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**THEORY AND PRACTICE OF FORMATION OF DIGITAL
COMPETENCIES OF FUTURE TEACHERS
IN THE CONDITIONS OF DISTANCE LEARNING
IN THE REPUBLIC OF KAZAKHISTAN**

Monograph



**MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF
KAZAKHSTAN
M.Kh. DULATY TARAZ REGIONAL UNIVERSITY**

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INTRODUCTION

In the context of the rapid process of informatization in society in the XXI century, there is a need to modernize the system of pedagogical education in the New Kazakhstan, the formation of digital and creative competencies of future teachers.

In the context of Digital Kazakhstan, the training of future teachers with global competitiveness involves the training of future teachers with digital competencies who are able to carry out innovative technological activities in a digital environment with full knowledge of the facts and secrets of digital technology in a Pedagogical University.

Such an urgent problem is solved in the monograph «Theory and practice of formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan».

The monograph «Theory and practice of formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan» was prepared within the framework of the grant scientific project AP09259497 «Improving the system of pedagogical education in Kazakhstan in new conditions: technological and methodological aspects of the formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan», funded by the Ministry of Science and higher education of the Republic of Kazakhstan.

The monograph «Theory and practice of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan» includes 3 chapters «Scientific and theoretical foundations of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan», «Ways of formation of digital-creative competencies of future teachers in the conditions of distance learning» and «Technology of formation of digital-creative competencies of future teachers in the conditions of distance learning».

Chapter 1 of the monograph «Scientific and theoretical foundations of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan» reveals the technological and methodological aspects of the formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan, discusses the stages of development of distance learning, actual problems, solutions; features of the formation of digital pedagogical competence of a future teacher in a digital environment.

Chapter 2 of the monograph «Ways of formation of digital-creative competencies of future teachers in the context of distance learning» examines the model of formation of digital competencies of future teachers in the Republic of Kazakhstan, proposes a methodology for determining the stages and levels of formation of digital competencies of future teachers in the context of distance learning.

Online course «Distance learning technologies» for future teachers in Chapter 3 of the monograph Ways of formation of digital-creative competencies of future teachers in the context of distance learning, technology for the formation of digital-

creative competencies of future teachers in the context of distance learning», the pedagogical educational portal www.smart-pedagog.kz, the International online coaching webinar «I am a smart teacher», the International contest «My first online lesson», the International Congress «The distance learning: challenges, modern trends and strategies» reveals the content of electronic textbooks «Pedagogy» and «Digital Pedagogy» as a means of forming digital competencies of future teachers in the context of distance learning.

Also, the appendix to the monograph provides sample plans for organized events of innovative content on the formation of digital and creative competencies of future teachers in the context of distance learning.

The monograph «Theory and practice of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan» is distinguished by its deep content, innovative forms of activities developed within the framework of a scientific project and is dedicated to future teachers, doctoral students of a Pedagogical University.

1 SCIENTIFIC AND THEORETICAL FOUNDATIONS OF THE FORMATION OF DIGITAL COMPETENCIES OF FUTURE TEACHERS IN THE CONDITIONS OF DISTANCE LEARNING IN THE REPUBLIC OF KAZAKHSTAN

1.1 Distance learning: stages of development, current problems and solutions

In the XXI century, when information and telecommunications technologies are rapidly developing, it is a reasonable situation when the traditional education system does not meet the requirements of the time and the new conditions of human life. Modern society is faced with one of the most important tasks aimed at creating a unique new and promising educational system that can prepare the population for life in the new conditions of civilization. The transition to a digital society is impossible without a highly qualified specialist who can qualitatively perform the necessary work in various spheres of society's life. Thus, the task of training specialists of the necessary quality should be recognized as the main task for any state striving for intensive and purposeful development in modern conditions.

Distance learning is a qualitatively new, progressive form of learning that arose in the twentieth century as a result of the information revolution, based on new information, technological capabilities and the idea of «Open Learning» [1].

According to a brief historical and terminological dictionary, the term «distance learning» was first used in the catalog of correspondence courses at the University of Wisconsin in 1892, and the origin of this phrase is American [2].

