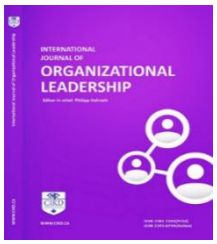

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Fostering Organizational Leadership in Education: Enhancing Teacher Training for Digital Competency in Modern Learning Environments

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ABSTRACT

With the rapid development of digital technologies and the global digitalisation of the education system, the issue of teacher training is becoming increasingly relevant. Teachers must have the necessary digital competencies and be ready to adapt learning processes to the requirements of the modern digital educational environment. The study aims to examine the peculiarities of teacher training and identify the main approaches to improving their digital competence. The object of the study is the processes and methods of training teachers to work in the digital educational environment. The research methodology includes an analysis of modern scientific publications and empirical data obtained through a survey of teachers, a comparative analysis, and case studies. The results of the study show that the integration of digital technologies into educational programmes significantly improves the level of teacher training. Developing digital competencies, including technical skills, critical thinking, and cybersecurity, is crucial to teachers' successful adaptation to the digital environment. Using new pedagogical approaches, such as interactive teaching methods and a personalised approach, improves education quality and increases teacher motivation. The analysis of empirical data has shown that continuous professional development of teachers, including participation in in-service training courses and webinars, is critical to maintaining their competence. It is of great practical importance to develop recommendations for improving teacher training programmes, which will improve the quality of education and ensure the effective use of digital technologies in the learning process.

With the rapid development of digital technologies, the education system must adapt to new realities. Professional training of teachers plays a vital role in this process, as the quality of education depends on their competencies and willingness to work with modern tools. Introducing digital technologies into the educational process requires technical skills and the ability to adapt to rapidly changing conditions. Despite numerous studies in this area, the issues of effective integration of digital technologies and teaching methods remain relevant and require further research. The importance of developing teachers' digital competencies is becoming increasingly evident in the context of the COVID-19 pandemic when educational institutions were forced to switch to distance learning. This article aims to study the peculiarities of the professional training of modern teachers in the digital educational environment and to identify the main directions and approaches to improving the effectiveness of this process. The article also aims to identify the critical competencies required for teachers to work successfully in the digital educational environment and to consider effective methods and technologies that can be used for their training. Finally, recommendations for improving teacher education programmes to meet the requirements of the digital learning environment will be offered.

Modern education is on the verge of significant changes caused by the rapid development of digital technologies. Teachers must adapt to new teaching tools and methods, which require technical skills and the ability to effectively integrate these technologies into the educational process. The COVID-19 pandemic has highlighted the importance of digital competence, as educational institutions worldwide have been forced to switch to distance learning (Barbour & Hodges, 2023). However, despite the apparent benefits of digital technologies, many teachers have difficulty adopting and using them in their professional work (Guillén-Gámez et al., 2023).

One of the critical problems is the need for systematic training of teachers to work in a digital learning environment. Most educational programmes do not focus enough on developing digital competencies, leading to low teachers' confidence in using new technologies (Flores-Chacón et al., 2023). In addition, there is a problem of limited access to the necessary resources and equipment, which complicates the process of learning and professional development (Barbour & Hodges, 2023).

Another critical issue is digital inequality among teachers and students. Differences in the level of digital skills create additional barriers in the educational process, which requires the development of new approaches to education and teacher training (Hijón-Niera et al., 2023). Psychological barriers, such as fear of new technologies and resistance to change, also play an essential role in slowing down the digitalisation process of education (Hijón-Niera et al., 2023).

Thus, there is a need for systematic support and development of new educational programmes aimed at improving teachers' digital literacy and readiness to work in a digital educational environment. This article discusses the main challenges and problems teachers face in the training process and suggests ways to overcome them based on the analysis of current research and practices.

This article aims to study the peculiarities of modern teacher professional training in the digital educational environment and identify the main directions and approaches to improving the efficiency of this process.

