This is an open-access article under the CC BY-NC-ND license

 Issue VIII, 22 November 2025

 e-ISSN 2707-9481

 Institute of Metallurgy and Ore Beneficiation JSC, Satbayev University, Almaty, Kazakhstan

 ISBN 978-601-323-547-9

 https://doi.org/10.31643/2025.04

https://doi.org/10.31643/2025.04

Zhansaya K. Markhmadova Abai Kazakh National Pedagogical University 050010, Dostyk ave., 13, Almaty, Kazakhstan ORCID ID: https://orcid.org/0009-0006-6138-9939 E-mail: jan_27_2001@mail.ru

Gulzhaina K. Kassymova

Abai Kazakh National Pedagogical University 050010, Dostyk ave., 13, Almaty, Kazakhstan ORCID ID: https://orcid.org/0000-0001-7004-3864 E-mail:g.kassymova@abaiuniversity.edu.kz

Ali Mufti Hasyim

Universitas PGRI Yogyakarta Jl. IKIP PGRI I Sonosewu No.117, Sonosewu, Ngestiharjo, Kec. Kasihan, Kabupaten Bantul, Daerah Istimewa Yogyakarta 55182, Indonesia E-mail: muyijiaren83@gmail.com

Developing Digital Competence Among Educational Psychologists: Pedagogical Measurements and Comparative Analysis

Abstract: Digital competence is an important need in modern education and psychology. In today's rapidly developing educational space, digital competence has become essential for both teachers and students. These competencies include several skills necessary for effective navigation and use of digital technologies in the learning environment. Digital competence includes not only the ability to work with technology but also the ability to critically understand information, collaborate, and use digital tools to solve problems. The ability of educational psychologists to effectively apply modern technologies will improve their professional qualifications and establish effective relationships with students. This article discusses pedagogical criteria and methods for developing the digital competence of educational psychologists. In addition, the article examines the use of digital tools in psychologists in Kazakhstan and Finland, pedagogical measurements and methods that can be used to enhance digital competence and support students in this important area, an action plan for educational psychologists is proposed.

Keywords: digital competence, technology, educational psychologist, pedagogical criteria, educational platforms.

Introduction

The XXI century is a time full of changes in comparison with the previous centuries. The pace of change in the present moment is faster than in the past. In this regard, each time has its specifics, so it is not for nothing that this time is called the time of digital technology. This is because digital technologies are being introduced into all the actions necessary for human life, and thus our standard of living is being simplified. The digital environment is moving us from one social environment to another (Kamali, Alpat, & Bozkurt, 2024). Digital competence is the ability of an individual to use information and communication technologies (ICT) in an effective, creative and ethical way. It covers all aspects, from searching for the necessary information on the internet, analysing it and identifying reliable sources, using digital devices and programs, creating media content, organising communication and cooperation, and compliance with digital security and ethical standards. Digital competence plays an important role in modern society, as it is necessary for education, work, building social relationships, and personal and professional development. The level of digital skills directly affects a person's success in a modern information environment.

The emergence of digital information exchange is becoming increasingly important in modern educational conditions (Talgatov et al., 2024). A wide range of tools available to all stakeholders in the field of Education provides unlimited resources for the synthesis, analysis and processing of information

(Mutarah et al., 2024). On the other hand, the proliferation of the internet and digital sources creates a series of security-related problems. Open access to various media requires the creation of a rational and coordinated system for students on the internet. Accordingly, teachers should teach students to distinguish reliable sources from unreliable ones, critically evaluate information, and use it to solve problems and problems. A modern teacher must be an experienced user of digital tools and platforms, and know the use of electronic resources for educational purposes and their application in their practice. In this context, there is an urgent need for teachers to have appropriate digital competencies. Insufficient resource base and low level of digital literacy hinder the effective education of today's youth. Fallon (2020) provides teachers with a digital teacher competency system that demonstrates the key skills needed to thrive in a technology-driven environment. For educational psychologists, this structure is very important because it includes aspects that directly affect their learning experience and psychological support. Integrating technology into educational institutions can increase student engagement and improve therapeutic outcomes. The European System of Digital Competencies for Teachers (DigCompEdu) further emphasises the need to align teacher competencies with 21st-century challenges (Kaena & Redecker, 2019). This alignment is crucial for educational psychologists, as they are tasked with educating students not only academically, but also emotionally and socially in the digital world.