From the mid-70s to the early 80s of the XX century, the term «distance learning» was used only as a synonym for the terms «correspondent learning», «independent learning», «homeschooling» or as their generalizing form. And it was included into our lexicon as «correspondence training». In subsequent years, distance learning became a common name for all types of correspondence education and acquired a new meaning due to the use of telecommunications technologies in education.

US researchers M.G.Moore, M.M.Thompson; Russian scientists A. Dolgorukov, O.Okolelov; Kazakhstani scientists as E.K.Balafanov, B.Buribaev, A.B.Dauletkulov, K.D.Buzaubakova, A.S.Amirova, A.A. Makovetskaya and others revealed the essence of distance learning [3-7].

Distance learning is distinguished by a high degree of academic mobility of education, a sharp increase in the number of students, the breadth of the area of subject education, the speed of finding the information easily and quickly.

Information technologies and the internet are bringing education to a new stage, bringing to life more advanced methods of obtaining information of an educational and research nature.

And this situation, in its turn, determines the directions of education using information and technological tools:

1) Transition from traditional training to an innovative form of training (E.V.Danilchuk, P.Ya. Galperin, V.V.Davydov, V.I.Zagvyazinsky, V.Rozin,

V.Ya. Lyaudis, M.V. Klarin, K. Angelovsky, M. M. Potashnik, O. G. Khomeriki, A.V.Lorensov, N.I.Lapin, N.R.Yusupbekova, N.N. Nurakhmetov, K.D. Buzaubakova, R.R. Masyrova, T.Linchevskaya, etc.);

2) Transition to an updated learning model based on the principles of humanization, which involves personality-oriented learning in improving the system of professional education (E.V.Bondarevskaya, V.V. Serikov, I.S. Yakimanskaya);

3) Formation of humanitarian and technological training of a future specialist on the basis of programmed training and new information technologies within the framework of informatization of the educational system (Yu.K. Babansky, V.P. Bepalko, M. E.Bershadsy, V.V. Guzeev, K.Kabdykairuly, V.M.Monakhov, L.N.Orazbekova, etc.);

4) Psychological and pedagogical aspects of the use of information and telecommunications technologies (V.M. Monakhov, M.A.Choshanov);

5) Prerequisites and actual problems of transition to the distance learning system (E.S.Polat, I.V.Robert, A.A.Andreev, V.I.Soldatkin, etc.) [8-36].

Distance learning is defined as a teaching methodology based on indirect (remote) or incomplete indirect interaction between a student and a teacher: correspondence, the use of various technological combinations, including audio, video, computer and the Internet, etc.

Distance learning today is a mechanism for online delivery of at least 80% of the content of education to students using information and communication technologies and telecommunications tools.

In 1840, Isaac Pitman (Isaac Pitman) began to teach student shorthand in the United Kingdom by mail and became the founder of the first distance education course [37].

In the 50s of the XIX century in Germany Gustav Langenscheidt (Gustav Langenscheidt) used his Leh rbriefe (letters or «teaching letters») as a textbook on language for adults [38].

The possibility of distance higher education arose in 1836, when the University of London (University of London) was founded in the United Kingdom. Students studying in accredited educational institutions were allowed to take exams conducted by the University. Since 1858, these exams have been equally open to students from all over the world, regardless of where and how they were educated. After that, a number of educational institutions began to appear, offering training courses by mail [37].

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Table 1 presents the definitions given by scientists for the concept of «distance learning».

Table 1–The efinitions of the concept of «distance learning»

