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Analysis of the State Readiness Teachers of General Secondary Education Institutions in Ukraine for Distance Learning

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Abstract. The article highlights key objective factors underscoring the need for further development of distance learning in general secondary education institutions. These factors include global trends such as the digitalization of society, and the reform of national educational systems, as well as region-specific challenges. Russia's war against Ukraine has created additional obstacles, including the destruction of educational infrastructure, constant threats to the safety and well-being of teachers and students, and the displacement of learners within the country and abroad. The development of distance learning is shaped by positive and negative influences and depends on two essential conditions, namely, 1) access to necessary technical resources, and 2) digital literacy, competence, and culture.

Teachers and students must be adequately prepared to ensure high-quality distance learning in general secondary education institutions (hereinafter "GSEIs"). A study conducted from 2020 to 2024 on the readiness of GSE teachers for distance learning reveals significant shifts in their attitudes and preparedness, including digital, technological, and methodological aspects. The study identifies key indicators of teachers' readiness for distance learning: 1) assessment of distance learning outcomes and quality by teachers, students, and parents; 2) institutional readiness to organize and support distance learning, including the presence of a unified e-learning environment of an educational institution; and 3) teachers' digital literacy. Furthermore, the effectiveness of distance learning depends on education policies at all levels, ensuring systematic support and resources for teachers and institutions in delivering high-quality online education.

Finally, the article presents the results of a survey conducted among teachers (2784 respondents in 2020 and 2406 in 2024). It includes a detailed analysis of the responses and highlights a positive trend in teachers' readiness for distance learning over this period. A comparison of these results with monitoring studies from the Institute for Digitalization of Education of the NAES of Ukraine has confirmed the validity of the indicators used to assess teachers' readiness for distance learning and supported the study's conclusions, which are consistent with one another.

Keywords: teachers' digital competence, distance learning, monitoring the digitalization of education, statistics on the use of digital tools, indicators of teachers' readiness for distance learning, a unified e-learning environment of an educational institution.

Introduction

The world is witnessing profound digital transformations. Indeed, the global economy is currently undergoing an active shift. It is evolving, away from a post-industrial society towards an information society, which, due to the rapid pace of societal and creative processes, acts as a transitional phase toward a knowledge-based society. Key

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characteristics of these changes include increased production efficiency and globalization, as well as enhanced government support for national economies, particularly in the education sector. There is a strong focus on achieving success through technological and organizational innovations, and a growing emphasis on system flexibility as a sign of adaptability. Furthermore, these alterations are accompanied by the democratization of evolutionary processes within systems and the increasing influence of digital technologies on people's lives and economic activities.

The development of digital technologies and the societal processes driving global changes in national educational systems (such as pandemics, wars, and natural disasters) encourage countries worldwide to reassess their approach to digital technologies and their potential in education. These influences are prompting efforts to adapt learning systems and promote the swift and effective integration of remote learning technologies. However, the success of distance learning (hereinafter "DL") is directly affected by several factors. These include teachers' technological awareness, digital competence, and their readiness for digital change. Additionally, practical skills in using online platforms and selecting appropriate didactic tools, including digital resources, play a crucial role. One might assume that these are the key indicators of teachers' readiness to implement DL in their professional activities.

Digital competence is a mandatory requirement for the teaching profession, as stated in legislative and regulatory documents, including the Professional Standard for Teachers [1]. However, this need is not only defined by legal frameworks but also by the realities in Ukraine. The ability to effectively use digital tools, resources, and technologies in education demonstrates a teacher's readiness to apply digital competence in practice. Specifically, a teacher's capacity to adapt to the challenging conditions of full-scale war highlights their professional maturity. This includes effectively using innovative teaching technologies, digital tools, and resources. Teachers must also navigate factors such as the form of educational delivery, air raids, damaged school buildings, and the geographical dispersion of participants. These challenges demonstrate their readiness to provide effective education, regardless of the teaching format. While most countries have moved beyond the necessity of distance or blended learning after the lifting of COVID-19 restrictions, for Ukrainian educational institutions, DL remains the primary form of education. This will remain relevant even in the post-war period, as the restoration of educational infrastructure across large areas of the country will take years. Consequently, teachers will need to work under difficult conditions, employing various forms and technologies for teaching.