An important obstacle to achieving digital competence among educational psychologists is the insufficient integration of ICT training into primary teacher education (ITE). Gudmundsdottir and Hatlevik (2018) highlight the alarming gap in the professional digital competence of newly qualified teachers, which poses challenges for those involved in psychological education. Lack of confidence in using ICT tools limits their ability to meaningfully interact with students in a digital learning environment. The results of Instefjord and Munte (2016, 2017) show that teacher educators often lack the digital competencies needed to model effective practices for their students. This creates a cycle in which future educational psychologists are insufficiently prepared to teach and support students in a technology-rich context. In addition, the limited attention to digital tools in curricula undermines the willingness of educational psychologists to address the psychological aspects of learning in a digital environment. The implications of digital competence go far beyond technological skills. The study by Sanchez-Cruzado et al. (2021) highlights that educational psychologists should have the appropriate digital skills not only to convey content. This shift requires the development of a robust learning plan to enhance the digital competence of educational psychologists, enabling them to implement innovative educational models that meet the unique needs of their students. This shift requires the development of a robust learning plan to enhance the digital competence of pedagogy-psychologists, enabling them to implement innovative educational models that meet the unique needs of their students. There is a lack of digital competence, especially in content creation and collaboration, that seriously prevents educational psychologists from innovating in their teaching practice. The direct link between pre-ICT training and effective communication highlights the need for targeted professional development (Lazaro-Cantabrana et al., 2019).

One of the main approaches to the formation of digital competence is the integration of technologies into the educational process. This may include: the use of multimedia tools, the introduction of presentations, videos and interactive tasks into the educational process. Project activities: organisation of group projects in which students can use digital tools to work together and present results. The development of digital competence goes hand in hand with the development of other skills, and some aspects that have been identified as important for a university teacher in the 21st century are being developed by current educational needs. In particular, in the approach to work, special attention is paid to the development of creativity and innovation. Creative thinking is very important for the development of innovative teaching methods. Teachers who encourage creativity teach their students to think outside the box and find alternatives, which helps create a stimulating learning environment and develop the problem-solving skills necessary in life.

The main factor determining the work of a teacher of the XXI century is the ability to self-learn and self-expression. This skill allows teachers to adapt their experience to the changing needs of students, thereby improving the quality of education. The critical aspect ability to think critically, is especially important. In conditions of working with large amounts of data, especially taking into account digitalisation, the critical thinking of teachers determines the ability to analyse the information used in their work. The modern educational landscape is saturated with new technologies, pedagogical theories and various

approaches to teaching. Teachers must be able to critically evaluate this information, distinguish facts from pseudoscientific theories, and choose the best teaching methods for their students.

The digital competence of an educational psychologist plays an important role in the process of modern education and psychological services. It provides search, and evaluation of scientific articles, research and methodological materials using digital resources effectively, mastering modern technologies for organizing online classes and webinars, effective communication with students, parents and colleagues in a digital environment, preparation of psychological knowledge, training and information materials in digital format, protection of personal and student data, prevention of cyberbullying, includes compliance with copyright in the use of digital content and compliance with ethical standards in the provision of online psychological assistance. All this makes it possible to improve the quality of professional activities of a teacher-psychologist and provide effective support to students and their parents. It is very important for us as educational psychologists to understand these competencies and how they can be measured and developed in students. For pedagogical psychologists, this is very important because they need to know:

- Effective use of technologies for training: creating and conducting online courses, using distance learning platforms.
- Data assessment and analysis: the ability to work with various digital resources to collect and analyse information about students.
- Creating a safe digital environment: teach students safe behaviour on the internet and build their digital citizenship skills.

In modern society, digital technologies are developing rapidly, which also has a deep impact on the field of education and psychology. The digital competence of educational psychologists is an important component of the modern educational process. Digital competence is necessary for specialists working in the field of education, not only the ability to use information technologies, but also for effective information management, compliance with security measures and effective communication with students. Pedagogical psychologists play a key role in assessing and improving students' digital competence. Their experience in understanding cognitive development and learning processes allows them to develop effective assessment tools adapted to digital skills. Collaborating with teachers and educational psychologists will be able to develop activities and support systems that integrate technology into the curriculum, ensuring that students not only master digital tools better, but can also apply these skills critically and creatively. In the context of digitalisation of the educational sphereeduactional psychologists can use various tools. Including virtual consultations: conducting online sessions with students and their parents, which is especially important in the context of distance learning. Use of programs for psychodiagnostics: Many digital tools allow you to check and diagnose the condition of students. Modern technologies offer new approaches to teaching, including gamification, the introduction of game elements into the educational process, which can increase the motivation of students and improve the assimilation of the material. Adaptive educational platforms: These platforms allow you to adapt the learning process to the individual needs and pace of learning of each student.

The main part

Digital competence is the ability to effectively use information and communication technologies, work with digital data, move safely on the internet, gain knowledge and effectively apply educational methods using electronic means. The aspects that you need to know to use any technology are shown in Table 1.