Objectives of the article:

1. To analyse the current state of teacher training in the digital educational environment.

2. To identify the main challenges and problems teachers face in preparing for professional activity in the digital environment.
3. To reveal the critical competencies required for a modern teacher to work successfully in a digital educational environment.
4. Practical methods and technologies that can improve teachers' professional development should be considered.
5. To offer recommendations for improving teacher training programmes to meet the requirements of the digital educational environment.

Literature Review

Integrating digital technologies into educational programmes is one of the main conditions that prepare teachers to work in the modern digital environment. This requires teachers to master various digital tools and platforms to organise the learning process effectively. Flores-Chacón et al. (2023) note the importance of training future teachers using digital tools and platforms to increase teaching effectiveness. Guillén-Gámez et al. (2023) emphasise the need to develop teachers' digital competencies, including technical skills and critical thinking. Barbour and Hodges (2023) note that the COVID-19 pandemic has accelerated the shift to hybrid and online learning formats, requiring teachers to adopt new methods of teaching and interacting with students. Hijón-Niera et al. (2023) emphasise the need to develop new pedagogical approaches for the digital learning environment, including interactive teaching methods. Espejo Villar et al. (2022) highlight the importance of continuous professional development for teachers to maintain their competence in digital technologies. Dotsenko (2023) explores using interactive posters as a learning tool for practical tasks, which also contributes to developing teachers' digital skills. Havrylova et al. (2021) examine the modelling of a digital learning environment for primary school teacher training, which increases their readiness to work in the modern educational space. Integrating digital technologies into educational programmes improves teacher training, allowing them to effectively use modern digital tools and platforms to organise the learning process (Nagayev et al., 2021; Oliinyk et al., 2020; Zhoga, 2022).

Developing teachers' digital competencies is a critical aspect of their professional development. This includes technical skills and the ability to evaluate information and ensure critical cybersecurity. Guillén-Gámez et al. (2023) emphasise the importance of developing digital competencies, including creativity and entrepreneurship, as critical predictors of teacher success. Flores-Chacón et al. (2023) note that the architecture of digital technologies can catalyse change in teacher education at universities. Usart et al. (2020) propose a tool to assess teachers' digital competencies to help identify their weaknesses and strengths. Záhorec et al. (2021) describe a case study of integrating digital competencies into teacher training that demonstrates the effectiveness of this approach. Albrecht et al. (2022) explore the theory and practice of interaction between actors in the textbook supply system for educational institutions in the United States, emphasising digital literacy's importance. Kachur et al. (2021) consider the digital educational space in the professional training of music teachers, which contributes to developing their digital competencies. Cahyono et al. (2023) investigate hybrid mathematics learning that enhances teachers' digital skills in different countries. Developing digital competencies is essential to teacher training, ensuring teachers are prepared to work effectively in a digital learning environment.

The use of new pedagogical approaches in the digital learning environment can increase the effectiveness of the learning process and adapt it to the needs of modern learners. Barbour and Hodges (2023) and Elbrekht et al. (2022) emphasise the importance of developing new pedagogical approaches that include active, interactive teaching methods and a personalised approach to learning. Flores-Chacón et al. (2023) note that digital technologies can catalyse change in pedagogical approaches, facilitating the development of information technology in education. Solak et al. (2019) investigate the impact of video developments on teacher learning, which promotes the use of new pedagogical approaches in the digital environment. Shurygin et al. (2023) point to the transformation of teacher training in a rapidly changing digital environment, which requires new pedagogies. Shyshenko and Kharchenko (2021) explore the theoretical aspects of the digital transformation of the professional training of future specialists, which requires the adaptation of pedagogical approaches. Tangül et al. (2024) emphasise the importance of digital citizenship in increasing teacher candidates' motivation and attitudes towards digital technologies. Mashovets et al. (2020) consider a modern model of practical training of future teachers that includes innovative pedagogical methods. The use of new pedagogical approaches in the digital educational environment allows for improvement in the quality of learning and ensures adaptation to the needs of modern students.

