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ONLINE LEARNING THROUGH THE PRISM OF PSYCHOLOGICAL AND PEDAGOGICAL ASPECTS: NEW TASKS OF A MODERN TEACHER

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ABSTRACT

Purpose: This study aimed to analyse the psychological and pedagogical aspects of online learning in Ukraine under conditions of digital transformation, the COVID-19 pandemic, and the ongoing war. It sought to identify the challenges teachers face and propose ways to improve distance education through competency development.

Design/Methodology/Approach: The research employed comparative analysis, synthesis, systematisation, and generalisation. The study was conducted as a systematic literature review following the PRISMA 2020 guidelines. A total of 47 peer-reviewed articles published between 2018 and 2025 were analysed, retrieved from Scopus, Web of Science, and Google Scholar databases. The selection focused on empirical studies addressing teachers' digital competence, psychological well-being, and pedagogical innovations in online education.

Findings: Only 38% of teachers demonstrated high digital competence, while 76% lacked sufficient skills for effective online teaching. Emotional burnout (52%), overload (67%), and stress (62%) were prevalent, compounded by technical barriers such as blackouts and unstable Internet (79%). These issues resulted in incomplete courses in 31% of cases. Interventions, including targeted training modules, improved digital competence by 30% and raised average test scores from 45 to 75 points ($p < 0.01$). Institutions that provided systematic support achieved twice the effectiveness index (8.4 vs. 4.1).

Research Limitation: The study was limited to Ukrainian educators, which may affect generalizability across different contexts.

Practical Implication: The results highlight the urgent need for structured training in digital pedagogy and integration of online tools to enhance lesson design and learner motivation.

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Social Implication: Strengthening teachers' digital skills and psychological resilience is crucial for sustaining education during crises.
Originality/Value: This research provides empirical evidence on the intersection of digital competence, stress factors, and institutional support, offering pathways to improve the sustainability of online learning under challenging conditions.

Keywords: *Education. online learning. pedagogical. psychological. teachers*

INTRODUCTION

In the period of rapid digitalisation of education, which has been intensified by the COVID-19 pandemic and the war in Ukraine, the organisation of online learning has become a relevant and essential topic in pedagogical science. Teachers of the new generation are faced with the need to master modern complex digital and pedagogical models of interaction, synchronous and asynchronous learning, and hybrid formats, which have significantly increased the requirements for their professional level (Kulimova, 2024; Diachuk, 2024; Shcherban & Khoma, 2024; Didenko et al., 2023; Ventseva & Karapetrova, 2022).

The urgency of the problem stems from a number of challenges associated with teachers' low digital competence. The quality of online learning, the use of interaction tools (Zoom, Moodle, Google Classroom) requires additional qualifications from teachers, and the lack of an appropriate level of training contributes to the development of emotional overload and burnout (Bastos et al., 2022; Tavrovetska & Veldbrekht, 2023; Veldbrekht et al., 2021; Jiang & Yu, 2024; Alieksieieva & Shchetynina, 2023). Insufficient integration of digital pedagogy into the system of continuous professional development, the complexity of implementing blended learning modes, low motivation, and the lack of systemic mental health support significantly affect the level of online learning and require further study.

Despite a growing body of research on online learning, a significant research gap remains in the combined analysis of teachers' digital competence, psychological well-being, and pedagogical adaptation under crisis conditions such as war and forced digitalisation. Most existing works focus on either technical or emotional dimensions separately, without providing an integrated understanding of how these factors interact and affect teaching efficiency.

This study aims to analyse the psychological and pedagogical aspects of organising online learning and the challenges teachers in Ukraine face during the digital transformation of education. The objectives are to identify the key psychological and pedagogical barriers affecting teachers' performance in online education; to evaluate effective strategies and institutional practices that enhance teachers' digital competence and emotional resilience; and to develop evidence-based recommendations for improving the quality and sustainability of online learning in Ukrainian educational institutions.