It follows that DL will continue to be a relevant form of education in Ukrainian institutions for at least the next decade. Therefore, it is essential to objectively evaluate its strengths, and weaknesses, and fully optimize its potential.

Literature Review

In the digital age, the transformation of education has gained particular importance, aiming to increase the use of information technologies and digital devices directly in the educational process, as well as in teacher professional development. These changes should facilitate the integration of digital technologies into the work and self-development of teachers and students. After all, digital tools serve as a means to diversify and optimize the learning process, while also opening up new possibilities. Ultimately, this process is carried out by people, for people, and in the interest of people. As noted by O. Spirin, "There are sufficient grounds to argue that a general crisis has affected the educational system, spanning nearly all countries, including Ukraine. The main reason for this crisis is the mismatch between the content of education and the level of educational systems concerning the information-driven trajectory of civilizational development" [2, p. 6]. The researcher suggests that addressing this issue "requires new approaches to the informatization of education, a strategically critical direction for developing the educational system. In this context, the problem of education informatization becomes a fundamental scientific challenge" [2, p. 6].

The success of reforms being implemented in the country and the effectiveness of digitalization are directly tied to the level of digitalization in the education sector. This includes teachers' readiness to incorporate digital technologies into the educational process, their informed choices of DL tools and online platforms, and their ability to effectively

combine various teaching methods to achieve the desired outcomes. Access to quality education in the face of information inequality has become a critical issue, requiring special attention. The rapid pace of technological change, if not followed by corresponding reforms in the educational system, creates a deeper crisis: the inability to manage information flows effectively and meet the evolving needs of the time. As a result, there is a risk of losing competitiveness and development potential, even with formal access to information resources.

This issue is particularly relevant today, as cloud technologies are rapidly developing. Countries are integrating these technologies into their economies, which increases dependence on the digital literacy of their citizens. At the same time, the dual nature of the problem of access to quality education becomes clear. One lives in an era of open education systems and widespread access to knowledge, which brings both opportunities and challenges. The ability to acquire knowledge, skills, and competencies through digital technologies is crucial. It not only determines the success of individuals but also influences the success of the organizations, institutions, and companies they work for, as well as the state and society as a whole. Global access to knowledge is now available to everyone, provided two key conditions are met: 1) the availability of technical resources (such as Internet access and devices for working with digital tools), and 2) the level of digital literacy, competence, and culture of the individual using these resources.

According to R. Roll, "In the future world... the educational environment as we know it today, the way we provide and organize education, and the methods of learning will undergo dramatic and rapid changes due to new realities and evolving learning needs. We have already made considerable progress in this transformation and are witnessing the merging of traditional and distance learning in many countries. As conventional education evolves, distance learning will also change" [3, p. 40]. Thus, the readiness for these changes, particularly among teachers, will play a key role in the success of education reforms, the quality of education, and the overall development of society.

This article defines distance learning as "the process of acquiring knowledge and skills through mediated instruction, which includes all technologies and other forms of remote education... it involves teaching through the use of telecommunications technologies to exchange educational materials, such as audio, video, and other data" [4, p. 192].

It is also important to explore the concept of "teachers' readiness for distance learning". In particular, A. Kukh examines the scientific interpretation of the term "readiness" from a psychological perspective. The scholar states that "readiness is one's orientation toward certain behaviours, a mindset for active and purposeful actions, and one's ability to adapt to successful actions in the present moment, driven by motives and psychological traits" [5, p. 130].

S. Kravets, in her study on the nature and components of teachers' readiness to implement DL, emphasizes the clear distinction between "readiness" and "competence" in teachers. This distinction is in line with the ongoing innovative changes in the education sector and the current demands of society. These changes indicate that a teacher's formal education, as reflected in their diploma, needs to be updated, while outdated knowledge, skills, and abilities must be replaced with new, innovative ones. This shift highlights the growing importance of lifelong learning, continuing professional development, and mastering competencies driven by education reforms. Besides, S. Kravets argues that "competence" and "readiness" in today's teachers are continually evolving. This is particularly true considering that innovative teaching technologies, ICT, and DL are relatively new tools and methods that are still being developed, adapted, and improved in professional training processes. As a result, not all vocational education teachers can effectively and creatively use DL tools to train skilled workers. This is true even if their teaching experience, expertise, and professional competence are considered to be at the highest levels [6].