Search and evaluation of	Assessment of the quality, reliability and availability of information on the internet	
information		
Applicationoftechnologicaltools	Implementation of psychological tests, questionnaires and other methods in digital format	
Cybersecurity	Protection of psychological information and compliance with security	

Table 1. Aspects of digital competence for pedagogical psychologists

	measures on the internet
Onlineplatforms	Effective use of platforms to build relationships with students in the virtual
	space

Aspects of digital competence:

1. Information competence is the acquisition by a person of the skills of searching, evaluating, analysing, interpreting, using and communicating information. In the course of these processes, the person must take into account not only the correspondence of information to reality, but also its ethical, legal and cultural aspects. Information competence consists of several important components:

- Information search: find the necessary information in databases, libraries, the internet and other resources.
- Assessment of Information: Assessment of the reliability, relevance and quality of information.
- Information processing: analyse, synthesise information and use it according to the intended purpose.
- Disseminate information: share information with other people, communicate and communicate it correctly.

2. Technological literacy is the ability of a person to effectively use modern technologies (computers, mobile devices, software and internet resources). This literacy also includes the skills necessary to process, store, analyse and disseminate information. Components of technological literacy:

- Use of digital devices: be able to use devices such as computers, tablets, and smartphones.
- Mastering software: effective use of Microsoft Office, Google Workspace, graphics programs and other programs.
- Use of internet resources: skills in searching, evaluating information and working on network platforms.
- Cybersecurity: online security measures, data protection and secure storage of personal information.

The importance of technological literacy:

- Education: In the modern educational process, technological literacy increases students' academic success. They can make the most of online resources.
- Professional development: Technological literacy increases competitiveness in the labour market. Employers are looking for professionals with digital skills.
- Application in everyday life: Technologies play an important role in everyday life, in areas such as financial management, communication, entertainment, and health.

3. Communication competence is the ability of a person to establish effective communication, exchange information, form understanding and develop social ties. This skill is realised not only in words but also through body language, intonation of the voice, emotions and context. Components of communication competence:

- Verbal communication: listening, speaking, asking questions and answering skills.
- Written communication: writing emails, messages, and reports.
- Body language: the role of body movements and facial expressions in communication.
- Emotional intelligence: understand the emotions of others and act accordingly.
- Cross-cultural communication: communicate effectively with different cultures.

Importance of communication competence:

- Education: helps students and students to better assimilate information, and develop questioning and analysis skills;

- Professional development: maintain effective communication in the workplace and achieve success in teamwork;

- Social connections: establish good connections in personal life, friendly relationships and professional environments.

4. Critical Thinking is the ability to analyse, evaluate and logically reason information. During this process, a person critically examines his opinions, views and beliefs and makes decisions based on facts and evidence. Components of critical thinking:

- Evaluation of information: checking the reliability, relevance and accuracy of sources.
- Logical reasoning: draw conclusions based on arguments and facts.
- Problem-solving: identify complex problems and search for effective ways to solve them.
- Creative thinking: finding new ideas and solutions, and applying innovative approaches.

The importance of critical thinking:

- Education allows students to understand information more deeply and view it critically;

- Professional development: helps you make the right decisions in the workplace and develop effective strategies;

- Social responsibility: develop the ability to be critical of public issues and news, and to argue one's own opinion.

5. Cybersecurity is a set of measures and strategies aimed at protecting computer systems, networks, programs, and data. Its main purpose is to protect information from unauthorised access, attacks, violations and various cyber threats. Components of cybersecurity:

- Information security: data protection, including encryption, backup and maintaining data integrity.
- Network security: ensure the security of information in the network, and protect against threats in domestic and international networks.
- Software protection: protection against viruses and malware, software crashes.
- Internet security: security issues on websites and online services, phishing attacks and cyberbullying.
- Body Security: restricting physical access, that is, ensuring the physical security of Information Systems.

Importance of cybersecurity:

- Data protection: protection of personal and commercial information, and financial data.
- State security: cyber protection is very important for national security because cyber attacks can pose a threat to the country's infrastructure, economy and citizens.
- Legal liability: Organisations and individuals may be held liable in the event of a violation of cybersecurity norms and laws.

Pedagogical measurements are criteria and indicators used to evaluate, analyze and develop the educational process. They allow you to determine the effectiveness of training, the quality of education, student achievements, the state of the learning environment and other aspects. Aspects such as learning outcomes, teaching methods, organisation of the educational process, student participation, psychological state and assessment system are included in the pedagogical measurements. Pedagogical measurements are an important tool for improving the quality of education, improving the learning process and responding to the needs of students. The evaluation framework, i.e. several established frameworks, provides a basis for evaluating quantitative competencies. The standards of the European Digital Competence Framework (DigComp) and the International Society for Technology in Education (ISTE) describe the basic skills necessary for the effective use of digital technologies. These frameworks serve as a guide for educational psychologists to assess students' abilities in areas such as information literacy, communication and problem-solving through technology. Pedagogical measurements are closely related to the educational psychologist as they determine the effectiveness of the educational process, the development of students and the mechanisms of psychological support. Pedagogical measurements include aspects such as, the quality of teaching methods, the transmission of knowledge, the motivation and interest of students and learning outcomes. The educational psychologist plays an important role in assessing these criteria. It supports the learning process, taking into account the psychological characteristics, personal needs and difficulties of students. The educational psychologist helps students develop emotional and social development, learning barriers, stress management, as well as motivation and self-regulation. In addition, the teacher-psychologist will establish close cooperation with teachers, parents and the school administration to improve pedagogical strategies, improve the learning environment and monitor the psycho-emotional state of students. Thus, pedagogical measurements and