№	Definition	Source of origin
1	Distribution of educational programs through technologies outside the educational organization, such as cable or satellite TV, video or audio recordings, fax, modem, video conferencing	Moore M.G. & Thompson M.M. (1990). The effects of distance learning: A summary of the literature. Research Monograph No.2. University Park, The Pennsylvania State University, American Center for the Study of Distance Education (ED 330 321).
2	Distance learning is a way of implementing the idea of open education and a set of special methodical and methodological approaches that are formed as a result of it	Balafanov E.K., Buribayev B., Dauletkulov A.B. New information technologies: 30 lessons in computer science. –Almaty: Evero, 2017. – 340 p.
3	Distance learning – a set of educational services for the general public using a specialized information educational environment, including action education, methods of intensive education, means of remote exchange of educational information (paper version and electronic media, satellite, television, radio, computer network, etc.)	Dolgorukov A.M. Problems of the development of distance learning in Russia // Bulletin of the Moscow University. – 1999. –No. 1. - pp.102-117.- (Ser. 18. Sociology and Political Science).
4	Special educational system of pedagogy, which organizes the educational process on the basis of distance learning telecommunications tools, information technologies, internet tools	Okolelov O.P. The figure in education. Didactic tools for the development of digital and hybrid educational systems. – M.: INFRA. – M., 2017. –167 p.
5	Distance learning is a special form of digital competence formation that creates conditions for any person to improve themselves, improve their abilities, improve their professional skills, use audiovisual devices, information and communication technologies	Buzaubakova K.D., Amirova A.S., Makovetskaya A.A. Digital pedagogy: textbook. –Taraz: IP «Beisenbekova A.Zh.», 2022. - 314 p.

In the 70s of the XIX century, a number of steps were taken to organize distance learning in America. In 1873, A. E. Ticknor, based on the English program «Society for the Encouragement of Home Study», created a mail-order training

system for women called Ticknor's Society. In 1874, the postal curriculum was also offered by the Illinois State University. And in 1906, at the University of Wisconsin, postal training was carried out [39,40,41].

In Australia, distance learning appeared very early. In 1911, university-level courses began their work at the University of Queensland (University of Queensland) in Brisbane. In 1914, postal education was organized according to the primary school program for children living far from ordinary schools. Students of the pedagogical college in Melbourne conducted classes by mail. This practice soon spread to secondary schools and technical schools. Similar systems for schoolchildren began to be used in Canada and New Zealand [42].

In 1938, in Victoria (British Columbia, Canada), the first congress of the International Council for Correspondence Education was held by mail [43,44]. After the revolution of 1917, distance learning began to develop in Russia. Various courses at different levels were offered here. In the Soviet Union, a special «counseling» model of distance learning was developed, the name of which literally means «education without visual contact» (correspondence education). In the 60s of the XX century, there were 11 correspondence universities in the Soviet Union and many correspondence faculties in traditional higher educational institutions.

In 1939, the State Center for Distance Learning was established in France to teach children with disabilities by mail. It is currently considered the largest distance learning institution in Central Europe [45].

Educational institutions that conduct distance learning have appeared mainly in a number of countries in Europe and Asia:

- 1) University of South Africa (University of South Africa, UNISA) in 1946;
- 2) Open University of Great Britain in 1969 (Open University of the United Kingdom, UKOU);
- 3) Universidad Nacional de Educacion a Distancia (UNED) in Spain in 1974;
- 4) Allama Iqbal Open University (AIU) in Pakistan in 1974 (1974);
- 5) Anatolian University in Turkey in 1958;
- 6) University of Athabasca in Canada in 1970;
- 7) Open University of Hagen, Germany in 1974;
- 8) Sukhothai Thammathirat Open University (Stou) in Thailand in 1978;
- 9) Korea State Open University (Korea National Open University, KNOU) in 1982;
- 10) Universitas Terbuka (UT) in India in 1984 and Indira Gandhi State Open University (Indira Gandhi National Open University, IGNOU) in 1985 [46].

Distance learning systems organized in this way in both developed and developing countries suggested mail-based learning and distance learning covered the entire range of levels of training from primary education to higher education: correspondence; the use of printed products; radio and television network; practical seminars and open examinations, etc.

Garrison (1985) and Nipper (1989) were among the first to use the term «generation» to designate three stages in the development of distance learning

«historically associated with the development of production, transport and communication technologies» [47, 48].

Since the middle of the XIX century, branched railway systems and fast and economical state postal services have made it possible to deliver educational materials to many geographically separated students: in order to make publicly available Special textbooks, additional instructions on mail were provided for the implementation of the necessary literature and leading training on selected questions.

The invention of the radio in the 20s of the twentieth century led to the emergence of radio courses, consisting of a series of stories, and the courses were supplemented with printed materials.

