educational resources involved in universities. Therefore, digitalization of the educational process is caused, first of all, by the need for the widespread implementation of innovative technologies, the emergence of new requirements for specialists, in particular for the formation of key competences, and the new digital generation. S. Brammer and T. Clark in their article on education and its management in the conditions of the pandemic note that COVID-19 left a considerable mark on the design of the university’s academic year, and students suffered the most, since it was their interests that became the focus of business schools when developing and implementing relevant measures. As the pandemic unfolded in January and February 2020, major

adjustments were introduced to the clarity and timeliness of feedback to stakeholders, especially students and faculty” (Brammer & Clark, 2020). All the teaching and research staff had to look for optimal solutions to design and implement the educational process in a remote format. Therefore, in the conditions of digitalization of the educational process, distance learning has become increasingly widespread. However, the feedback from students is to be studied in detail. The Akcil and Bastas pay particular attention to the students’ attitudes to e-learning during the COVID-19 pandemic (Akcil & Bastas, 2021). Gopal, Singh, & Aggarwal revealed four factors that affected students’ satisfaction with study during the COVID-19 pandemic: quality of professor, course design, prompt feedback, and student’s expectations. The results confirmed that students’ learning satisfaction improved their overall performance (Gopal, Singh, & Aggarwal, 2021).

In modern scientific discourse, the phenomenon of distance learning is described by different terms. Commonly used terms include *e-learning* or *online learning*; *virtual learning*, which usually refers to courses that take place outside the classroom; *part-time education*, a long-established method where one-to-one instruction is delivered by mail. The analysis of the scientific literature shows that currently there is no unified approach to defining the essence of the concept “distance learning”. In particular, B. Holmberg and O. Simpson define distance learning as a new specific form of education that involves certain approaches, methods, didactic means of interaction between the teacher and students (Holmberg, 2005; Simpson, 2002). S. Nipper believes that distance learning is an educational system based on computer telecommunications with the use of modern pedagogical and information technologies, such as e-mail, television and the Internet, where students obtain educational services without visiting an educational institution (Nipper, 1989).

In the publications of the United States Distance Learning Association (USDLA), “Distance Learning” is defined as a type of learning that is used to determine the physical distance of teachers and people receiving education during the educational process, which in its turn, increases students’ responsibility for their learning, which takes place at a distance. In particular, distance learning includes distance teaching (activity of a teacher in the educational process of a higher educational institution) and distance learning (students’ cognitive activity). The association identified a number of factors that characterize distance education in the conditions of global digitization:

- minimum teacher-to-student interaction in the classroom;
- technological means to improve the assimilation of educational material;
- self-control as a priority area of knowledge assessment;
- interactive communication between students, teachers and academic administration (The theory and practice..., 2011).

The difference between the terms *distance learning* and *distance education* is that the provision of higher education is controlled by higher education institutions and professors, while the student is responsible for learning, i.e. distance learning is the result of distance education. The concept *learning* in the works of modern scientists is defined as a purposeful, organized process of pedagogical interaction between a professor and a university student, while the term “education” contains elements

of a socially significant component, a systematic approach to learning and obtaining learning results. Another noteworthy aspect of distance learning is the application of new telecommunication technologies that do not change the organization of higher education and it remains traditional (Grebennikova, 2019). Therefore, many scientists come to the conclusion that distance learning is a form of learning using computer and telecommunication technologies that provide interactive collaboration between teachers and students at various stages of learning and independent work with digital resources. This is an ideal solution for those who prefer modern information technologies in education and value their time.

2.2. Common advantages and disadvantages of distance learning

The main essential advantages of distance learning are:

- time benefits. A distance learning student saves the traveling time to the university. They can independently decide when and how much time during the semester they devote to studying the material and can make an individual study schedule;
- geographical advantages. Students can study from their home or office, located anywhere on the planet. The student does not depend on the location of the educational institution: in any place, at any time, they can be involved in the educational process. All you need to start learning is a computer with internet access. The absence of the need to visit a higher educational institution every day is an undoubted advantage for people with disabilities, parents with small children, for those who live in hard-to-reach areas, in modern conditions this is relevant for students who are in the occupied territories or have acquired the status of internally displaced persons;
- psychological benefits. Passing exams and studying in a calm environment. Interim assessment of students in distance courses takes place in the form of online tests, so students have less reason to worry. The possibility of subjective assessment is excluded: the system that checks the correctness of the answers to the test questions will not be affected by the student's success in other subjects, their social status and other factors;
- ergonomic advantages. Convenience, where each student can choose their own rhythm and mode of acquiring knowledge in a comfortable environment, which will favorably affect the learning process itself. It is not necessary to study at the same pace as other students. The applicant can always return to studying more complex issues, repeatedly watch video lectures, re-read correspondence with the professor, and can skip topics that are already known. The main thing is to successfully pass interim and final assessment;
- financial advantages (reduction of travel expenses, rent of premises, minimum bureaucratic work);
- study incorporated into professional activity. It is not mandatory to take a leave at the main place of work, i.e. to travel. It is also possible to study remotely at several courses or in several educational institutions simultaneously;
- free access to various information sources 24/7. Access to all necessary literature is available to the student after registration in the distance learning

system. They can receive study materials by e-mail. The problem of lack or absence of textbooks, teaching aids or methodical materials disappears;

- mobility. Communication with teachers is carried out in various ways: both online and offline. Consulting with a teacher via e-mail is sometimes more efficient and faster than scheduling a personal meeting for face-to-face or part-time studies;
- digitalization. Distance education contributes to the gradual digitalization of the educational space, because information is exchanged through centralized portals in online format, and completed assignments or lecture recordings are always available on university servers. Digitization makes it easier to track plagiarism (especially text), which creates an open and honest environment for knowledge exchange and potentially reduces corruption and makes education more environmentally-friendly (instead of piles of papers and inconvenient sources, almost all participants in the educational process use electronic media) (Danylchuk & Melnyk, 2020; Lopa, 2019).

Digitalization of the educational process, in particular distance learning, is distinguished by high interactivity and a system for managing the cognitive activity of students of higher education, provides for differentiation and individualization of training in accordance with the needs and individual student's profile. When using distance learning methods, an organic combination is observed of the teacher's competence, information technologies with the student's wishes and purposefulness. An important task of distance learning is the development of intellectual and creative abilities of an individual with the help of free and open use of all educational resources and programs, including those available on the Internet.

The introduction of distance learning is based on the fact that the training of a specialist in higher education is aimed at the development of professional competence and the formation of their own personality, which determines the creation of a favourable psychological climate, the development of the student's creative individuality in the educational process of higher education (Vasilyeva, 2022).

In modern institutions of higher education, the digital format of education is based on a client-oriented approach, which is an important advantage for those who study. When receiving education remotely, students of higher education do not face the problem of lack of textbooks, study guides, methodological recommendations, since in most educational institutions that use distance learning, the educational process is carried out by providing each student with a separate user area in a secure part of the educational portal.

However, along with many advantages, the experience of recent digitalization of the educational process in Ukraine has triggered a number of challenges. It comes as no surprise that some university students consider online education an extremely stressful activity, to an extent that it critically affects their overall health and social life. Besides, as it was rightly noted by Prysiazhniuk, the transition to distance education not only aggravated, so to speak, "old diseases", but also gave rise to new ones. Some students suddenly "disappeared" from their computers, not to mention the microphones and cameras on them. This made feedback communication, which is so important in the educational process, difficult. There is also the sad practice of

communicating with a virtual audience without visual contact. Currently, we do not have statistics that would testify about the different modes of student participation in classes. Sometimes, when you address someone present during a seminar (not to mention a lecture), the person is, sadly, absent. Or the meeting has long ended, while the participant is still online (Prysiashniuk, 2021).

Thus, the main disadvantages of the digitalization of the educational process when organizing distance learning are related to:

- the challenge of learning quality control and academic dishonesty (it is impossible to determine the student's knowledge level due to remote knowledge control, which can be discredited by dishonest use of materials or hints);
- lack of high internal motivation of the student, because the opportunity to study at a convenient time can turn into constant procrastination, rather than systematic learning (the result of distance learning depends only on the self-discipline of the student of higher education, which is not always at the proper level);
- imperfection of technical facilities;
- the problem of student identification;
- lack of a live dialogue with the teacher (the lesson loses its emotional color, which leads to a decrease in students' interest in the material. The organization of the upbringing component of the educational process presents a special problem. It is really demanding to have feedback in terms of upbringing without proper communication with the professor, and no advanced technical means can help here);
- loss of interest in learning;
- lack of digital competences;
- difficulty in organizing practical classes;
- lack of a competitive spirit (with face-to-face training, due to time constraints, students try to show the maximum of their knowledge, prepare for classes more responsibly).