Continuing professional development for teachers is critical to their preparation, ensuring that their digital knowledge and skills are constantly updated. Espejo Villar et al. (2022) point to the importance of CPD in supporting teachers' digital competence. Owens and Hudson (2021) emphasise the priority of teachers' emotions in the transition to digital learning, which requires ongoing support and development. Ryabchenko (2020) explores the professional competence of teachers in the modern educational environment, which requires continuous learning and adaptation to new conditions. Popov et al. (2022) describe the use of specialised software for teaching undergraduate and postgraduate students, which contributes to the professional development of teachers. Batsurovska et al. (2021) consider the technology of acquiring competencies by bachelors in a digital media and communication environment that promotes teachers' professional development. Alieksieieva et al. (2023) investigate quasi-professional learning environments in preparing future teachers, emphasising the importance of continuous professional development. Balyk et al. (2020) emphasise the importance of creating an educational environment for teacher training that ensures continuous development. Continuing professional development of teachers is critical to maintaining their competence and effectiveness in the digital learning environment.

The literature analysis shows that integrating digital technologies, developing digital competencies, using new pedagogical approaches, and continuous professional development are critical in preparing modern teachers to work in a digital educational environment.

Method

A set of methods, including theoretical and empirical approaches, was used to achieve the research analysis. We conducted an in-depth analysis of current research and publications on teacher training in the digital educational environment. We studied articles and studies covering the integration of digital technologies, development of digital competencies, new pedagogical approaches, and continuous professional development of teachers. This allowed us to identify

the main directions and problems related to the digital transformation of education (Flores-Chacón et al., 2023; Guillén-Gámez et al., 2023).

Questionnaire. To obtain empirical data, a questionnaire was developed and administered to teachers, which included questions about their experience of using digital technologies, their level of satisfaction and confidence in their use, and their assessment of the effectiveness of various forms of professional development. The questionnaire helped identify the key challenges and problems teachers face in the digital transformation of their professional activities.

Comparative analysis method. Comparative analysis assessed changes in teachers' digital competencies and confidence before and after using different professional development methods and technologies. The results of the questionnaire before and after the in-service training courses, participation in webinars, and use of microlearning were compared and analysed.

Case study method. The study of specific examples of successful integration of digital technologies into the educational process allowed us to identify best practices and develop recommendations for improving teacher education programmes. The case analysis included the study of real-life examples from the practice of leading educational institutions where digital tools and technologies have been successfully implemented (Barbour & Hodges, 2023).

Method of generalisation and systematisation. The data obtained were summarised and systematised to develop comprehensive recommendations for improving teacher training programmes. The key areas and approaches that contributed to effectively integrating digital technologies into the educational process and improving teacher training were identified.

Applying these methods allowed for a comprehensive analysis of the problem and the proposal of sound recommendations for improving teacher training in the digital educational environment.

Results

Modern teacher training is undergoing significant changes under the influence of the digitalisation of the educational process. The transition to a digital educational environment requires teachers not only to master new technologies but also to adapt to current teaching methods and interactions with students. It is crucial to consider the main aspects of professional training. These include the integration of digital technologies into educational programmes, the development of digital competencies, the use of hybrid and online learning formats, and the development of new pedagogical approaches to ensure continuous professional development.