Thus, a teacher who organizes and facilitates DL must possess a range of technological skills and competencies, have adequate knowledge of the specifics of e-learning, and have at least some practical experience in applying this knowledge. Additionally, the teacher should be equipped with the necessary technical resources, such as a computer or other device connected to the Internet with sufficient data transfer speed. Building on this understanding, as

well as a contextual analysis of scientific sources and the author's own research, the concept of "teacher's readiness to use distance learning" can be defined as the motivated and conscious ability to organize and support the educational process. This involves using Learning Management Systems (LMS) and other tools and services that enable remote teaching and learning. It requires integrating synchronous and asynchronous methods to enhance the learning experience [7].

Purpose

The article aims to present the findings of an analysis of changes in GSE teachers' readiness to implement DL. The analysis tracks the dynamics of this process, identifies key challenges, and explores opportunities for developing DL in GSEIs. It also examines how teachers' readiness, or lack thereof, affects the quality of such learning.

Methodology

This study is based on the analysis of monitoring research conducted by the Institute for Digitalization of Education of the NAES of Ukraine between 2020 and 2024 [8–10], along with the results of the author's own research on GSE teachers' readiness to implement DL during the same period. To achieve the research aim and present its findings, the following methods were applied: analysis and synthesis to define key concepts; comparison and contrast of the obtained results; surveys to explore the motivations, values, needs, and knowledge levels of GSE teachers, and identify changes in their readiness for DL; data visualization methods to illustrate and compare results in figures, diagrams, and tables.

Results and Discussion. Teachers' readiness for any changes and innovations, including DL, directly depends on their capacity for professional development. Indeed, teachers need to continually enhance their professional skills and digital competence to pass these qualities on to their students.

As part of this study, a survey was conducted with GSE teachers in Ukraine between 2020 and 2024. The survey participants were drawn from users of specialized professional groups on Facebook and attendees of professional development courses offered by the Centre for Innovative Educational Technologies of the Institute of Law, Psychology and Innovative Education at Lviv Polytechnic National University [11].

The survey was conducted between June and September 2020, and again in September 2024. The respondent selection was influenced by several factors, allowing the inclusion of teachers who use the Internet for professional purposes, particularly for their professional development; those who actively engage in professional growth and the use of innovative educational technologies, including digital tools; those who likely incorporated digital technologies in their teaching before the quarantine and the introduction of DL, thus possessing relevant experience; and those with experience in DL as students, enabling them to evaluate the effectiveness of the organized teaching. A total of 2784 teachers participated in the survey, representing all regions of Ukraine, excluding the temporarily occupied territories of Donbas and Crimea. The survey also included teachers from various locations, such as villages, small towns, large industrial cities, regional centres, and the capital (see Fig. 1).

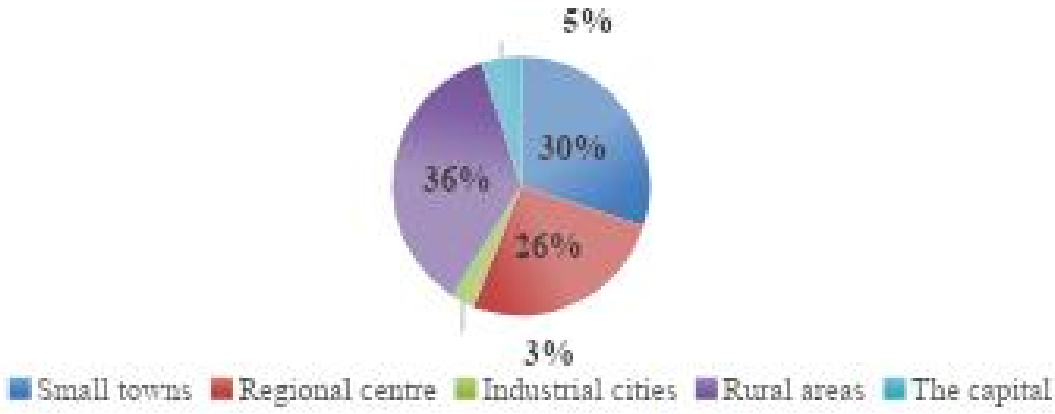

Fig. 1. The distribution of respondents based on the location of the GSEI where they are employed, % [Source – the author's own conception]