The main feature of distance learning is its psychological aspect, primarily for the student of higher education, because the effectiveness of the study, which is mainly of independent character, depends by 95% on the student, their will, attention, perseverance and self-control. Distance education is more appropriate as an additional type of education, when there is a certain knowledge base obtained by the student in full-time form. With this design the student comes with high motivation – to improve the level of qualifications to obtain, for instance, a higher-paying job.

2.3. Current challenges and threats to efficiency of e-learning in Ukraine

It should be noted that the day after February 24, 2022, the start of the full-scale invasion of Ukraine by Russian troops, the Ministry of Education and Science of Ukraine (MESU) recommended stopping the educational process in educational institutions of all levels. Consequently, everyone was on a two-week break. During this time, part of the territory of Ukraine was temporarily occupied, a number of cities and villages (Mariupol, Chernihiv, Sumy, Kharkiv and others) became the

scene of active hostilities. From March 14, the educational process began to resume in areas where it was relatively safe. Decisions about the possibility of training and its format were made by regional administrations and educational institutions. Most institutions of higher education have resumed distance learning, because it was this type of training that made it possible to organize the educational process in wartime conditions. In addition, the MESU recommended establishing special study conditions (individual study plan, dean's leaves) for students who are in the ranks of the Armed Forces of Ukraine or territorial defense.

As of March 31, 2022, according to the Ministry of Education and Culture, at least 18 higher education institutions were damaged and one was destroyed. Some universities were hit harder than others, forcing them to evacuate to safer cities. Ukraine already has the experience of evacuating universities. Thus, after 2014, part of the universities of Donetsk, Luhansk regions and Crimea were moved to safer cities within these regions or to other regions. This process is repeating itself. In particular, the State University of Biotechnology moved from Kharkiv to Transcarpathia. Part of the property of educational institutions in Uzhhorod and Mukachevo was transferred there. Azov State Technical University moved from Mariupol to Dnipro, where it was located on the basis of the National Technical University Dnipro Polytechnic. The Volodymyr Dahl Eastern Ukrainian National University was also evacuated from Severodonetsk to Kamianets-Podilskyi and the Luhansk Medical University from Rubizhne to Rivne (both were previously evacuated from Luhansk). Today, the number of universities requiring evacuation has already increased (Nazarenko, Kohut, & Zherobkina, 2022). Evidently, the blow inflicted on Ukraine as an independent state has brought a lot of painful disruption into the educational process and is exposing the weakest links in the system.

3. RESEARCH RESULTS: DISCUSSING STUDENTS' AND TEACHERS' OPINIONS

Evidently, with the beginning of war, the digital format of education became almost the only possibility of obtaining higher education. Universities are trying to adapt to these conditions, taking into account their experience during the pandemic. It is undeniable that the Ukrainian market of educational services has undergone significant changes since the beginning of the COVID-19 pandemic. There are several official analytical documents that summarize problematic issues of the quality of educational services during the quarantine period and determine the dynamics of processes related to the use of digital distance learning technologies in the conditions of nationwide quarantine. In our opinion, it is advisable to analyse them in order to identify and take into account problematic points in the digitalization of the educational process in the conditions of modern challenges, namely in the period of a full-scale war.

In 2020 the State Education Quality Service of Ukraine prepared an informational and analytical report discussing factors that negatively affect the quality of digital learning technologies and lead, in particular, to a low level of student engagement in learning. The analysis showed that the interviewed university students most often face the problem of the lack of uninterrupted access to the Internet (38%), every

fourth notes that there is no necessary equipment at home, 15% of the students lack the necessary skills to work with technology, and every fourth university student surveyed stresses the lack of self-organization. These reasons can complicate the timely participation in distance learning. In addition, university students seriously consider other factors that complicate distance learning: every third respondent admits the possibility of biased assessment, the consequence of which, obviously, is the irregularity of communication with the teacher, which was confirmed by 25% of the surveyed students (Figure 1) (Informational and analytical report, 2020).