Modern teacher education programmes include studying various digital tools and platforms used in the educational process. This allows future educators to be prepared to use technologies to improve the effectiveness of learning (Flores-Chacón et al., 2023). One of the critical areas of training is the development of teachers' digital competencies. This includes not only technical skills but also the ability to critically evaluate information, work with digital resources, and ensure cybersecurity (Guillén-Gámez et al., 2023). The COVID-19 pandemic has accelerated the transition to hybrid and fully online learning formats. Teachers must be prepared to deliver classes in a virtual environment, using various digital tools to interact with students and deliver lessons (Barbour & Hodges, 2023). The digital learning environment requires the development of new pedagogical approaches that include active, interactive

teaching methods and a personalised approach to learning. Teachers must adapt their teaching methods to students' needs and learning styles (Hijón-Niera et al., 2023). Modern teachers must constantly update their knowledge and skills in digital technologies and teaching methods. This requires participation in various in-service training courses, webinars, and other forms of professional development (Espejo Villar et al., 2022).

The main challenges and problems in preparing teachers for professional work in a digital environment. Modern teachers face many challenges and problems preparing for professional work in a digital educational environment. Table 1 summarises the key aspects of these challenges and problems, systematised in a table.

Table 1

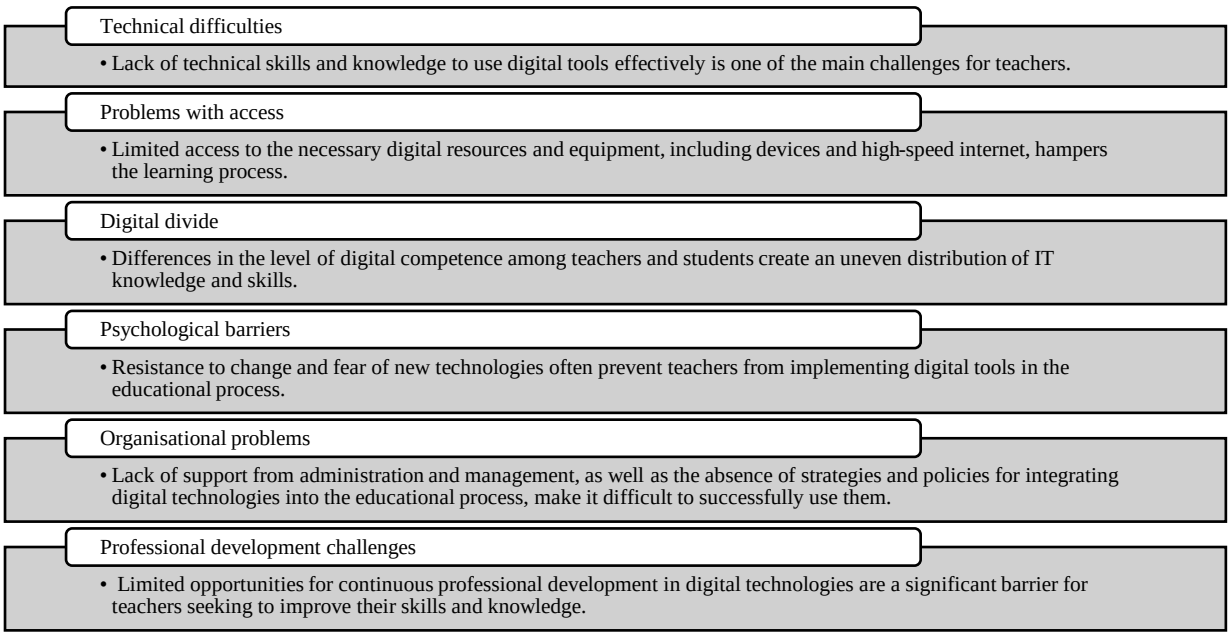
Key Challenges and Problems in Preparing Teachers for Professional Activity in the Digital Environment

Category	Description	Description
Technical challenges	Lack of technical skills and knowledge to use digital tools effectively	Lack of technical skills and knowledge to use digital tools effectively
Problems with access	Limited access to necessary digital resources and equipment	Limited access to necessary digital resources and equipment
Digital division	Differences in the level of digital competencies among teachers and students	Differences in the level of digital competencies among teachers and students
Psychological barriers	Resistance to change and fear of new technologies	Resistance to change and fear of new technologies
Organisational problems	Lack of support from administration and management	Lack of support from administration and management
Problems of professional growth	Limited opportunities for continuing professional development in digital technologies	Limited opportunities for continuing professional development in digital technologies

Teacher training in the digital learning environment requires overcoming significant challenges and problems related to technical, organisational and psychological aspects (Figure 1).