The results of a 2020 survey reveal teachers' readiness to adopt DL and highlight key trends and challenges in organizing the educational process in GSEIs through this mode of instruction. The findings show that the majority of respondents (87 %) used their devices for teaching both before and during the quarantine, with smartphones (77.2 %) and laptops (57.4 %) being the most commonly used devices. Additionally, 73.4 % of teachers reported using the Internet at work, with 16.4 % acknowledging that they covered the cost of Internet services themselves. The survey also confirmed that most students (86.7 %) use smartphones for learning, even though 13.2 % of students lacked the necessary devices (computer, laptop, or smartphone) to fully engage in DL. Only 8.3 % of respondents indicated that their educational institution had an established information environment before the quarantine, primarily based on GSuite. Overall, 24.39 % of respondents work in GSEIs that have a unified e-learning environment, while 86.4 % reported that their institution lacked such an environment, and 5.3 % were unable to provide an answer.

The distribution of responses to the question, "How successful was the learning at your educational institution in the spring of 2020?" reveals the reason behind using a messenger as the primary tool for learning. Most teachers independently sought methods to organize the learning process (see Table 1).

Table 1

The distribution of responses to the question, "How successful was the learning at your educational institution in the spring of 2020?", %

Response option	%
0 – unsuccessful	10.63
1 – we tried but did not succeed	0
2 – some teachers had partial success, but there was no unified system	**14.63**
3 – there was some success in organizing learning at the school (for both teachers and administration)	4.88
4 – there are areas of effective learning, even though there were also some failures	8.94
5 – each teacher used tools they were comfortable with to organize learning	**45.53**
6 – the institution owns a domain name and has established an e-learning environment	9.88
7 – the institution has implemented a unified e-learning environment, with teachers and students having individual accounts and knowing how to use them	**16.26**
8 – the unified e-learning environment contains thematic collections of learning materials, which are validated and actively used by actors in the educational process	0.81
9 – the unified e-learning environment is used for organizing learning, handling electronic document management, and enabling communication among all actors in the educational process	28.44
10 – we have effectively used the unified e-learning environment to organize learning and are ready to share our experience	0

[Source – the author's own conception]

As indicated by the distribution of responses, the learning organized in GSEIs during the spring of 2020 was not viewed as successful or effective by the teachers. They reported being forced to independently select tools and platforms for organizing learning, with their choices primarily based on accessibility for both students and teachers, as well as ease of use (45.5 %). Additionally, 14.63 % of respondents pointed out that there was no unified approach to organizing learning, meaning that positive experiences were limited to individual teachers. Most respondents (68.4 %) stated that their digital skills and experience with ICT in education were insufficient before the quarantine to organize DL effectively. Only 14.9 % of respondents felt that the transition from in-person to DL was seamless, and these were teachers from schools that had already established their educational-information environment and were actively implementing blended learning technologies before the quarantine. Furthermore, 39.1 % of teachers could not select appropriate software or digital tools to organize DL

from the options provided. The most alarming finding from the survey was that none of the respondents were willing to share their accumulated experience.

During the spring 2020 quarantine, most teachers used various digital resources to organize learning. Teachers were asked to select from a list of services and tools they had used or to provide their options. This led to the identification of the six most popular tools: Viber (91.7 %), YouTube (publicly available videos) – 65.9 %, e-mail – 58 %, Zoom – 45.4 %, Classroom – 39.1 %, school website – 23.7 %, and Skype – 23 %. A study by O. Ovcharuk & I. Ivaniuk [10], conducted in April 2020, confirms the results. Still, the researchers highlight the reasons for the unsatisfactory results mentioned by the teachers: "The main challenges identified by teachers were: lack of experience – 58.6 %; limited Internet access – 35.3 %; insufficient information – 20.2 %; unclear instructions from school administration – 10 %; lack of motivation – 7.8 %" [10, p. 16].

Importantly, the quantitative data from the 2020 and 2024 surveys recorded by the author align with the findings of surveys and monitoring studies conducted in Ukraine by research institutes and the State Service for Education Quality. To support this, the article references a study by researchers from the Institute for Digitalization of Education of the NAES of Ukraine, who published consolidated survey results from GSE teachers for 2020-2024 between 2022 and 2024 (see Table 2).