the activity of an educational psychologist contribute to improving the quality of the education system and the integrated development of students.

Digital competence, pedagogical measurements and communication of an educational psychologist play an important role in improving the effectiveness of the educational process. Digital competence allows an educational psychologist to effectively work with students using modern information and communication technologies, provide psychological support and prepare educational materials in digital format. It helps to assess the learning outcomes, motivation and emotional state of students through pedagogical measurements. The educational psychologist implements pedagogical measurements, taking into account the needs of students, using digital resources. For example, it assesses the participation, psychological state, and motivation of students in the online learning process and also offers effective learning strategies. Digital competence, pedagogical measurements and communication of an educational psychologist play an important role in improving the quality and efficiency of the educational process. Digital competence allows the educational psychologist to work effectively with students using modern information and communication technologies. This competence helps to prepare educational materials in digital format, conduct online classes and webinars, as well as organise the educational process on interactive platforms, taking into account the psychological needs of students. Mastering digital technologies allows the educational psychologist to improve the ways of increasing students ' interest, increasing learning motivation and providing psychological support.

When comparing the levels of digital competence of educational psychologists of Kazakhstan and Finland, it is necessary to take into account several important aspects: the structure of the education system, the level of implementation of digital technologies, training methods of specialists and their professional training. In recent years, Kazakhstan has been carrying out several reforms aimed at digitalisation in the field of Education. One of the main goals of digital competence development programs in the country is to improve the quality of education through the introduction of new technologies in schools and universities. The use of digital platforms and resources is actively developing in Kazakhstan. For example, "Bilim Land", "Kundelik.kz", "Mektep.kz" learning platforms such as allow students and teachers to gain digital knowledge. Educational psychologists may face some difficulties in using digital tools, since the level of professional training of specialists in this area is different. Due to the use of new technologies and digital tools, training courses are being organised more and more often, but they are still not uniform and do not cover all regions. In Kazakhstan, special courses and online training programs are being developed to improve the digital competencies of educational psychologists. However, there is an unequal distribution of needs and resources among these specialists.

The Finnish education system is known worldwide, and it is the leader in the direction of digital education. Educational psychologists of this country have a high level of knowledge of digital technologies and widely use them in the educational process. In Finland, digital tools and platforms are increasingly used. For example, there are educational systems among students and teachers that are implemented through electronic textbooks and learning resources, online platforms. It can be said that the digital competence of Finnish educational psychologists is at a high level. The training system of educational psychologist specialists in this country is coordinated with digital means and is based on modern educational technologies. In addition, the inclusion of digital skills in curricula occupies an important place in the Finnish education system. In this country, affordable training and advanced training courses are always organised so that teachers and psychologists can improve their professional skills. These courses are not limited to theoretical knowledge, but are aimed at developing practical application skills. Table 2 carried out a comparative analysis of the extent to which educational psychologists in Kazakhstan and Finland can use digital technology, and these indicators are taken from digital sources.

Indications	Kazakhstan	Finland
Digital education system	Emerging systems and platforms	Highly developed, widespread systems
Training of educational	Uneven, low level in some regions	Digital competence at a high level,
psychologists		continuous improvement of professional

 Table 2. Comparative analysis of the digital education system of Kazakhstan and Finland

		training
Using digital tools	Mostly, mainly platforms for	Special tools and techniques for teachers
	students	and psychologists
Digital skills enhancement	Training and courses are often	Continuing education and advanced
programs	organised, but do not cover all	training courses are common
	regions	
Level of digital competence	At the average level, in need of	At the highest level, meeting international
	improvement	standards

There are significant differences between the digital competence of educational psychologists of Kazakhstan and Finland. In Finland, digital competence is highly developed, and the education system of this country is recognised at the world level. Although digital competence is also developing in Kazakhstan, there are still several issues related to the professional development of specialists and the effective use of digital tools. Kazakhstan needs additional resources and programs to improve the digital competencies of teachers and psychologists, taking into account the experience of Finland. To develop the digital education system in Kazakhstan, several state programs and reforms have been implemented in recent years. There are several official statistics aimed at increasing the digital competence of Kazakhstan in the field of Education:

- According to the results of 2023, 98% of educational organisations are provided with computers and the internet.
- The activity of the National Testing Centre and digital learning platforms has increased, and more than 4.5 million students and students have used online learning platforms.
- E-learning platforms: Bilimland, introduced in 2020 Mektep.kz ", the number of participants in online learning through platforms such as Bilimland is increasing every year.
- Kazakhstan invested 5 billion tenge in the digital education system in 2022.