Figure 1

Challenges and Problems Faced by Teachers When Preparing for Professional Activity in the Digital Environment



Source: Compiled by the authors based on Guillén-Gámez et al., 2023, Barbour & Hodges, 2023, Flores-Chacón et al., 2023, Hijón-Niera et al., 2023, Espejo Villar et al., 2022, Guillén-Gámez et al., 2023

It should be noted that systemic support is needed at all levels, from school administration to government programmes, to ensure access to resources and professional development opportunities. Only by addressing these challenges can teachers achieve a high level of digital competence and successfully integrate digital technologies into the educational process.

A modern teacher needs several vital competencies to succeed in the digital learning environment. These *competencies* include technical skills, the ability to adapt to new educational realities, and the ability to interact with students in a virtual environment effectively.

1. Digital literacy (the ability to use various digital tools and platforms to create and deliver lessons, assess knowledge and interact with students; knowledge of the basics of cybersecurity and the ability to protect personal and student data in the digital environment).
2. Critical thinking and analytical skills (the ability to critically evaluate information from various digital sources, filter out unreliable data and use only verified materials; develop tasks and projects that stimulate critical thinking and problem-solving in students).
3. Pedagogical and methodological competencies (mastery of interactive teaching methods that promote active participation of students in the learning process; ability to adapt teaching methods to each student's individual needs and learning style).
4. Communication skills (ability to communicate effectively with students and their parents through various digital channels, including email, messengers and educational platforms; ability to work with colleagues and use digital tools to co-develop learning materials and deliver lessons).
5. Flexibility and adaptability (ability to quickly adapt to changes in educational technologies and teaching methods; willingness to constantly update their knowledge and skills through advanced training courses, webinars and other professional development).

To succeed in a digital learning environment, a modern teacher must have many competencies, including technical skills, critical thinking, pedagogical methods, and practical communication skills. Systematic support and continuous professional development are crucial in ensuring that teachers are prepared for the challenges of the digital age. This is the only way to create a compelling and innovative educational environment that meets the needs of modern society.

It is crucial to consider effective methods and technologies for improving the level of professional development of teachers. In order to assess the effectiveness of methods (Table 2) and technologies for improving the level of professional development of teachers, questionnaires were developed for evaluating microlearning (Appendix A), for evaluating online courses and webinars (Appendix B), for evaluating learning through virtual reality (VR) and Augmented Reality (AR) (Appendix C), for evaluating collaborative learning (Appendix D). The experiment was conducted in 2023 at the Kherson Academy of Continuing Education of the Kherson Regional Council. The experiment involved 42 teachers who improved their skills using modern methods and technologies.

Table 2

Evaluating the Effectiveness of Methods and Technologies for Improving Teacher Training

Method and technology	Description.	Examples of use	Statistical verification
Microlearning	Dividing learning material into small, manageable modules	Short videos, interactive tasks, mini-courses	Teacher surveys before and after using microlearning to assess changes in knowledge
Online courses and webinars	Using platforms for distance learning	Coursera, Udemy, specialised educational webinars	Comparison of test results before and after the course among a group of teachers
Learning through virtual reality (VR) and augmented reality (AR)	Using VR and AR to create simulations and interactive learning materials	Virtual excursions, simulators for lessons	Conducting a comparative study of groups of teachers who use and do not use VR/AR technologies
Collaborative learning	Creating groups of teachers for joint study and exchange of experience in the use of digital technologies	Group projects, online forums, joint development of training materials	Analysis of group activity and results of joint projects to assess the effectiveness of collaborative learning

The results of the survey of teachers before and after using modern methods and technologies are presented in Table 3.