Table 2

Comparing teachers' use of digital tools during distance and blended learning between 2020 and 2024

Tool	% used in April 2020	% used in January and February 2021	% used in January and February 2022	% used in February and March 2023	% used in February and March 2024
Viber	88.2	83	78.4	77.7	75
Zoom	28.5	58.7	65.4	63.8	65.2
An educational institution's website	62.7	58.7	23.5	24.7	n.d.
Google Workspace for Education	45.5	15.1	20.2	53.1	21
My Class	18.5	20.7	19.5	22.1	24.2
An electronic diary	10.3	11.7	15.4	34.1	n.d.
Artificial intelligence	n.d.	n.d.	n.d.	n.d.	13.7
Telegram	20.9	13.8	13.3	26	24.9
Learningapps.org	n.d.	n.d.	n.d.	26.7	31.1
JitsiMeet	0.7	9.5	13.1	4.4	15.4
Padlet	0.6	18.8	11	16.8	25.4
Flipped Classroom	0	11.6	10.9	n. d.	n. d.
Skype	37.7	14	8.3	6.9	5.9
Kahoot	n. d.	n. d.	n. d.	11.9	19
Microsoft Teams	4.7	4	4.7	4.9	9.7
WhatsApp	13.3	4	3.3	4.8	5
Moodle	3.4	4	3.2	3.8	4.2
ClassDojo	2.4	4	1.5	n.d.	n. d.
Tik-Tok	0	4	1.4	2.9	3.6
Edmodo	0.8	4	1	n.d.	n.d.

[Source: 8, p. 29; 10, pp. 10–11]

It is concerning, in the author's view, that Viber remains the leading tool used by teachers for DL. At the same time, specialized cloud platforms such as Google Workspace for Education, My Class, and others fail to exceed 25 %, while educational platforms, including Moodle and ClassDojo, barely reach 5 %.

The survey identifies several troubling trends that highlight the teachers' readiness for remote learning:

1. There was a notable discrepancy between how GSE teachers and students' parents assessed learning outcomes and quality. Teachers believed that the curriculum had been fully covered according to State Standards and that any gaps in students' knowledge, resulting from their lack of DL skills, could be easily filled once in-person classes resumed. This belief in the temporary nature of the issue indicated teachers' lack of preparedness to address it in the long term. In contrast, parents expressed frustration about having to take on the role of teacher when new topics were being taught, which felt unnatural and led to many family conflicts and challenges. This not only affected the quality of learning but also fostered a negative attitude toward DL and the idea of studying from home.

2. The absence of an effective unified e-learning environment in most GSEIs and the failure of school leaders and local education departments to recognize the critical link between the presence and development of such an environment and teachers' digital literacy and competence, which are key indicators of the quality of the educational process, regardless of its delivery format. According to the survey, 90 % of respondents reported that, at the start of the COVID-19 pandemic, the organization of DL, selection of lesson tools, assignment of homework, and assessment of student performance were fully handled by the teachers. Simultaneously, 77.8 % acknowledged no unified e-learning environment in GSEIs during the spring of 2020, while 10 % reported using Google Classroom. The remaining 12.2 % could not respond, primarily because they were unclear about what a unified e-learning environment entailed (see Fig. 2).