Interestingly, there was conducted another anonymous online survey of applicants for higher education, pedagogical and scientific teaching staff, as well as representatives of academic administration of universities (hereinafter – HEIs) aiming to assess the level of satisfaction of the participants of the educational process with the organization and quality of distance learning, conducted in the 2020/2021 academic year by the State Service for the Quality of Education of Ukraine. 9,184 respondents from all regions of Ukraine took part in this survey (Informational and analytical report, 2020).

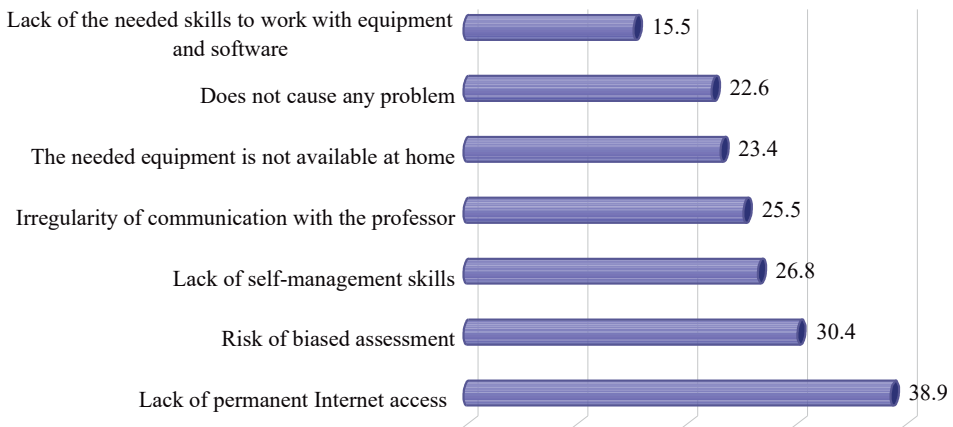


Figure 1. Problems faced by students during distance learning, in %

Source: Informational and analytical report on the results of a survey on the state of use of distance learning technologies in higher education institutions of Ukraine, 2020.

The analytical note emphasized that during the spring period of the national quarantine in 2020, higher education institutions were operating under a complete lockdown with the need to quickly change the model of providing educational services, while in the 2020/2021 academic year they were given the opportunity to provide a mixed mode of study (both face-to-face and remotely), taking into account the epidemic situation in the respective region. In accordance with this, the respondents recognized that the quality of the provision of educational services by higher education institutions in the 2020/2021 academic year compared to the previous period has improved. This was stressed by 64.9% of the surveyed respondents, while 27.6% believe that the quality of education has not changed, and 7.5% believe it has worsened. Interestingly, almost 90% of heads of higher education institutions believe that the quality of educational services increased significantly in 2021 compared to 2020. And a little

more than 60% of students and teachers agreed with this opinion (Analytical Report on Trends, 2021).

Switching from the all-Ukrainian trends to more local ones, it is worth discussing the data of the latest sociological research conducted among the student youth of Kamianske in January 2022 through an online survey (n = 245 respondents). It was found that the biggest problems for students are challenges of self-organization and compliance with the regime – 32.4% and 31.1%, respectively. Other 12.6% of respondents have problems with the technology necessary for comfortable distance learning, and 23.2% find it difficult to answer this question (Table 1). The data about local youth as of 2022 demonstrate that university students of Kamianske lack the crucial skills of self-organization and time-management which are not at the top of the agenda among Ukrainian students on average.

At the same time, almost one out of three students (35.3%) believes that the quality of education using the distance learning system has rather deteriorated in the conditions of the COVID-19 pandemic. However, only 3% less respondents (32.4%) assessed the transition to distance education as a positive fact and noted that it rather improved its quality than worsened. 13.7% spoke of a significant improvement in the quality of education with the use of digital technologies, and 7.5% spoke of deterioration.

Table 1. Problems, faced by the students in distance learning, in %

Which problems do you face in distance learning during lockdown?	in %
Self-organization	32.4
Following the timetable	31.1
Lack of the needed equipment	12.6
Hard to say	22.3
Other challenges	
– during distance learning professors and students have much higher needs than during traditional classes	0.8
– lack of leisure time	0.8

Source: Own research.

This state of affairs, in our opinion, is caused by the fact that not all modern Ukrainian higher education was ready to use distance education as the main form of education, which was manifested in a significant number of shortcomings. In confirmation thereof, we note that almost 2/3 of respondents are ready to use distance learning only as an addition to traditional learning – 63.9%.