Table 3

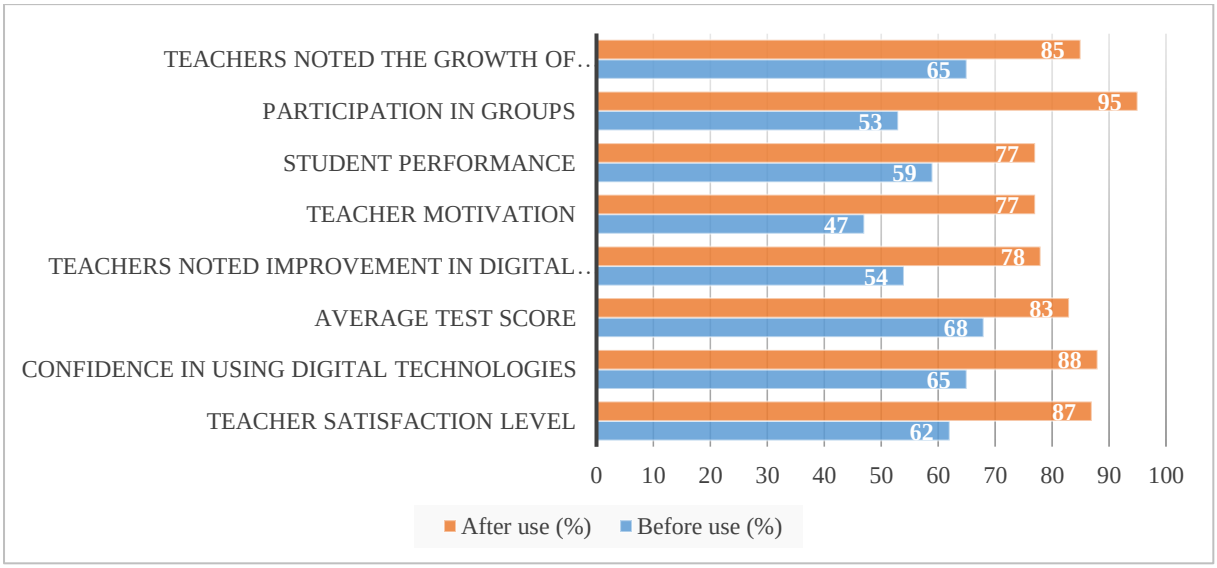
Teachers' Survey Results Before and After Using Modern Methods and Technologies

Methods and technologies	Indicator.	Available for use (%)	After use (%)
Microlearning	Teacher satisfaction level	62	87
	Confidence in using digital technologies	65	88
Online courses and webinars	Average test score	68	83
	Teachers noted improvement in digital competencies	54	78
Virtual reality (VR) and augmented reality (AR)	Motivation of teachers	47	77
	Student performance	59	77
Collaborative learning	Participation in groups	53	95
	Teachers noted the growth of professional competence	65	85

We present the data as a histogram (Figure 2).

Figure 2

Comparative Histogram of Teacher Survey Results Before and After Using Modern Methods and Technologies



The level of teacher satisfaction increased significantly after using microlearning methods and technologies from 62% to 87%. This shows the high effectiveness of microlearning in improving the perception of the educational process. Confidence in using digital technologies also increased from 65% to 88%. This indicates that teachers have become more confident in using digital tools. The average test score after completing online courses and webinars increased from 68 to 83 points, demonstrating the positive impact of these forms of learning on teachers' knowledge and skills. The performance of students taught by teachers using VR and AR technology improved from 59% to 77%. This indicates the high efficiency of virtual and augmented reality in the educational process. Participation in groups has increased significantly from 53% to 95%, which demonstrates the importance of collaborative learning in teacher training. Teachers reported improved digital competencies after completing relevant courses and webinars, from 54% to 78%, underscoring the need for continuous professional development in the digital educational environment.