In Kazakhstan, more than 10,000 educational psychologists annually take special advanced training courses to train specialists in the field of pedagogy and psychology, but not all participants in this training fully master digital skills. In local regions (especially in rural areas), the number of educational psychologists who have mastered digital educational tools is quite low.

The Finnish education system is highly developed in terms of the use of digital tools. The statistical data are as follows:

- Internet access in all schools in Finland is at 100%. At the end of 2022, all schools and universities will be fully covered by digital education tools.
- Digital learning platforms and mobile educational applications are very common. 80% of students learn through digital tools, and 95% of teachers use these tools in their daily work.
- In Finland, the level of use of online learning platforms for schoolchildren and students is very high, with 95% of high school students using various digital education programs.
- In 2023, more than 20,000 educational psychologists took updated courses in digital education and psychology.
- In Finland, the indicator of the use of "digital counselling "systems in the services of "pedagogical and psychological counselling" increased from 40% to 60%.

According to international OECD research, the digital competence of Finnish educational psychologists is at a high level. In the PISA (Program for International Student Assessment) study, the digital competence of Finnish students was rated as the best in the world level and 92% of teachers use digital tools effectively. According to the 2021 report of the OECD survey of the situation in Kazakhstan, it was found that only 62% of teachers in Kazakhstan can effectively use digital tools. This figure is below the world level and still needs improvement. In comparison with the digital competencies of educational psychologists of Kazakhstan and Finland, one can see the development of the Finnish digital education system and the high level of digital skills of educational psychologists. Even though some reforms and programs to improve digital competence are being implemented in Kazakhstan, it is still at a developing

level. Kazakhstan needs to expand and systematically implement digital competence programs, taking into account the experience of Finland.

Pedagogical measurements are criteria and indicators for assessing various aspects of the educational process (Setiawan et al., 2024). Among them are learning outcomes, the effectiveness of teaching methods, student participation, psychological state and assessment system. The educational psychologist, using these criteria, assesses the learning progress, emotional state and social integration of students. This assessment allows us to improve pedagogical strategies, respond to the individual needs of students and improve the overall quality of the educational process. The role of an educational psychologist is integrative in the education system. It effectively uses pedagogical criteria, implementing programs aimed at developing the psycho-emotional state of students, stress management skills, and communication skills. In addition, it maintains close cooperation with teachers, parents and school administration, thus helping to improve the conditions of the learning environment and meet the psychological needs of students. Thus, digital competence, pedagogical measurements and the activities of an educational psychologist are closely interconnected, and they work together to improve the educational process, ensure the development and well-being of students. Digital competence will improve the quality of professional activity of an educational psychologist and contribute to the formation of an integrated model of the educational process. To effectively assess digital competence, teacher psychologists can use various tools and techniques. Rubrics: The creation of detailed rubrics with specific criteria for evaluating digital projects helps to provide clear expectations and consistent assessments. Questionnaires and tests, that is, self-assessment tools, allow students to assess their level of comfort when using technology and determine the directions of growth. Performance-based assessments, including tasks that require students to demonstrate their ability to use digital tools in real conditions, allow them to evaluate their competencies in practice.

Materials and methods

The plan for the use of digital tools in 5 areas of the educational psychologist, based on Table 3, is aimed at the effective implementation of the professional activities of the psychologist. These areas include: diagnosis, psychological support, training, research, and advocacy.

Online platforms	Google Classroom, Microsoft Teams, Zoom
Psychological tests and questionnaires	Socrative, SurveyMonkey, Google Forms
Data analysis tools	Excel, SPSS, R
Content creation tools	Canva, Prezi, PowerPoint
Communication tools	WhatsApp, Telegram, Slack
Electronic libraries and resources	ResearchGate, Google Scholar, PubMed
Meditation and relaxation apps	Calm, Headspace
Educational games and interactive platforms	Kahoot!, Quizlet, ClassDojo