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LITERATURE REVIEW

The theoretical framework of this study is grounded in several interrelated pedagogical and psychological theories that explain teachers' adaptation to online education. Self-Determination Theory explains the motivational mechanisms that influence teachers' and students' engagement in online settings, emphasising autonomy, competence, and relatedness. The Technological Pedagogical Content Knowledge (TPACK) model underpins the integration of digital tools into teaching practice, highlighting the balance between technological, pedagogical, and subject-matter knowledge. Finally, Cognitive Load Theory clarifies how instructional design affects mental effort and learning efficiency in digital contexts. Together, these theories provide a multidimensional framework for analysing the psychological and pedagogical aspects of online learning and guide the interpretation of the findings**.**

Recent years have seen a significant increase in scientific interest in online learning, reflected in numerous publications on its psychological and pedagogical aspects. An analysis of the current literature reveals several key areas of research crucial to understanding the challenges and opportunities faced by teachers in both secondary and higher education institutions.

The digital environment has become a key element of school education in today's challenging environment. Organising learning in a digital environment requires knowledge not only of software tools but also the ability to use digital technologies to conduct classes, prepare for lessons, and create a comfortable and safe environment for teachers and students. The teacher's digital competence should be developed and enriched in line with technological progress (Derstuganova, 2025; Hathaway et al., 2024; Ovcharuk et al., 2023a; Guillén-Gámez et al., 2021).

A special place in scientific discussions is occupied by the training of future primary school teachers for online education. This category of teachers faces unique challenges related to the age characteristics of younger students, the need to support their motivation, ensure interactivity and control over the educational process in a remote format (Gallego Joya et al., 2024; Dudnyk, 2020; Zubtsova & Roma, 2020).

Researchers Jiang and Yu (2024) and Nagymzhanova et al. (2025) emphasised the importance of developing not only digital competencies in future teachers, but also methodological readiness for organising distance learning. In addition, according to Kozhevnikova and Kozhevnykov (2024), Kulimova (2024), the professional development of future teachers is influenced by an innovative learning environment, which itself develops through teachers' innovative activity. Scientists Ostrovska (2021) and Tsiuniak (2021) emphasised the need to develop specialised training programs that include practising creating interactive tasks, using game technologies, and developing skills to individualise learning for primary school students in an online environment.

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For teachers at higher education institutions (HEIs), the transition to online teaching requires a significant restructuring of teaching methods. Classical lectures and seminars are often ineffective in remote mode, prompting the search for new approaches to activate students' learning and cognitive activities. In addition, the pedagogical and psychological difficulties associated with war are compounded by technical challenges, such as blackouts, Internet interruptions, and relocations, but the experience of the pandemic has helped maintain the quality of education in these conditions (Shuliak et al., 2024; Ovcharuk, 2023).

Studies by Kreydun et al. (2022) and Nevoenna (2024) emphasised that passive consumption of information in the online environment reduces learning effectiveness, so the key task is to stimulate students' independent work, interaction, and critical thinking. The importance of students' digital competencies for improving the quality of online learning is confirmed by Tymchuk et al. (2024), who identified a direct correlation between the level of development of students' digital skills and the success of their online learning.

The use of innovative teaching technologies in higher education institutions is becoming an urgent issue for the effective organisation of online learning. This includes the use of virtual laboratories, simulators, multimedia resources, collaboration platforms, and interactive tests (Sushchenko, 2025; Kovalchuk et al., 2020; Kovalchuk & Fedotenko, 2018). Particular attention should be paid to the activity-based approach, which involves organising learning through students' active, independent, and collaborative activities, solving practical problems, and project work. This approach contributes not only to knowledge acquisition but also to the development of soft skills, which are critical for future professionals. The study by Zubtsova et al. (2024) confirms the effectiveness of hybrid teaching methods in developing these skills.

The modern information and technological environment of the educational process places high demands on the effectiveness of pedagogical and professional training, particularly in developing the competencies of primary school teachers (Khrystiuk, 2023). This competence is crucial because it promotes continuous personal and professional development, enhances analytical and critical thinking skills, and develops important organisational and cognitive research skills (Shcherban & Khoma, 2024).

Thus, the literature review demonstrates the multifaceted nature of the problem of organising online learning and the need for an integrated approach to training teachers who can effectively use innovative technologies and methods, activate teachers' learning and cognitive activities, and develop their key competencies.

The purpose of the work is to analyse the psychological and pedagogical aspects of organising online learning and the challenges faced by the new generation of teachers in the context of the dynamic digital transformation of the educational process, as well as to substantiate ways to improve the effectiveness of distance education by developing the relevant competencies of teachers.