And in the 50s of the last century, television courses were actively developed, combined with the release of manuals, classes and periodic exam control.

The emergence of an Open University in the UK in 1969 marked the beginning of the «second generation». From that moment on, in the prevailing conditions of printed materials in distance learning, an integrated approach to teaching with the use of all kinds of tools began to be used for the first time. A huge number of high-quality teaching aids for distance learning have been created at the Open University. One-sided communication of the University with students was carried out through printed material (audio cassettes), supplemented by radio and television programs.

The «third generation», which came to life in the course of distance learning, was based on the active use of information and communication technologies:

1) ***training in synchronous mode – «simultaneous» training:*** in the form of video or audiographic conferences that are equally popular in educational institutions;

2) ***in asynchronous mode – «not at the same time» training:*** provides two-way communication in various forms (text, graphics, sound, animation) using e-mail, the Internet or teleconferences [49].

In 1989, a public television broadcasting system was created in the United States, uniting more than 1 million students from different countries, the distance learning experience of the University of Pennsylvania was used by UNESCO in organizing a Virtual University [50].

However, the development of distance learning in the countries of the Middle East and Central America, developing Asia and Africa, where the educational level of the population is relatively low and there is a significant lag in the educational process and technical equipment [51].

Soon, one technology quickly switched into another, and online courses were also offered through satellite stations, where the internet was founded.

In the 1950s and 1960s, programmed learning was introduced in Europe and the United States, which gave a significant impetus to the development of distance education, and training according to the «training packages» or «module» system became widespread in many higher education institutions.

In 1960, IBM developed the coursewriter, a unique distance learning program. From 1968 to 1980, it was used to teach 17 different courses at the University of Alberta [52].

The use of computers in training emerged in the corporate arena in the 1980s, as companies used computer programs to train new employees [53].

In 1989, the University of Phoenix began using one of CompuServe's first consumer online services, which was the first step to start using online educational programs [54].

Having invented the internet, humanity has taken another step in educational technology. Soon in 1991, the World Wide Web (Web) was opened, and in the 1990s, educational institutions used synchronous, asynchronous and mixed distance education modes [55].

In 1992, the University of Michigan developed a form of online learning with a computer that focused on the individual. In 1994, the university introduced a virtual learning school (VSS) for some psychologist students. In addition, in 1994, a distance learning company in New Hampshire developed the CALCampus program, which allows you to send educational materials over the internet, teach, manage the educational process [56].

Since the mid-1990s, universities and colleges have been experimenting with conducting online courses, and in 1997, Blackboard has developed a standard platform for managing and presenting courses. Currently, the company is a world leader in the field of distance learning technologies, its products are used by more than 10,000 organizations around the world [57].

However, in 1999, Jones International University was established in the United States to provide online education in traditional non-profit institutions. It was one of the first distance learning universities with state accreditation. The university was created on the basis of a network of television channels that offer distance courses to students in 30 US educational institutions [58].

Based on new information and pedagogical technologies, distance learning has become an urgent problem, since it has been able to adequately respond to the needs of society.

In the first decade of the XXI century, at the first stage of the development of distance education, the need for students to move from country to country decreased, and instead a mobile concept of exchange of ideas, knowledge and educational resources was formed in the educational systems of the countries of the world.

UNESCO specialists have identified the following long-term position of distance learning: to allow each person to master the desired program of a college or university anywhere. Thus, distance learning ensures equality of access of each person to information and knowledge [50;4].

In the first decade of the XXI century, distance learning began to develop rapidly around the world: the internet system was improved; distance learning technologies were developed; internet technologies appeared; the basics of artificial intelligence began to be studied.

The current stage in the development of distance learning is the implementation of massive open online courses (MOOCs). MOOCs (open online courses) are platforms that offer their trainees training programs at different universities.

The rapid development of modern distance learning is due not only to correspondence education, but also to the massive spread of open online.

Since 2011, prestigious universities around the world have started hosting MOOC creation and promotion courses on specially created online platforms such as Coursera, Udacity, edX, FutureLearn, OpenupEd, etc. Thus, Coursera, the most popular educational platform associated with 2016 data, it offers more than eight hundred courses and brings together more than 100 universities in North America, Europe, Australia and Southeast Asia. Since 2014, some CIS higher education institutions have joined [59].