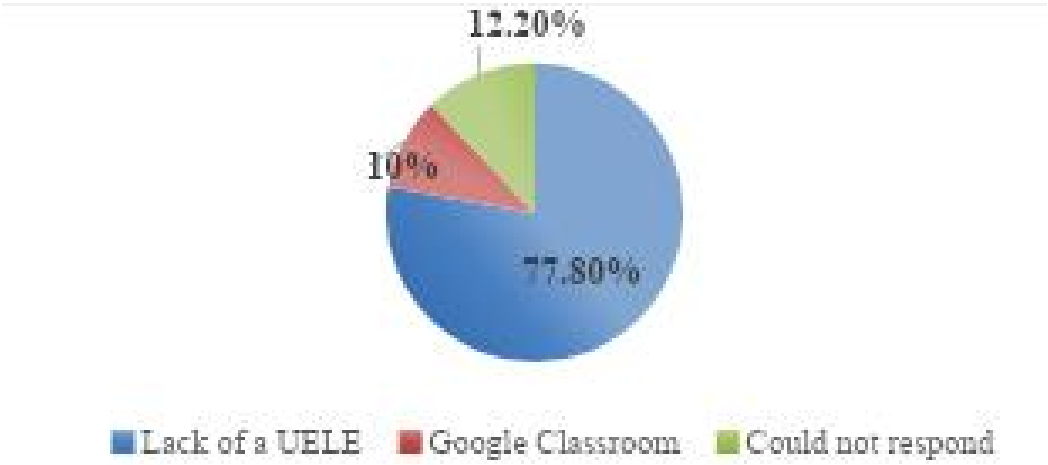

Fig. 2. The distribution of GSE teachers' responses to the question "What served as the foundation for creating a unified e-learning environment (UELE) at the educational institution where you work?" during the summer 2020 survey, % [Source: the results obtained by the author]

3. Teachers recognized their insufficient digital literacy and the immediate need to address gaps in their knowledge, skills, and abilities regarding the planning, organization, delivery, and analysis of distance lessons, as well as DL in general. A total of 1665 respondents admitted that the challenges of DL revealed the unsatisfactory state of ICT literacy among GSE teachers. The situation was further complicated by the fact that, despite the negative outcomes, many teachers were still content with their performance and believed they had managed the situation adequately. This was reflected in the fact that 65.3 % of teachers considered themselves technically prepared for online learning, while 54.5 % felt methodologically ready for it. These responses reveal a lack of objectivity in teachers' self-assessment, pointing to their unpreparedness for DL and their insufficient proficiency in using the necessary tools to ensure and control its quality.

From 2020 to 2024, a range of initiatives were launched at regional and national levels to improve the quality of DL, support teacher professional development, and more. Notably, a regulation on distance education for secondary schools was

adopted [12], and the "All-Ukrainian Online School" [13], a national platform providing educational (methodical and didactic) resources to assist remote teaching, was established and is now successfully operational. Each region created and implemented educational and infrastructure projects to equip both teachers and students for DL. To illustrate, in Lviv region, an action plan was approved, forming the basis for measures concerning "distance learning in educational institutions of Lviv region" within the Education Development Strategy for Lviv Region until 2027 [14]. The full-scale Russian aggression brought profound changes to Ukraine's educational system, with many schools either destroyed or situated in temporarily occupied territories, forcing hundreds of thousands of students to switch to remote learning. Nevertheless, the experience gained during quarantine learning and the subsequent efforts to enhance its quality allowed Ukraine to maintain its educational process, even during the difficult spring of 2022. Ukrainian education, particularly the organization of the educational process in GSEIs, has undergone significant transformations. Face-to-face, blended, and distance learning formats are all functioning effectively and evolving. Socio-political events have influenced how education is delivered, leading to the development of various implementation models. Education stakeholders have adjusted to these changes and addressed several key issues. However, challenges related to the quality of DL persist and require ongoing attention.

A survey conducted in September 2024 among GSE teachers revealed their active involvement in professional communities through social media, thematic conferences, roundtables, discussions, training seminars, and professional development courses, both face-to-face and online. The survey adapted questions from the 2020 questionnaire to reflect the context of 2024. A total of 2406 teachers from various regions of Ukraine participated, including those who had relocated abroad after the full-scale invasion but continued teaching Ukrainian students in-person and remotely, including those in educational institutions abroad. Of the respondents, 79.7 % live in Ukraine, while 21.3 % were abroad at the time of the survey. A key finding was the response to the question on the effectiveness of organizing DL in the 2023–2024 academic year (see Table 3). Respondents were able to choose multiple answers for a more accurate assessment of learning success.