And in this respect, in our opinion, it is necessary to focus attention, first of all, on the psychological unpreparedness of both students and teachers to function in the conditions of distance education in the perfect version of its design for a long time. Indeed, at the beginning, most universities and the students themselves were not ready for such an immediate transition from traditional to distance learning, as they needed time to adapt the standard curriculum to the realities of distance learning. Some were able to adapt and found significant prospects in it, while others totally

neglected the fact that distance learning is also learning, only enhanced by digital technologies, and not the opportunity to do private things during class time. Today, in the conditions of martial law, everyone appreciated the advantages of distance education and adapted to such training.

According to the authors' research, it was established that for the student youth of Kamianske, the main advantage of distance learning is the ability to combine work and study. This was confirmed by 43.1% of respondents (Table 2).

The next meaningful advantage for the respondents is the flexibility of the educational process – 41.2% of the respondents stressed this, the same number of people marked as important the option “Learning in a comfortable environment”. “A chance to gain practical skills” as well as “Swift update of the content of learning materials” both gained 31.4%. For 22.5%, the main advantage of distance learning is the technology-intensiveness of the learning process – people are attracted by the modernity of this learning method. 1.8% could not answer this question.

Table 2. Advantages of distance learning, own research, in %

Which advantage of distance learning are of specific value for you personally?	in %
A chance to combine work and studies	43.1
Flexibility of the educational process	41.2
Learning in comfortable and pleasing environment	41.2
A chance to gain practical skills	31.4
Swift update of the content of learning materials	31.4
Highly technology-intensive learning process	22.5
Hard to say	10.8

Source: Own research.

Overall in Ukraine as of 2020, the analysis of the use of distance learning digital technologies showed that every seventh respondent (15% of students' responses) believes that distance learning is not effective. The rest of the respondents generally positively consider the possibility of effective training using the specified technologies. Every second university student considers three digital tools to be the most efficient for organizing the educational process: messengers (Viber, Messenger, Telegram and others) – 51.5% of respondents, virtual educational environments (Moodle and others) – 50.1%, video conferencing tools (ZOOM, Skype, Meet and others) – 46.8% responses. The opinion of scientific and pedagogical workers regarding the distribution of distance learning tools in terms of effectiveness generally correlates with the vision of the student audience. However, scientific and pedagogical staff generally see virtual educational environments as a priority in terms of efficiency (70.1%), while the efficiency of messengers was confirmed by only 41% of responses (Figure 2). (Informational and analytical report, 2020).

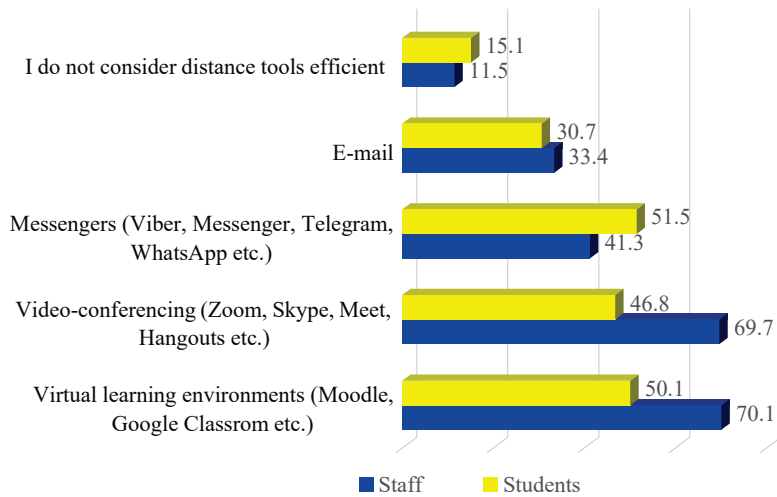


Figure 2. Digital technologies used by participants of the educational process in distance format, in %

Source: Informational and analytical report on the results of a survey on the state of use of distance learning technologies in higher education institutions of Ukraine, 2020.

According to a smaller sociological survey conducted in Kamianske in January 2022, electronic educational materials are considered the most convenient among the forms and methods of distance learning – 45.6% of respondents. Next in popularity come various messengers – 36.9%, webcams and online communication – 34%, forums and electronic libraries – 28.2% each, e-mail – 26.2%. While almost every fifth respondent could not decide on an answer (20.4), which actually indicates their lack of interest in distance learning (Table 3).