Table 3. Digital tools

In the first part of the plan, the psychologist will be able to use digital questionnaires and tests in the field of diagnostics. Through platforms such as Google Forms or Socratic, it creates questionnaires that assess the psychological state of students. The results are statistically processed using Excel or SPSS programs to determine the needs of students. The second direction is psychological support. The psychologist teaches students stress management techniques using meditation and relaxation apps such as Calm or Headspace organises group meetings to provide emotional support using Zoom or Microsoft Teams platforms to conduct online sessions. The third direction is training. The psychologist develops interactive educational materials through Canva or PowerPoint, where he organises training and webinars to teach psychological knowledge and skills. Kahoot! or using Quizlet platforms, it conducts game-type tests for students to test their knowledge. The fourth direction is research. The psychologist collects scientific articles from resources such as ResearchGate and Google Scholar to conduct research and analyses the

results through questionnaires and tests on psychological topics. The fifth direction is information and propaganda work. The psychologist publishes information materials on social networks and the school website, posts about psychological consultations and trainings, and creates content aimed at improving psychological literacy among parents and students. He also conducts webinars and online seminars and provides students and parents with information about psychological services. Thus, through the effective use of digital tools, the educational psychologist will be able to improve their work in different areas and provide high-quality psychological support to students and their parents.

In addition, there are different methods of pedagogical measurements. The method of pedagogical measurements is an important tool for the effective assessment and development of the educational process. This method allows you to improve the work of an educational psychologist and evaluate the psychological and educational achievements of students.

The method of pedagogical measurements has several components:

1. Assessment of learning outcomes: the use of formative and summative assessment methods to determine the knowledge, skills and competencies of students. This includes methods such as tests, control work, portfolio and mutual assessment.

2. Psychological diagnostics: the use of standardised tests and questionnaires to assess the emotional and psychological state of students, the level of motivation, and social skills. For example, tools that determine stress levels, self-esteem or social integration.

3. Receiving feedback: improving the educational process by receiving feedback from students and parents, and teachers. To do this, organise surveys, interviews or focus groups.

4. Multifactorial analysis: to conduct a comprehensive analysis, taking into account various factors (teaching methods, teaching materials, students ' interests) to assess the effectiveness of the educational process.

5. Monitoring and evaluation: constant monitoring of the educational process, systematic compilation and analysis of results. Development of special indicators and criteria for monitoring the dynamics of students ' development.

6. Strategic Planning: Development of strategic plans for improving the educational process based on pedagogical criteria. Review of training programs, psychological support measures, and teaching methods.

This method should be used in the professional activities of an educational psychologist to improve the quality of the educational process, improve the psycho-emotional state of students and eliminate barriers to learning. The effective use of the method of pedagogical measurements contributes to improving the overall quality of the education system. Pedagogical methods are a system of approaches and approaches used by teachers and pedagogical psychologists in the process of teaching and upbringing. They aim to develop students ' knowledge, skills, values and social skills. The main types of pedagogical methods are the following: verbal methods, where information is provided through lectures, conversations, explanations and discussions; practical methods, which allow students to practice and develop skills, such as practical activities, laboratory experiments and games; visual methods, where information is visualized through images, schemes, graphs and video content; interactive methods, establishing active communication between students, organizing group work, role-playing games and discussions; game methods, allowing interesting and easy perception of knowledge through the introduction of game elements; research methods, conducting project work and research projects to develop students ' research skills; control methods, monitoring and evaluation of the educational process of students, testing and Pedagogical methods are selected depending on the goals of learning, age characteristics of students, interests and learning styles. Their effectiveness plays an important role in improving the quality of the educational process, motivation and participation of students.

Pedagogical methods: blended learning combines traditional classroom learning with online learning capabilities, providing a flexible environment for Skill Development. This approach allows students to use digital tools, taking advantage of personal communication with teachers and peers. Blended learning combines traditional and online methods, opening up possibilities of which:

- Develop independence: Students learn to plan their time and choose the most appropriate sources of information for themselves.
- Creating a dynamic educational environment: using different learning formats helps to attract students ' attention and makes the process more interactive.

Project-based learning encourages students to participate in project-based learning that integrates technology, promotes the involvement and practical application of digital skills. Projects that require research, collaboration, and presentation using digital platforms help students develop competencies in critical contexts. Project activities can include: the creation of digital projects, that is, the development of websites, videos or blogs on topics related to psychology and pedagogy. Collaboration with other disciplines: Projects in which students from different specialities work together help develop interdisciplinary skills and broaden horizons.

Research Discussions

Collaborative learning technology can encourage collaborative learning when students work together on tasks using digital tools (Begimbetova et al., 2024). This method not only increases the level of digital competence, but also develops important skills such as communication, teamwork and adaptation (Kassymova et al., 2024). Although there are many opportunities to increase digital competence, there are several issues that need to be addressed:

- Equality and accessibility: The digital gap remains an important issue, as not all students have equal access to technology and the internet. Teacher psychologists should advocate for providing equal resources so that all students can develop their digital skills.
- Teacher training: Continuous professional development is essential for teachers to be aware of new technologies and pedagogical practices. Pedagogical psychologists can help with this by providing training and resources.
- Student engagement: It can be difficult to motivate students to improve their digital skills. It's a critical factor in academic success and can significantly influence motivation, learning outcomes, and retention.