The phrase «distance learning» (DL) has firmly entered the lexicon of World Education. Over the past three decades, distance learning has become a global phenomenon of educational and information culture, changing the face of education in many countries of the world. Distance learning is distinguished by the emergence and rapid development of a whole industry of educational services, which surprises with a large number of students, the number of educational institutions, the size and complexity of infrastructure, the scale of investment and money circulation.

The development of distance learning is recognized as «education for all», «lifelong learning», «unlimited education» and one of the main directions of the UNESCO medium-term strategy.

Distance learning has the advantage of versatility and scalability, a wide variety of educational services.

Distance learning includes a set of information technologies that ensure the delivery to students of the main volume of the taught material, interactive communication of students and teachers in the learning process, providing students with the opportunity to master the taught educational material, work independently.

Distance learning is a new stage of correspondence education, which provides for the use of information technologies based on the use of personal computers, video and audio engineering, space and fiber-optic equipment; an educational process organized on certain topics, academic disciplines, involving the active exchange of information between students and the teacher, as well as between the students themselves, and at the highest level using modern means of new information technologies (audiovisual means, personal computers, telecommunications means) [60].

Distance learning – systematic targeted training carried out at a certain distance from the location of the teacher; the processes of teaching and learning are distributed not only in space, but also in time:

- 1) distance learning does not use traditional information technologies at all;

2) during the training period, there is absolutely no communication between the teacher and the trainee: the participants are not territorially distributed at a considerable distance (live in the same city, district);

3) interactive communication may occur not only between the student and the teacher, but also between the students themselves and the teaching aids [61].

At the base of distance learning are two principles:

1) free access: everyone has the right to get education;

2) distance learning, training with minimal contact with the teacher, emphasis on independent work.

D.M.Dzhusubalieva proposed the following principles of distance learning. These principles do not require absolute completeness, on the contrary, they involve the further development of distance learning methodology:

1) *The principle of humanization.* The educational process is not limited to a strict time frame, the student, based on the potential of different universities, chooses different academic disciplines, develops his own educational trajectory, can combine training with production activities, the procedure for admission to the training system is «open» with free access.

2) *The principle of primary education.* For effective training in distance learning, some initial knowledge (the initial level of training potential consumers of educational services in distance learning), hardware and technical support are required.

3) *The principle of interactivity.* Shows the legitimacy of the relationship of students not only with teachers, but also with each other.

4) *Identification principle.* It is necessary to control the independence of learning, since with distance learning, for example, a distortion of learning can occur, as opposed to full-time learning. Identification of students is part of general security measures: control of independence when performing tests, abstracts and other control measures, in addition to eye-to-eye contact, can be achieved with the help of various technical means. For example, you can determine the person taking the exam by videoconference.

5) *The principle of personalization.* In order to comply with this principle, in distance learning, incoming and current control is carried out in the actual training process. For example, incoming control allows not only to draw up an individual training plan in the future, but also, if necessary, to additionally prepare the consumer of educational services to replenish the missing initial knowledge and skills that will allow him to successfully conduct training. Current control allows you to adjust the educational trajectory.

6) *The principle of systematic training.* In distance learning, the study time is not strictly regulated, but practice shows that there should be strict control and planning for lower-year students.

7) *The principle of openness and flexibility.* The principle of openness is manifested in the «softness» of age restrictions, on the basis of education, admission control measures for the opportunity to study in the educational institution in the form of interviews, exams, testing, etc. An important «flexibility indicator» should not be a

criticism of the temporary schedule for the implementation of the distance learning educational process and a specific educational organization. Ideally, the last requirement is the need to create information remote distributed knowledge networks for distance learning, which will allow the student to adjust or supplement the educational program in the desired direction in the absence of appropriate services at the university where he studies [62].

Today, there is a great interest in distance learning around the world. On the one hand, the needs of the population of many countries for higher and continuing education are increasing. In addition, the growing mobility of life creates the need for mobile learning systems.