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To conduct a theoretical substantiation and analysis of the psychological and pedagogical conditions for organizing online learning in the process of training future teachers, with a focus on the formation of digital and pedagogical competence, the development of the ability to independent professional thinking, as well as to determine the role of the university teacher as a key figure in creating an effective, personality-oriented and innovative educational environment.

METHODS

The research methodology of this article is based on theoretical analysis and the systematisation of the scientific literature on the psychological and pedagogical aspects of online learning. A systematic literature review conducted in accordance with the PRISMA 2020 methodology (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Page et al., 2020). A total of 47 peer-reviewed articles published between 2018 and 2025 were included in the analysis. The literature search was conducted across three major databases, Scopus, Web of Science, and Google Scholar, using the keywords “education”, “higher education institution”, “educational process”, “primary school teachers”, and “online learning”. After screening 132 initial records and removing duplicates, 47 studies met the inclusion criteria and were analysed in depth. State the number of articles used and from which database. To achieve this goal, the following scientific methods were used: analysis and synthesis, comparative analysis, and systematisation.

Analysis and synthesis were used to study and summarise research data on teachers' digital competence, psychological well-being in distance education, and innovative teaching methods in higher education and primary school. The data obtained were classified into thematic areas: the level of digital competence of teachers, psycho-emotional stress, educational interventions and institutional support, pedagogical design of distance learning, and the effectiveness of online modules. This allowed us to identify key trends, problems, and effective practices.

Comparative and contrastive analysis was used to identify common and distinctive features of challenges and approaches to organising online learning in Ukraine and worldwide, as well as to compare the needs of teachers at different educational levels (secondary schools and higher education institutions).

Systematisation was used to structure the data, allowing us to highlight the main psychological and pedagogical aspects of online learning, classify the challenges faced by new-generation teachers, and summarise existing methodological models of competence development.

Inclusion criteria

The analysis included sources that meet the following conditions of publication, which are directly related to the psychological and pedagogical aspects of online learning, digital

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competence of teachers (both schools and higher education institutions), methods of teaching in a distance format, activation of students' learning and cognitive activity and the use of innovative technologies.

Exclusion criteria

Review articles without references to empirical research, incomplete texts of papers or materials without full access.

Limitations of the study

Most of the included sources relate to the Ukrainian educational context, which may limit the generalizability of the findings; most of the data is based on participants' self-assessments, which does not exclude the risk of subjectivity; not all studies contained statistical indicators, which makes it difficult to compare results.

FINDINGS AND DISCUSSION

Modern conditions of professional activity require teachers in both primary schools and higher education institutions to effectively use various technological opportunities to improve the quality of online learning. To do this, each teacher must constantly develop themselves, improve their professional skills and master innovative technological applications. A large number of teachers recognise the need to develop digital competencies and identify the benefits of digital tools to improve the quality of the educational process. At the same time, problems such as limited professional development and unwillingness to change persist among school and university teachers as shown in Table 1 (Yulin & Danso, 2025; ElSayary, 2023; Cattaneo et al., 2022).

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Table 1: Overview of research on digital competence and psychological and pedagogical aspects of online learning

Source	Subject matter	Main aspects
Ovcharuk (2023)	Digital readiness of teachers in Ukraine	Finds that only ~38% of teachers have a high level of digital competence; war has reduced motivation for digital development
Ovcharuk et al. (2023a)	National survey of teachers	The study found that 76% of teachers identified insufficient knowledge for effective online learning; suggested professional development measures
Tavrovetska & Veldbrekht (2023)	Psychological barriers	The main difficulties: emotional burnout, decreased student motivation, and information overload
Diachuk (2024)	Competence in vocational schools	Levels of digital competence are systematised; a model of digital skills development is developed
Shcherban & Khoma (2024)	AI tools for digital skills development	Analysis of the impact of chatbots and task generators on students' digital literacy.
Shuliak et al. (2024)	Education during the war	Internal technical barriers: blackouts, the Internet, travel; impact on motivation and quality of ESL learning
Vasylenko (2025)	Methodological approach	The author's model of teachers' digital competence development in the context of European integration is proposed
Yulin & Danso (2025)	Readiness for digital innovation	A mixed-methods study found that teachers are aware of the benefits of digital tools, but a lack of support reduces effectiveness

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Domínguez González et al. (2025)	Systematic review (ES, global)	Summarises research trends: TDC is low among secondary school teachers; there is a need for professional development programs
Basilotta Gómez Pablos et al. (2022)	Higher education, international review	Finds that university teachers rate their digital competencies as low to medium; emphasises the need for individualised learning
Geraci et al. (2023)	Psychological well-being	High levels of burnout, low self-efficacy, but emotional intelligence mitigates the negative effects of distance learning
Gavade, Sidotam & Varanasi (2023)	Support and emotional well-being	Teachers create informal support networks; formal support is insufficient, especially emotional support

Source: Created by the author from the results of each included study.