Digital competence educational programs that are to increase the digital literacy of educational psychologists, it is necessary to develop special educational programs. Such programs should include: the use of basic digital tools: Microsoft Office, Google Suite, Zoom, Skype, etc, methods of psychological testing: online tests, questionnaires, collection and processing of information. Working on a digital platform: conducting classes in virtual classrooms, building relationships with students. Training and seminars play an important role in improving the digital literacy of educational psychologists. They may include: practical exercises, practical classes on the use of digital tools. Innovations and innovations: introduction to new digital technologies, opportunities for their application in psychologists. They are: the ability to study remotely, removing time and place restrictions. Access to many resources: get experience from different professionals. The exchange of experience between experienced psychologists and young professionals is an effective way to develop digital literacy. Partnership programs: mentoring: experienced psychologists lead young professionals. Teamwork: exchange of experience through Team Projects and tasks.

Digital competence is not limited to technical skills, but should also be aimed at the development of emotional intelligence by educational psychologists. Emotional intelligence is the ability to recognise, understand and manage one's own emotions, as well as feel and interact with other people's emotions. Stress management is important in the process of using digital tools. Educational psychologists need to master the techniques of relieving stress and overcoming negative emotions when working with digital technologies. Digital literacy also includes communication skills. Educational psychologists should improve their communication skills to convey information in a clear, accessible and reliable way. Several strategies can be implemented to effectively develop students' digital competencies. Integration into the curriculum, that is, integrating digital competencies into different disciplines instead of treating them as separate modules, ensures that students understand the importance of these skills in their academic and future professional lives. Involving families in the digital learning process can contribute to developing students ' skills at home. Educational psychologists can organise workshops to help parents understand and participate in their children's digital education. Creating reliable feedback systems will allow students to receive constructive recommendations for the development of their digital skills. Regular checks and certificates help students monitor their progress and set achievable goals. Given the rapid development of technology, future educational psychologists should be ready to constantly update their knowledge and skills. This is flexibility and adaptability: the ability to quickly master new technologies and approaches at work. Continuous learning: assumes participation in courses and seminars to maintain the relevance of their knowledge.

Conclusion

The development of digital competence of educational psychologists is an important factor in improving the effectiveness of the education system. These specialists need to be able to effectively use digital tools, maintain information security and establish professional contacts with students. The organisation of educational programs, trainings and seminars, online courses and webinars to improve digital literacy, the development of partnerships and coaching are important steps towards improving the professional qualifications of educational psychologists. In the future, digital literacy will help educational psychologists achieve new opportunities and achievements in their professional activities, which, in turn, will allow them to provide high-quality psychological support to students. The development of digital competence is an important aspect of modern education. The formation of digital competence in future educational psychologists is an important task from the point of view of modern educational requirements. The use of different techniques and approaches, such as integrating technology into the learning process, learning through experience, and developing critical thinking, can help train professionals who can work effectively in the digital world. The successful implementation of these initiatives requires active cooperation of all participants in the educational process, including students, teachers and the administration of educational institutions. In the future, it is necessary to constantly study and adapt pedagogical experience to keep up with technological progress and the ever-changing educational landscape. At the same time, the formation of digital competence of educational psychologists is a complex but necessary process that requires an integrated approach. It is important not only to teach students digital skills, but also to develop their critical thinking, ethical standards and readiness for sustainable learning. In this way, they will be able to successfully overcome the challenges that modern educational spaces offer.

CRediT author statement: Kassymova G.K.: Conceptualisation, Supervision, Methodology, Validation. Markhmadova Zh.K.: Data curation, Software, Writing draft preparation. Hasyim A.M.: Visualisation, Proof-reading, Editing.

Cite this article: Markhmadova, Zh.K., Kassymova, G.K., Hasyim, A.M. (2025). Developing Digital Competence Among Educational Psychologists: Pedagogical Measurements and Comparative Analysis. Materials of International Scientific-Practical Internet Conference "Challenges of Science". Issue VIII, pp. 34-45. https://doi.org/10.31643/2025.04