Table 3

The distribution of responses to the question, "How would you rate the success of DL at your educational institution in the 2023–2024 academic year?", %

Response option	%
0 – we attended in-person classes	22.1
1 – ongoing hostilities disrupted the regular learning process	0
2 – there have been no changes in the organization of DL compared to the quarantine period, even though some teachers have made certain improvements	**2.6**
3 – despite ongoing hostilities, learning was conducted systematically, even though the quality could be improved	8.52
4 – learning was adapted to the current situation, with distance and blended learning using digital tools and resources; however, the institution lacks a unified e-learning environment	7.91
5 – each teacher used tools they were familiar with to organize the learning process	**65.2**
6 – the institution owns a domain name and has established an e-learning environment	16.4
7 – the educational institution has implemented a unified e-learning environment based on Google or Microsoft, with teachers and students having their accounts and the skills to use them	**36.6**
8 – the institution's unified e-learning environment includes thematic collections of educational materials that have been validated and are actively used by actors in the educational process	**42.6**
9 – the unified e-learning environment is used for organizing learning, managing electronic documents, and facilitating communication among all actors in the educational process	16.74
10 – we have successfully used the unified e-learning environment to organize learning and are eager to share the experience we have gained	3.8

[Source – the author's own conception]

The question "How would you assess the success of DL in your educational institution during the 2023–2024 academic year?" is closely related to the 2020 survey question: "How would you assess the success of learning in your educational institution during the spring of 2020?" Since some of the response options are the same, this allows for a comparison of the results (see Table 4).

Table 4

A comparative table of the response options from respondents in 2020 and 2024

Response option, 2020	%	Response option, 2024	%
2 – **while some teachers were successful,** there was no unified system in place	**14.63**	2 – there were no changes in the organization of DL compared to the quarantine period, **even though some teachers achieved success in certain areas**	**2.6**
5 – each teacher used tools they were comfortable with to organize learning	**45.53**	5 – each teacher used tools they were comfortable with to organize learning	**65.2**
6 – the institution owns a domain name and has established an e-learning environment	**9.88**	6 – the institution owns a domain name and has established an e-learning environment	**16.4**
7 – the educational institution has implemented a unified e-learning environment, with teachers and students having individual accounts and knowing how to use them	**16.26**	7 – the educational institution has implemented a unified e-learning environment based on Google or Microsoft, where teachers and students have their accounts and the skills to use them	**36.6**
8 – the institution's unified e-learning environment contains thematic collections of learning materials which are validated and are actively used by actors in the educational process	**0.81**	8 – the institution's unified e-learning environment contains thematic collections of learning materials which are validated and are actively used by actors in the educational process	**42.6**
9 – the unified e-learning environment is used for organizing learning, handling electronic document management, and enabling communication among all actors in the educational process	28.44	9 – the unified e-learning environment is used for organizing learning, handling electronic document management, and enabling communication among all actors in the educational process	16.74
10 – we have effectively used the unified e-learning environment to organize learning and are ready to share our experience	0	10 – we have effectively used the unified e-learning environment to organize learning and are are ready to share our experience	3.8

[Source – the author's own conception]

The results indicate significant progress in the development of unified e-learning environments in educational institutions. Notably, there has been an increase in the number of GSEIs that have and actively use such environments (16.26 % in 2020 and 36.6 % in 2024). Furthermore, there are now teachers willing to share positive experiences (3.8 % in 2024). The most substantial improvements were observed in the availability and use of didactic and methodical collections for DL (0.81 % in 2020 and 42.6 % in 2024). Additionally, the number of teachers who used familiar tools to organize learning has risen (45.52 % in 2020 and 65.2 % in 2024). The reasoning behind this choice has also evolved: in 2020, teachers relied on familiar tools as a solution to the lack of instructional materials and remote teaching skills, adapting available digital tools to the circumstances. However, in 2024, teachers explained that they chose familiar tools based on the specific needs of the learning process, such as students' technical capabilities or the particularities of the subject matter, to select the most effective tool or resource.

In 2021, 30 general secondary education institutions and 3 vocational education institutions in Lviv region participated in the nationwide piloting of the SELFIE tool to objectively assess their readiness for digital transformation, identify challenges, and showcase positive practices in the digitalization

process, including the implementation and use of unified e-learning environments. The SELFIE tool, developed by the EU and approved by the European Commission, is widely used in over 30 European countries to systematically assess the digital transformation process in education and track the dynamics of change in this area of development [15]. The pilot and subsequent phases of the SELFIE tool's implementation in Lviv region are coordinated by the Centre for Innovative Educational Technologies at Lviv Polytechnic National University. The successful piloting and ongoing use of the SELFIE tool in GSEIs in Lviv region, supported by the Department of Education and Science of Lviv Region, Lviv Regional State Administration, and the Education Commission of Lviv Regional Council, played a key role in initiating and preparing a project for the large-scale implementation of SELFIE. This project aims to expand the use of the tool across all GSEIs and VET institutions in the region. The project was reviewed and approved by the developers of the SELFIE tool and officially launched in January 2023. It is currently actively working.