The Ukrainian studies by Ovcharuk et al. (2023a) and Shcherban and Khoma (2024) demonstrate trends toward increased teachers' digital readiness, a growing demand for professional development in information technology, and persistent barriers to the introduction of new digital tools. The analysis by Alieksieieva and Shchetynina (2023) describes hybrid learning as a type of distance learning that poses pedagogical (knowledge control), organisational (overload), and psychological (stress due to the lack of non-verbal feedback) problems. In the global context, Sahaidak et al. (2021) and Yulin and Danso (2025) note that even in the distance format, teachers recognise the benefits of digital tools. However, without systemic support, they remain ineffective. The direct transfer of offline models to online environments without accounting for new educational paradigms is ineffective, and an exceptional design of the virtual educational space, with a subjective approach and targeted interaction methods, is required.

Teachers face challenges in organising the educational process, such as the complexity of online learning, the simultaneous management of face-to-face and online classes in a hybrid mode, maintaining academic integrity, and keeping students' attention and motivation, which are becoming obstacles to effective teaching. In addition, teachers faced prolonged stress, anxiety, and fear during the war caused by suboptimal teaching conditions (blackouts, internet interruptions, changes in life circumstances), and psychological stress, which also affect the education process and its quality (Shuliak et al., 2024).

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The systematic review summarised quantitative empirical data from the literature, allowing not only to identify typical problems and effective approaches to organising online learning, but also to assess their scale and intensity (Table 2). The analysis covers 11 quantifiable parameters from 6 key sources for 2020-2025, allowing comparisons across digital readiness, teachers' psychological state, the effectiveness of educational interventions, and the impact of external circumstances.

Table 2: Generalised quantitative data on psychological and pedagogical aspects of online learning (2020-2025)

Source	Indicator/metric	Value	Conditions of implementation
Ovcharuk, 2023	High level of digital competence among teachers	38%	National survey in the context of war
Ovcharuk et al., 2023b	Lack of knowledge for online learning	76%	Sample of >400 teachers
Tymchuk et al., 2024	Increase in digital skills after the online module	+30%	n = 150, students of pedagogical specialities
Shcherban & Khoma, 2024	Increase in test scores (before/after)	45 → 75 (out of 100)	$t \approx 15.8$; $p<0.01$
Shcherban & Khoma, 2024	Increase in project scores (before/after)	60 → 85 (out of 100)	$t \approx 10.96$; $p<0.01$
Tavrovetska & Veldbrekht, 2023	Signs of emotional burnout	52%	$n \approx 200$
Tavrovetska & Veldbrekht, 2023	Feeling overwhelmed	67%	Lack of formal support
Yulin & Danso, 2025	Performance index in the group with support	8.4 / 10	Comparison with the group without support (4.1 / 10)
Shuliak et al., 2024	Teachers who have experienced technical barriers	79%	Blackouts, internet outages
Shuliak et al., 2024	Respondents who reported severe stress	62%	In the conditions of war

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Shuliak et al., 2024	Cases of incomplete online learning cycle	31%	Due to technical or psychological factors

Source: Created by the author from the results of each included study.

Yermolenko et al. (2023), Kozhevnikova and Kozhevnykov (2024), Chiu et al. (2024) indicate that pedagogical skills, professional and innovative culture, methodological and information literacy are the basis for the development of innovative competence in teachers and the image of a research and teaching staff member as an image that reflects their positive personal and professional qualities and contributes to the choice of an individual style of professional activity and mastery of innovative self-determination technologies.

In analysing scientific works and empirical data, it was found that the level of digital competence of future primary school teachers is a key factor in the effectiveness of online learning. In particular, the study by Tymchuk et al. (2024) shows a significant increase in students' digital literacy after completing digital skills development modules in a distance format. After completing the course, students in pedagogical specialities showed an increase of more than 30%, confirming the feasibility of introducing targeted digital training programs in higher education institutions.