Distance learning is the ability to study in an individual mode, the ability to study for life, regardless of the place and time. All over the world, there is an increase in the number of students studying distance learning technology, the number of universities that use them in the educational process is also growing; many international educational structures are being created, etc.

In response to the objective demands of the time, many educational institutions began to work with distance learning programs. However, despite the fact that each organization conducting distance learning declares the use of internet technologies during training, in fact, of all the possibilities of the internet, only e-mail is used, and paper media, audio-and video cassettes are used as training materials.

The educational process, implemented on the basis of distance learning technologies, includes both mandatory auditorial classes and independent work of students. The teacher's participation in the educational process is determined not only by conducting auditorial classes, but also by the need to constantly support the educational and cognitive activities of students through the organization of current and intermediate control, conducting network classes and consultations.

Information technologies used in distance learning can be divided into three groups: technologies for presenting educational information; technologies for transmitting educational information; technologies for storing and processing educational information.

In distance learning, the most practical educational technologies are used: video lectures; multimedia lectures and laboratory workshops; electronic multimedia textbooks; computer learning and testing systems; simulation models and computer simulators; consultations and tests using telecommunications tools; video conferencing.

Information technology is hardware and software based on the use of computer technology, providing storage and processing of educational information, its delivery to the student, interactive communication of the student with the teacher or pedagogical software, as well as testing the student's knowledge.

The main role that telecommunications technologies play in distance learning is to provide educational dialogue.

The special relevance of the implementation of the distance education system in Kazakhstan today is due to a number of factors.

However, formation of distance learning as an innovative process is still at the stage of development in Kazakhstan. This is confirmed by a large number of different approaches to distance learning, the presence of different forms and methods of teaching, the availability of programs by pedagogical educational institutions, inconsistencies in basic concepts.

There are different models of distance learning:

1) *Asian model* – open universities in India, Thailand, Indonesia, China, Korea. In the distance learning model used in Australia, New Zealand and Malaysia, there is no difference between distance and full-time learning.

2) *The American model* is based on the interpretation of distance learning as a form of full-time learning: direct audiovisual communication of the teacher with the audience is replaced by telecommunications.

3) *In the British model*, distance learning is interpreted as a special form of education based on independent learning: training courses of the distance learning model are based on a modular structure [63].

Basically, educational institutions in Kazakhstan adhere to the British model of distance learning. When considering options for the delivery of educational information, three main technologies of distance learning are distinguished: case technology, telecommunications technology, network technology. All these technologies should be considered as a result of the inclusion of more basic distance learning technologies. The classification sign of this division of technology is mainly the method of delivering educational material to students from educational institutions and the results of its work. As a rule, none of these technologies is used in its pure form, but is implemented in combination with elements of other distance learning technologies.

Distance learning is a special type of training, the main feature of which is the interactivity of the communication of all participants in the educational process:

1) It is not necessary to have a teacher, since distance learning is a process of independent study of the material.

2) In distance learning, an individual-oriented approach to learning is implemented, maximum individualization of learning occurs.

3) Distance learning is characterized by specific principles, as well as general pedagogical didactic teaching principles.

4) The use of new information and telecommunications technologies makes it possible to interact with distance learning participants, regardless of their location, through e-mail, chat, forum, video conference, webinar, online seminar.

The methodological specificity of distance learning lies in the fact that the acquisition of knowledge, business and skills provided for by curricula is carried out not in traditional forms of training (lectures, classes, seminars, etc.), but through independent work of the student with the help of various means – media of information. At the same time, the student must master not only the skills of working with a computer, but also the methods of working with educational information that are found in the process of distance learning.

The information and educational environment of distance learning is a systematically organized set of data transmission tools, information resources, interaction protocols, hardware-software and organizational and methodological support aimed at meeting the educational needs of users. In this case, the characteristic features of distance learning are: flexibility; modularity; economic efficiency; the new role of the teacher, etc.

Distance learning is a type of training based on the educational interaction of teachers and students located at a distance from each other, carried out with the help of telecommunication technologies and internet resources. Distance learning is characterized by all the components of the learning system inherent in the educational process: purpose, content, organizational forms, teaching tools, a system for monitoring and evaluating results [64].