Recommendations for improving teacher training programmes in the digital educational environment are presented in Figure 3.

Figure 3

Recommendations for Improving Teacher Training Programmes in the Digital Educational Environment

Integrate digital technologies into the curriculum:	Include mandatory courses on digital technologies and tools in teacher training programmes. Provide access to modern educational platforms and resources for the practical mastery of digital tools.
Develop digital competencies:	Organise regular trainings and workshops on the use of digital technologies in the educational process. Introduce a system of digital competence certification for teachers, which will encourage them to continuously improve their skills.
Use hybrid and online learning formats:	Develop and implement hybrid courses that combine traditional teaching methods with online classes. Provide technical support and training to teachers on the use of online platforms for teaching.
Support and motivate teachers:	Implement a system of incentives and grants for teachers who actively implement digital technologies in their work. Create professional communities and groups to share experiences and mutual support in the use of digital tools.
Provide access to the necessary resources:	Provide schools with modern hardware and software necessary for effective use of digital technologies. Develop infrastructure improvement programmes to ensure stable access to the Internet and digital resources.
Continuous professional development:	Organise regular refresher courses and webinars on modern digital technologies and teaching methods. Include modules on self-reflection and evaluation of the effectiveness of digital tools in the educational process in teacher training programmes.
Develop and implement new pedagogical approaches:	Develop new pedagogical methods that include the use of interactive and personalised learning methods. Include modules in the curriculum to adapt the educational process to the needs and learning styles of different categories of students.
Analysis and evaluation of results:	Implement systems for monitoring and evaluating the effectiveness of digital technologies in the educational process. Conduct regular surveys and questionnaires of teachers and students to obtain feedback and adjust training programmes.

Discussion

The discussion of the research results revealed several essential aspects related to teacher training in the digital educational environment. One of the key findings is the need to integrate digital technologies into teacher education programmes. Studies by Flores-Chacón et al. (2023) and Guillén-Gámez et al. (2023) confirm that the successful integration of digital tools and platforms contributes to the effectiveness of the educational process and teacher training. However, despite the apparent advantages of digital technologies, many teachers still struggle with their adoption and use. The survey showed that the lack of systematic training and limited access to the necessary resources remain significant barriers to the digital transformation of education (Barbour & Hodges, 2023). This points to the need to develop and implement more effective training programmes, including digital skills training and access to modern technologies. Digital inequality among teachers and students is also a severe problem. Differences in the level of digital competencies create additional barriers in the process, as confirmed by Hijón-Niera et al. (2023). Psychological barriers, such as fear of new technologies and resistance to change, also play an essential role in slowing down the digitalisation of education. This highlights the need to create a supportive environment and provide teachers with opportunities for continuous professional development.

A vital aspect identified in the study is using new pedagogical approaches in the digital learning environment. Research by Solak et al. (2019) shows that using innovative methods, such as video and interactive materials, helps improve the quality of learning and increase teacher motivation. At the same time, research by Shurygin et al. (2023) emphasises the need to adapt pedagogical methods to the rapidly changing conditions of digital education. Continuous professional development of teachers is also critical to maintaining their competence and effectiveness in the digital learning environment. Espejo Villar et al. (2022) emphasise continuous learning and professional development so teachers can adapt to new technological requirements and provide high-quality education.

Thus, the study's results emphasise the need for a comprehensive approach to teacher training in the digital educational environment. Integration of digital technologies, development of digital competencies, use of new pedagogical approaches, and continuous professional development are critical elements of successful digital transformation of education.