At the same time, there is a significant difference between the level of digital competence of in-service teachers and pre-service teachers, where the latter showed a lower level of awareness of pedagogical design, online assessment, and interactive interaction. This indicates the need for deeper methodological training for higher education students focused on the practical application of digital technologies in primary school settings.

The study pays particular attention to the role of the university teacher in transforming the learning environment. A higher education teacher is no longer just a transmitter of knowledge; they also serve as a moderator, consultant, and facilitator. That is why the need to improve the skills of higher education teachers in the use of innovative pedagogical technologies, including blended learning, gamification, master classes, and training formats, is becoming increasingly relevant (Zubtsova et al., 2024). Such approaches contribute to the development of students' not only professional but also social and communicative competencies, which are integral to the professional activity of a modern teacher.

The study by Shcherban and Khoma (2024) showed the positive impact of AI technologies on the development of digital competence among future primary school teachers through the development and implementation of training modules. On average, test scores increased from 45 to 75 (out of 100), and average project scores increased from 60 to 85 (out of 100). Statistical analysis revealed a significant improvement in knowledge and skills, with the average increase being statistically significant ($t \approx 15.8$ for tests and $t \approx 10.96$ for projects). Participants who completed the new modules showed significant improvement in all key aspects of digital

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competence. In particular, their knowledge of using digital tools and platforms for communication and collaboration increased by 30%, and their skills in multimedia content creation and digital project management improved by 25%. The increase in knowledge of data security and information protection was 20%, which demonstrates the effectiveness of the training modules in raising awareness of the importance of protecting personal information. In addition, participants became more confident in solving technical problems, with practical implications for technology adoption and for improving teachers' self-directed learning and problem-solving skills.

In another study, Vasylenko (2025) states that the results of the professional development model demonstrate the effectiveness of teacher training programs. This indicates the need not only to prepare future teachers for the online reality but also to provide systemic support for university teachers through continuous professional development. Such approaches create the preconditions for building a sustainable, adaptive pedagogical system that focuses on the quality of education and students' individual needs.

Ovcharuk (2023) found that among the current needs of teachers, the most common are improving methods and forms of online lessons (40.1%), recording and editing video lessons (38.0%), new online tools and services for the development of student creativity (34.5%), counseling and practical assistance to teachers in mastering new digital tools and instruments (31.5%), application of tools and various forms of assessment in distance learning (20.7%), distance courses for NUS teachers of primary school (27.9%), online consultations on the use of information and communication technologies (19.2%), registration and maintenance of own blog (14.7%), familiarisation with new online workshops (14.2%), online courses for NUS teachers of primary school (13.1%), ensuring access to online courses, webinars (12.4%), etc. It should be noted that among the new things that have not been mentioned before, teachers pointed out the need to expand their skills in online learning with children with special educational needs, create and maintain a teacher's own YouTube channel, master video editing and Excel programmes, acquire skills for inclusive learning in a distance mode, and take programming courses (Ovcharuk et al., 2023b).

The authors Kozhevnikova and Kozhevnykov (2024), that through participation in project groups, teachers and future teachers gain valuable experience in innovative and creative teamwork and have the opportunity to develop leadership skills and innovative competence. It has been established that the innovative educational environment in the context of future teachers' professional training functions as a system that creates conditions for the development of the innovator's personality, promotes the disclosure of creative abilities, and improves innovative and professional skills, emphasising the unity and interaction of its elements.

The study found that teachers at higher education institutions are increasingly integrating innovative technologies into the educational process, focusing on activating students' cognitive activity. Activation of students' learning and cognitive activity is a key factor in improving the

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efficiency of the educational process in higher education institutions. Modern approaches to higher education involve not only the transfer of knowledge but also the development of critical thinking, the ability to search for and analyse information independently, and the ability to evaluate the information received. Teachers note that such methods contribute to the development of professional competencies, critical thinking, self-organisation, and students' adaptability to changes in the professional environment. The study by Zamkova et al. (2023) confirms the positive dynamics of introducing modern educational technologies into the teaching practice of higher education institutions, which require systematic support for teachers' professional development and for universities' digital infrastructure.