The purpose of distance learning is to provide students with the opportunity to master the basic and additional professional programs of higher and secondary professional education at their place of residence or temporary stay, respectively, by educational organizations of higher, secondary and additional professional education. The content of training can be defined as a pedagogical model of a social order, the learning process, technologies, methods and organizational forms of its implementation are determined by its content.

Technologies used in distance learning: network or internet technology; telecommunications (information and satellite) technology (Figure 1).

With the transition of the Republic of Kazakhstan to the credit system of education, the role of network forms of distance learning has increased. The use of network technologies makes it possible to provide students with access to educational materials in full form and at any time.

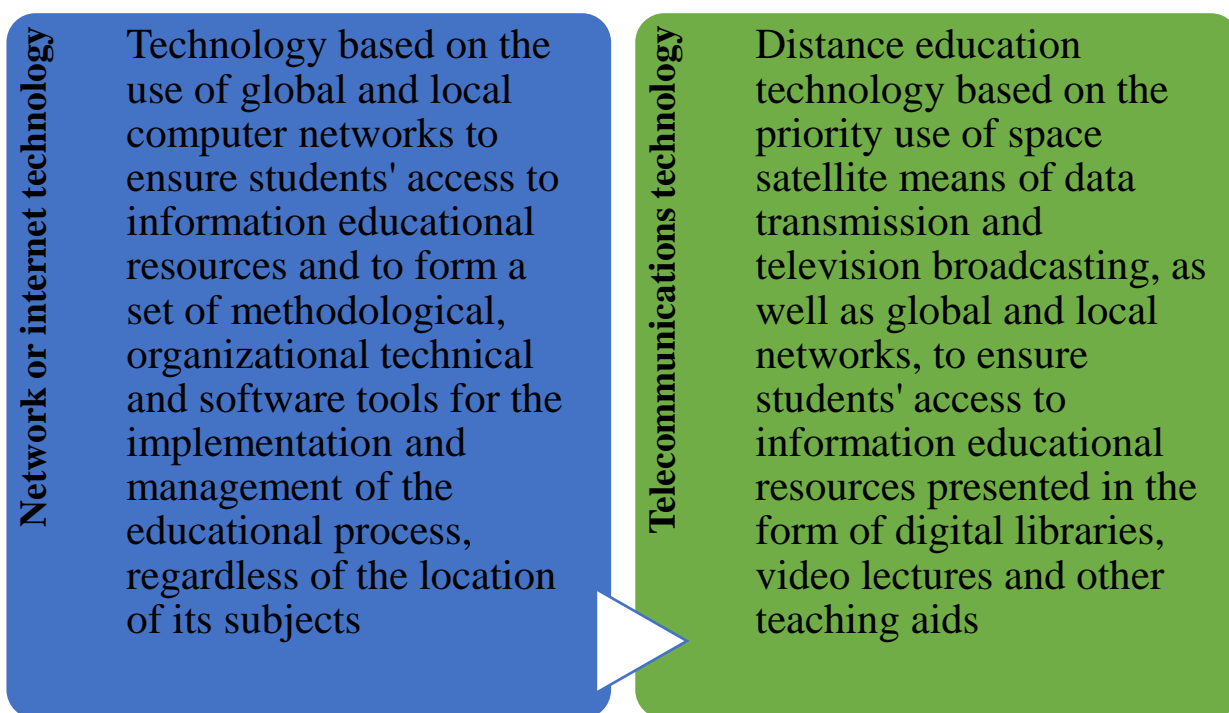


Figure 1– Distance Learning Technologies

As in many developing countries, Kazakhstan attaches great importance to distance learning. Using the experience of educational institutions in Russia and other foreign countries, many universities of the state began to develop and implement distance learning, creating the basis for distance learning. Technologies, software and instrumentation of distance learning, and university portals for distance learning are being created.

The need and benefits of distance learning are important. However, in practice, both students and teachers face great difficulties that prevent them from learning successfully.

Actual 6 problems of distance learning:

1) Difficulties in adapting to the online format: students are not expected to listen passively and write summaries, instead they need virtual discussions, work with a personal account and materials in various multimedia formats.