References

- Begimbetova, G.A., Retnawati, H., Ndayizeye, O., Flindt, N., Kassymova, G.K. (2024). A Bibliometric Review on Exploring Digital Literacy Assessment Dynamics in Education. Materials of International Scientific-Practical Internet Conference "Challenges of Science". Issue VII, pp. 26-37. https://doi.org/10.31643/2024.04
- Sánchez-Cruzado, C., Santiago Campión, R., & Sánchez-Compaña, M. T. (2021). Teacher Digital Literacy: The Indisputable Challenge after COVID-19. Sustainability, 13(4), 1858. https://doi.org/10.3390/su13041858
- European Commission (2020). Digital Education Action Plan 2021-2027: Resetting education for the digital age. European Commission Strategic Report on Education and Digitalisation. Retrieved on 18 March 2025 from: [ec.europa.eu] (https://ec.europa.eu/education/education-in-the-eu/digital-education-plan_en)
- European Commission. (2017). Digital Competence Framework for Citizens. Retrieved on 01 May 2025 from [ec.europa.eu] (https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework)
- Fallon, H. (2020). From digital literacy to digital competence: the digital teacher competence (TDC) framework. *Research and development of educational technologies*, 68, 2449-2472. http://doi.org/10.1007/s11423-020-09767-4
- Finland Ministry of Education and Culture (2022). Digital Education and Teacher Training in Finland. Ministry of Education and Culture of Finland. Retrieved on 11 May 2025 from: [minedu.fi/en] (https://minedu.fi/en)
- Finnish National Agency for Education (2021). Digital Competence and Teacher Training in Finland. Finnish National Agency for Education. Retrieved on 09 May 2025 from: [oph.fi] (https://www.oph.fi/)
- Gudmundsdottir, G., Hatlevik, O. (2018). Professional digital competence of new qualified teachers: impact on Teacher Education. *European Journal of Teacher Education*, 41, 214-231. http://doi.org/10.1080/02619768.2017.1416085

- Instefjord, E., & Munte, E. (2016). Pre-service teacher training for technology integration: an analysis of the emphasis on digital competence in teacher education programs. *European Journal of Teacher Education*, 39, 77-93. http://doi.org/10.1080/02619768.2015.1100602
- Instefjord, E., & Munte, E. (2017). Digitally competent teacher training: a study of the integration of professional digital competence in teacher education. *Teaching and Teacher Education*, 67, 37-45. http://doi.org/10.1016/J.TATE.2017.05.016
- International Society for Technology in Education (ISTE). (2020). ISTE Standards for Students. Retrieved on 02 April 2025 from [iste.org] (https://www.iste.org/standards/for-students)
- José Luis Lázaro Cantabrana, Mireia Usart Rodríguez & Mercè Gisbert Cervera (2019). Assessment of digital teacher competence: developing a tool for measuring teacher knowledge before Service. *Journal of new approaches in educational research*. Volume 8, pp. 73–78. http://doi.org/10.7821/NAER.2019.1.370
- Kaena, F., Redecker, Ch. (2019). Aligning the teacher Competence Framework with the tasks of the 21st century: a rationale for the European Digital Competence Framework for educators (Digcompedu). European Journal of Education. http://doi.org/10.1111/EJED.12345
- Kamali, J., Alpat, M.F. & Bozkurt, A. (2024). AI ethics as a complex and multifaceted challenge: decoding educators' AI ethics alignment through the lens of activity theory. *Int J Educ Technol High Educ.*, 21, 62. https://doi.org/10.1186/s41239-024-00496-9
- Kassymova, G.K., Nursa'ban, M., Suleimen, S.B., Rifqiyah, F., Sultan, J. (2024). Evaluating Student Self-Management, Interpersonal Skills, and Academic Behaviors. Materials of International Scientific-Practical Internet Conference "Challenges of Science". Issue VII, pp. 38-45. https://doi.org/10.31643/2024.05
- Mutarah, R., Azman, M. N. A., Kassymova, G. K., Kenzhaliyev, B. K. (2024). Android-Based Interactive Application Development in the Subject of Design and Technology for the Topic of Manufacturing Technology. AIP Conf. Proc. 2750, 040065.
- OECD (2021). "PISA 2021: Programme for International Student Assessment Digital Competencies." Organisation for Economic Cooperation and Development (OECD). Retrieved on 15 May 2025 from [oecd.org/pisa] (https://www.oecd.org/pisa/)
- OECD. (2019). Preparing Our Youth for an Inclusive and Sustainable World: The OECD PISA Global Competence Framework. Retrieved on 05 May 2025 from [oecd.org] (https://www.oecd.org/education/Global-Competence-Framework.pdf)
- Setiawan, A., Kassymova, G. K., Mbazumutima, V., & Agustyani, A. D. (2024). Differential Item Functioning of the region-based national examination equipment. *REID (Research and Evaluation in Education),* 10(1). https://doi.org/10.21831/reid.v10i1.73270
- Talgatov, Y., Kassymova, G.K., Nurtanto, M. (2024). Al in the Classroom: A Boon or a Threat to Pedagogical Practices? Materials of International Scientific-Practical Internet Conference "Challenges of Science". Issue VII, pp. 128-134. https://doi.org/10.31643/2024.19