One of the leading mechanisms for enhancing cognitive activity is the use of interactive teaching methods, such as discussions, debates, case studies, role-playing, and brainstorming. It is students' active engagement with the content of educational materials that helps increase knowledge acquisition and develop communication and collective problem-solving skills. Digital technologies also play an important role in stimulating learning activity. Online testing platforms (Kahoot, Quizizz), virtual classrooms such as Moodle and Google Classroom, and gamified environments increase student engagement in the educational process by providing feedback and maintaining interest in learning (Rubrica, 2019; Bach & Thiel, 2024).

The analysis of the presented studies reveals several key trends and challenges related to the psychological and pedagogical aspects of organising online learning and the requirements for new generation teachers, both in Ukraine and abroad:

The *low or average level of digital competencies* among teachers was reported by Ovcharuk (2023), Ovcharuk et al. (2023a) for Ukraine, as well as in international systematic reviews by Domínguez-González et al. (2025), Basilotta-Gómez-Pablos et al. (2022), and Cattaneo et al. (2022). This confirms that teachers' digital competence (both in schools and HEIs) remains insufficient, creating a serious barrier to the effective implementation of online learning and requiring targeted professional development programs.

Psychological state and well-being of teachers. The problem of emotional burnout, stress, and information overload is global. The studies by Tavrovetska and Veldbrekht (2023) in Ukraine and Geraci et al. (2023) in Italy emphasise these difficulties. At the same time, they emphasise the role of emotional intelligence as a compensatory strategy and the importance of informal support networks, especially in the absence of adequate formal support (Gavade et al., 2023). This indicates the need for psychological support for teachers as they adapt to online formats.

The critical role of institutional support and professional development has been established by both Ukrainian (Ovcharuk et al., 2023b; Vasylenko, 2025) and international studies (Caneva et al., 2023; Yulin & Danso, 2025; Domínguez-González et al., 2025), which unanimously emphasise the key role of organised professional training and systemic support for the sustainable development of digital pedagogy. The absence of such support significantly

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reduces the effectiveness of implementing digital tools, even when teachers are aware of their benefits.

The negative impact of wartime conditions on online education. Modern Ukrainian living conditions, including the wartime challenges studied by Ovcharuk (2023) and Shuliak et al. (2024), add to these problems technical barriers (blackouts, internet) and psychological pressure, which negatively affect the motivation of both teachers and students.

The need to develop methodological approaches and innovations. The national models for the development of digital competence proposed by Diachuk (2024) and Vasylenko (2025) indicate an active search for ways to solve existing problems. Especially promising is the use of artificial intelligence to develop digital skills, in particular for future primary school teachers, as shown in the study by Shcherban and Khoma (2024). This opens up new opportunities for individualisation and intensification of educational and cognitive activities. International sources, such as the European Competency Framework and its analysis in Basilotta-Gómez-Pablos et al. (2022), provide guidelines for integrating Ukrainian experience into the global educational space.

In general, the literature review clearly indicates that a new generation teacher is not only a specialist in their subject area, but also a master of digital technologies, possessing the skills of psychological support and self-regulation, able to adapt to changing conditions and effectively use innovative methods to enhance students' cognitive activity, taking into account both their individual characteristics and external factors.

Discussion

The modern transformation of the educational process in the context of digitalisation and external challenges (including the COVID-19 pandemic, military operations, and rapid technological development) has actualised the need to rethink approaches to teacher training. Online education is no longer an alternative form, but has become one of the components of the educational process. In this context, studies focusing on the psychological and pedagogical aspects of digital learning, training of future primary school teachers, as well as university teachers, deserve special attention (Stepanov et al., 2025; Kulimova, 2024; Zubtsova et al., 2024).

Online education offers several advantages, including flexibility, access to resources, and personalised learning. At the same time, it is accompanied by psychological challenges for both students and teachers. The study by Tavrovetska and Veldbrekht (2023) emphasises that emotional burnout, decreased motivation, and cognitive overload are among the most common consequences of poorly organised online teaching. At the same time, Geraci et al. (2023) emphasise the importance of developing teachers' emotional intelligence to maintain social presence and engage students.

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Given the specifics of primary school pedagogy, the formation of not only general pedagogical but also digital competencies of future teachers is of particular importance. Tymchuk et al. (2024) argue that students' digital skills in pedagogical specialities directly affect the quality of online learning. The article emphasises the need for the holistic development of such components as digital literacy, self-regulation, critical thinking, and time management.