Table 3. The most user-friendly forms and methods of distance learning, according to modern students, in %

Which forms and methods of distance learning are the most user-friendly?	in %
Electronic learning materials on university website or repository	45.6
Messengers	36.9
Online-communication with web-cameras	34
Forums	28.2
Electronic libraries	28.2
E-mail	26.2
Hard to say	20.4

Source: Own research.

However, despite the fact that we have already lived to the end of the third academic year in the conditions of a pandemic and currently also a war, Ukrainian higher education still shows signs of unpreparedness for the full-scale digitalization of the edu-

ational process: lack of material and technical equipment, lack of practical digital competences, as well as lack of appropriate methodological recommendations on the organization of the educational process (Nazarenko & Polishchuk, 2021). In addition, there is a lack of data to critically assess the state of (un)readiness of the educational system for digitalization. During this time, international expert organizations have developed quite a number of recommendations for the organization of distance learning, preserving the quality of education and the health of students and educators. For example, the European Commission approved the Digital Education Action Plan for 2021–2027. It emphasizes two important areas of work:

- promoting the development of effective digital education system (infrastructure, communication, technical means, development of teaching competences, high-quality educational content);
- improving digital skills (basic digital skills from an early age, combating misinformation, ensuring equal access of women and girls to digital education, etc.) (Digital Education Action Plan).

Ukraine is in a painful need of such an action plan, although various aspects of distance education in Ukraine are regulated by normative documents, namely: National Doctrine of Education Development, laws of Ukraine On Education, On Higher Education, On the National Informatization Programme, the Order of the Ministry of Education and Science of Ukraine On Approval of the Regulation on Distance Learning. The division of efforts offered within the framework of the Digital Education Action Plan is a logical and rational plan, however it is crucial to take into account the challenges of evolution of the e-learning in Ukraine in period 2020–2022.

CONCLUSION

The COVID-19 pandemic has created a unique opportunity for the spontaneous introduction of digital technologies into the educational process. In fact, in many countries of the world, an unexpected large-scale experiment on digitalization of the educational process was launched. Therefore, the temporary reaction of higher education institutions to the crisis is becoming a long-term digital transformation of higher education. Undoubtedly, the use of digital technologies made it possible to quickly design the educational process in distance format. At the same time, higher education institutions of Ukraine, in conditions of the digitalization of the educational process, faced a number of challenges, namely: the specific combining of elements of information and communication technologies, present in every educational institution, with technical means of education to generate effective network tools; defining the role, tasks and types of involvement for research and academic staff in the midst of active elaboration and use of digital technologies into the educational process; replacing the traditional classroom educational environment with a virtual network; searching for appropriate methods and tools of distance learning; establishing effective communication for all participants of the educational process in the network environment. Assessing the developments of e-learning in Ukraine in the period 2020–2022 (first quarter), spurred by the global pandemic and currently, war hostilities it was possible to see a positive trend, as the respondents in Ukraine on average recognized that the

quality of the provision of educational services by higher education institutions in the 2020/2021 academic year compared to the previous period (2020) has improved. However, with the positive trend in the background, the local research of students' opinions revealed a number of specific trends in Dniprovsky State Technical University. Flexibility as the most powerful trend of e-learning remains valid, which is confirmed by the questionnaire. However, the possibility and chances of gaining practical skills in e-format seems to be low. This is evidently an area of future effort or the educational management and the staff. In order to remain flexible as e-learning usually offers but offer more connection with professional life, the institution is supposed to develop more practical tasks, competence-based tasks, especially if they are so welcome by the participants.

The solution mentioned above will potentially improve the general digital competence of the students. As demonstrated by both the all-Ukrainian and local research in Kamianske, sadly, it is the staff who tend to be more aware of the potential of digital learning environments, while students prefer to use less technologically-heavy environments as messengers, chats, emails, etc.

The data allowed us to expose another uncomfortable truth about local youth in Kamianske as of 2022. The university students seriously lack the crucial skills of self-organization and time-management which, on average, are not at the top of the agenda among Ukrainian students. Evidently, the blow inflicted on Ukraine as an independent state has brought a lot of painful disruption into the educational process and is exposing the weakest links in the system and might continue to do so. It is crucial to mend this low self-management trend among the city students. However, in order to see the influence of war hostilities on Ukrainian e-learning there is a need for further research.

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