Conclusion

Teacher training in the digital learning environment is a crucial aspect of the modern education system. Integrating digital technologies into educational programmes can improve the efficiency of the learning process and provide teachers with the necessary tools for their work. Developing digital competencies, including technical skills, critical thinking, and cybersecurity, is essential for teachers to successfully adapt to the digital environment. Using new pedagogical approaches, such as interactive methods and personalised learning, helps improve the quality of education and motivates teachers. Continuous professional development of teachers, including participation in in-service training courses and webinars, is critical to maintaining their competence and readiness to work in a digital environment. However, significant barriers must be systematically supported and addressed, such as insufficient access to resources and equipment, digital inequality, and psychological barriers. The COVID-19

pandemic has highlighted the need to rapidly adapt education systems to digital formats, which requires teachers to adopt new approaches and teaching methods. An analysis of current research shows that successful digital transformation of education is only possible with a comprehensive approach that includes technology integration, competence development, innovative methods and continuous professional learning. The conclusions of this study can be helpful in the development and improvement of teacher training programmes in modern conditions.

Prospects for further research include developing and implementing innovative educational programmes and methodologies aimed at improving digital literacy and teacher competencies in a rapidly changing digital educational environment.

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Appendix A

Microlearning evaluation questionnaire

General information

- ☐ Name:
- ☐ Surname:
- ☐ Age:
- ☐ The subject you teach:
- ☐ Work experience in education:
- ☐ Questions about using microlearning

How often do you use microlearning in your professional training?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Less frequently

How satisfied are you with the quality of microlearning?

- ☐ Very dissatisfied
- ☐ Not satisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied

How confident do you feel about using digital technologies after completing the microlearning?

- ☐ Not at all sure
- ☐ Unsure
- ☐ Neutral
- ☐ Confidently
- ☐ Very confident

Which of the following digital tools have you learnt through microlearning? (Select all that apply)

- ☐ Video editors
- ☐ Online learning platforms
- ☐ Tools for creating presentations
- ☐ Other (please specify)

Appendix B

Questionnaire for evaluation of online courses and webinars

Which online learning platforms do you use? (Select all that apply)

- ☐ Coursera
- ☐ Udemy
- ☐ Other (please specify)

In your opinion, how effective are online courses and webinars in improving your digital competencies?

- ☐ Very inefficient
- ☐ Inefficient
- ☐ Neutral
- ☐ Effective
- ☐ Very effective

How have your test results changed after taking online courses?

- ☐ Significantly deteriorated
- ☐ Slightly deteriorated
- ☐ No changes
- ☐ Slightly improved
- ☐ Significantly improved

Will the knowledge you have gained from online courses and webinars help you in your professional life?

- ☐ They will not help at all
- ☐ They will not help
- ☐ Neutral
- ☐ They will help
- ☐ It will help a lot

Appendix C

Questionnaire for evaluating virtual reality (VR) and augmented reality (AR) learning

Have you used VR and AR technologies in your teaching?

- ☐ Yes
- ☐ No.

What impact has using VR and AR had on your motivation to teach?

- ☐ Significantly reduced motivation
- ☐ It reduced my motivation a bit
- ☐ No changes
- ☐ It increased my motivation a little
- ☐ Significantly increased motivation

How have your students' performance results changed after the introduction of VR and AR?

- ☐ Significantly deteriorated
- ☐ Slightly deteriorated
- ☐ No changes
- ☐ Slightly improved
- ☐ Significantly improved

What VR/AR tools do you use in your teaching activities?

Appendix D

Evaluation questionnaire for collaborative learning

How often do you participate in group projects or online forums to share your experience with colleagues?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Less frequently

How useful do you find collaborative learning for your professional development?

- ☐ Completely useless
- ☐ Useless
- ☐ Neutral
- ☐ Useful
- ☐ Very useful

How did the experience of working in collaborative groups affect your professional competencies?

- ☐ Significantly worsened
- ☐ Slightly worse
- ☐ No changes
- ☐ Slightly improved
- ☐ Significantly improved

Does collaborative learning contribute to the improvement of the educational process in general?

- ☐ Not at all conducive to
- ☐ Does not contribute to
- ☐ Neutral
- ☐ Promotes
- ☐ Very conducive to