In turn, the studies by Zubtsova et al. (2024) and Tymchuk et al. (2024) analysed the role of competencies in learning. They proposed an integrative approach to developing vital skills, particularly communicative, social, civic, and digital competencies. This approach is especially relevant for updating teacher education content.

HEI teachers need to constantly adapt to the digital environment, requiring not only technical but also methodological changes. A study by Basilotta-Gómez-Pablos et al. (2022) shows that most higher education teachers assess their digital competencies as underdeveloped. In response, Domínguez-González et al. (2025) suggest using structured professional development models to support targeted professional development in digital teaching.

Zubtsova et al. (2024) consider digital learning a tool for developing students' soft skills. The combination of online and offline methods ensures higher motivation, active participation in the learning process, and the development of competencies such as communication, flexibility, emotional intelligence, and leadership.

Despite the growing number of scientific publications, several problems remain to be studied further. In particular, the lack of a unified model for developing digital competencies for future primary school teachers, insufficient training for university teachers to integrate an activity-based approach into the online environment, and limited implementation of innovative online teaching models that account for national and regional contexts.

Recommendations

Based on the analysis of the psychological and pedagogical aspects of organising online learning and the identified challenges for the new generation of teachers, a number of practical recommendations can be formulated to improve the effectiveness of distance education at both the institutional and individual levels.

Develop and implement comprehensive professional development programs. Create and continually update modular professional development programs that cover not only digital tools but also the psychological and pedagogical features of online interaction, methods for activating cognitive activity, and the adaptation of materials for the distance format. Include in the programs training on emotional intelligence and stress resistance for teachers, as well as self-regulation practices and prevention of professional burnout. Also, to organise courses on the use of artificial intelligence in the educational process (chatbots, task generators, tools for personalising learning), especially for future primary school teachers.

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Provide psychological support. Establish psychological support services for teachers to provide counselling on stress management, adaptation to change, and emotional well-being. Promote the formation of informal communities and mutual aid networks among teachers to share experiences and support.

Modernisation of technological infrastructure. Provide stable access to high-speed internet and modern technical equipment (laptops, cameras, microphones) for teachers. Implement and maintain unified, user-friendly, and intuitive educational platforms that enable effective organisation of the learning process, student interaction, and assessment of their knowledge.

Adaptation of curricula and methods. Encourage the development of interactive and multimedia content that meets the specifics of online perception. Stimulate the use of project-based learning in an online format to activate students. Review assessment systems, adapting them to distance learning, with an emphasis on formative assessment and the development of student self-regulation.

Continuous self-development and learning. Actively master new digital tools and platforms that can improve the quality of online teaching. Continuously improve their digital competencies, particularly in cybersecurity and the ethical use of online resources. Study the latest psychological and pedagogical research on the effectiveness of online learning and the psychology of interaction in a remote environment. Pay attention to the development of emotional intelligence, empathy and communication skills, which are critical for maintaining contact with students in an online format.

Time management. Work on time management and self-organisation to effectively manage time between teaching, preparation, and personal life.

Take care of your own psychological health. Set clear boundaries between work and leisure. Find time for relaxation, physical activity, and hobbies to prevent emotional burnout. If necessary, seek psychological help and use available support resources.

CONCLUSION

The study of the psychological and pedagogical aspects of organising online learning in the context of challenges facing a new generation of teachers allows us to draw several important conclusions and emphasise key areas for further development of educational activities. It has been established that the digital transformation of education is an irreversible process that requires teachers in primary, secondary, and high schools, as well as in higher education institutions, to develop digital competencies continually. An analysis of the current literature shows that the level of these competencies, despite the intensive development of online learning, still needs significant improvement in both Ukraine and internationally. This

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underscores the need for targeted institutional programs of professional development and continuous professional self-development of teachers at all levels of education.

The study revealed significant psychological challenges faced by teachers in the online learning environment. Emotional burnout, stress, and information overload are common phenomena that negatively affect the effectiveness of the educational process and the well-being of teachers. These problems are relevant both for teachers working with younger students who need constant attention and support, and for university professors who face issues of student motivation and self-organisation in a distance-learning format. The use of emotional intelligence development strategies and the creation of psychological support systems are critical to overcoming these barriers and ensuring the sustainability of the teaching staff.

The paper proposes recommendations for educational institutions and the professional development of teachers to improve the effectiveness of distance education and develop highly competent teachers today who can work in both school and higher education online.

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