Conclusions

Distance learning is a multifaceted technological and organizational approach to managing the educational process, requiring effective collaboration among all actors at both horizontal (within GSEIs) and vertical (GSEIs, local communities, districts, regions, and the state) levels of education management. The readiness of teachers for DL depends on several key factors. These include the presence of a unified e-learning environment in GSEIs, a well-defined strategy for developing digital skills and literacy among all actors in the educational process, and alignment with the expectations of education service providers (parents of students) and GSEI founders (local authorities). Additionally, these factors are shaped by regional and national policies on digitalization and the development of citizens' digital skills.

To successfully implement and use DL in GSEIs, it is vital to establish and continuously enhance teachers' readiness for such activities. The experiences of DL during the quarantine period and amid the full-scale invasion differ significantly due to a range of objective factors. Undoubtedly, the DL experience of 2020–2021 laid a solid foundation for adapting educational processes in wartime, helping school leaders and educational system managers navigate extreme conditions and preventing the loss of students and valuable instructional time. However, despite these achievements, it is essential to focus not only on organizational aspects but also on the quality of DL. Over the past four years, awareness has grown regarding the methodological differences between DL and traditional face-to-face instruction. As DL becomes a permanent component of Ukraine's educational system, both now and in the foreseeable future, it warrants in-depth academic research. This research should lead to the generalization and systematization of accumulated experience, the development of effective methods and technologies for preparing teachers and students for remote learning, and the identification of efficient strategies for monitoring its quality.

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Аналіз стану готовності вчителів закладів загальної середньої освіти України до дистанційного навчання

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Анотація. У статті названо об'єктивні чинники важливості подальшого розвитку дистанційного навчання у закладах загальної середньої освіти, до них належать світові: глобальна цифровізація суспільства, реформування національних освітніх систем та специфічні регіональні, для України це об'єктивні обставини, що спричинила війна з росією: руйнування освітньої інфраструктури, постійна загроза життю та здоров'ю учасників освітнього процесу, їх розпорошеність через виїзд в інші регіони країни та за кордон тощо. Позитивні і негативні чинники зумовлюють розвиток дистанційного навчання,

яке можливе за умови: 1) наявності технічних засобів; 2) цифрової грамотності / компетентності / культури особи.

Для забезпечення якісного дистанційного навчання у ЗЗСО неодмінною умовою є готовність вчителя та учня до такої форми навчання. Проведене у 2020–2024 роках дослідження стану готовності педагогів ЗЗСО до дистанційного навчання виявило динаміку змін у ставленні вчителів та їх готовності (цифрової, технологічної та методичної) його забезпечувати. Визначено показники готовності педагога до дистанційного навчання: 1) в оцінці результатів дистанційного навчання та його якості вчителями, учнями та їхніми батьками; 2) готовності закладу освіти до організації та супроводу дистанційного навчання, наявність у ЗЗСО єдиного освітнього середовища; 3) цифрової грамотності вчителів. Також важливим є стан освітньої політики на всіх щаблях керування освітою щодо системного забезпечення і підтримки педагогів та закладів освіти у реалізації якісного дистанційного навчання.

У статті наведено результати опитування вчителів (2784 респонденти у 2020 р. та 2406 – у 2024 р.), подано окремі результати опитування, здійснено аналіз відповідей, а також виявлено позитивну динаміку змін готовності вчителів до дистанційного навчання у 2020 та 2024 рр. Порівняння одержаних результатів з моніторинговими дослідженнями Інституту цифровізації та засобів навчання України дало змогу підтвердити показники визначення готовності вчителів до дистанційного навчання та висновки дослідження, які корелюються між собою.

Ключові слова: цифрова компетентність педагога, дистанційне навчання, моніторинг стану цифровізації освітнього процесу, статистика використання цифрових інструментів, показники готовності вчителя до дистанційного навчання, єдине електронне освітнє середовище закладу освіти.