2) Low computer literacy: lack of digital literacy, technological competencies is an important problem that affects both students and teachers in the digital world.

3) Technical problems: technical gaps and defects often interfere with online learning. Digital learning platforms may have compatibility issues with operating systems, browsers, or smartphones, and low internet connection speeds can lead to skipping online classes or difficulty downloading lessons in video format, which in turn can lead to frustration and unwillingness to attend classes.

4) Inability to manage time or use time efficiently: the freedom offered by the online learning format often awakens vigilance and can create a false sense of the infinity of time. Mismanagement of time can significantly lag behind the curriculum and put students under a lot of stress.

5) Weak self – motivation: lack of motivation is a common problem for all learners. The online format requires a strong discipline and purpose to independently complete tasks, show interest and move forward.

6) Lack of social interaction: while in traditional teaching students can interact directly with each other and with the advisor, in distance learning the relationship changes, students may feel isolated, and this is more likely to negatively affect academic performance [65].

The main component of the distance learning system is digital educational platforms. The main goal of digitalization of the education system is to increase competitiveness, improve the quality of life of the population, accelerate and simplify the educational process, and reduce the burden on students. The main thing is to improve the quality of education. University graduates must be internationally competitive in various fields, including artificial intelligence and large-scale data generation.

1.2 Digital pedagogical competence of the future teacher in a digital environment

In the new century, the education offered by pre-school education, general secondary education, secondary vocational and higher education is becoming more and more digital.

The transfer of educational and other information to a digital form, the so-called digitalization, is considered pedagogical digital competence as the ability to communicate, skills, technologize, consistently apply the teaching of the subject with context, as well as the relationship between them. This competence will continue to develop as the teacher's experience increases.

N.Yu.Goncharova, A.I.Tymoshenko, and other scientists interpret digital competence as the ability to be ready to independently use modern information and communication technologies in pedagogical activity to solve a wide range of educational tasks [66].

MOOC (Massive open online course) online courses play a special role in the formation of digital competencies of future teachers through the use of digital educational resources.

Today, in many countries of the world, the analysis of open online courses is widely discussed. For example, many educational institutions in Sweden have introduced such courses, and most of the training is carried out online, and the number of students in online courses is constantly growing [67].

There are differences between student groups, for example, instead of enrolling online for the entire program, students can choose independent courses in order to develop a certain competence in depth or gain additional professional knowledge while maintaining their current job.

Thus, digitalization poses new questions and challenges for university teachers to ensure high-quality education [68].

At the same time, the main task of all educational systems is to train people with a wide range of business and skills.

Krumsvik R. A. who made an important contribution to the field of digital competence, developed a theoretical model of digital competence using empirical testing. According to a study by Crumswick, although the term «digital literacy» is widely used internationally, the concept of «digital competence» is still an acceptable term because it has a broader and holistic meaning, and technical skills are only a part of this complex digital competence. And digital competence is the ability of future teachers to use information and communication technologies (ICT) in a professional context in combination with a good pedagogical (didactic) understanding of its importance for learning strategies and the digital base of students [69].

In Figure 2, based on the research of A.A.Kartukova, three main components of the digital competence of future teachers are revealed: general user competence; general pedagogical competence; subject-pedagogical competence [70].

Digital competence of future teachers mastering digital platforms is directly related to special knowledge, and it is also important to be able to use digital

resources. Knowing what resources are available, how they can be used, combined and changed, having information about their rational and negative sides, future teachers master the competencies to be able to consciously choose educational materials, manage the educational process, give feedback, etc.

In this regard, knowledge of digital technologies is relevant and important. Digital technologies are not only a new channel of old pedagogical ideas, digital technologies have radically changed our society, in what conditions young people are brought up, what and how they are taught. Digital technologies have also influenced pedagogical theories. It is no coincidence that pedagogical theories focused on digital tools are in high demand in all areas of life, from everyday interaction to global relationships.

To achieve pedagogical digital competence, it is not enough to understand certain or new concepts, it is necessary to be aware of current research and know what digital technologies, digital platforms exist. Skills are also needed, for example, the ability to put such technologies into practice, regularly meet with future teachers and provide them with real support in order to achieve educational success.

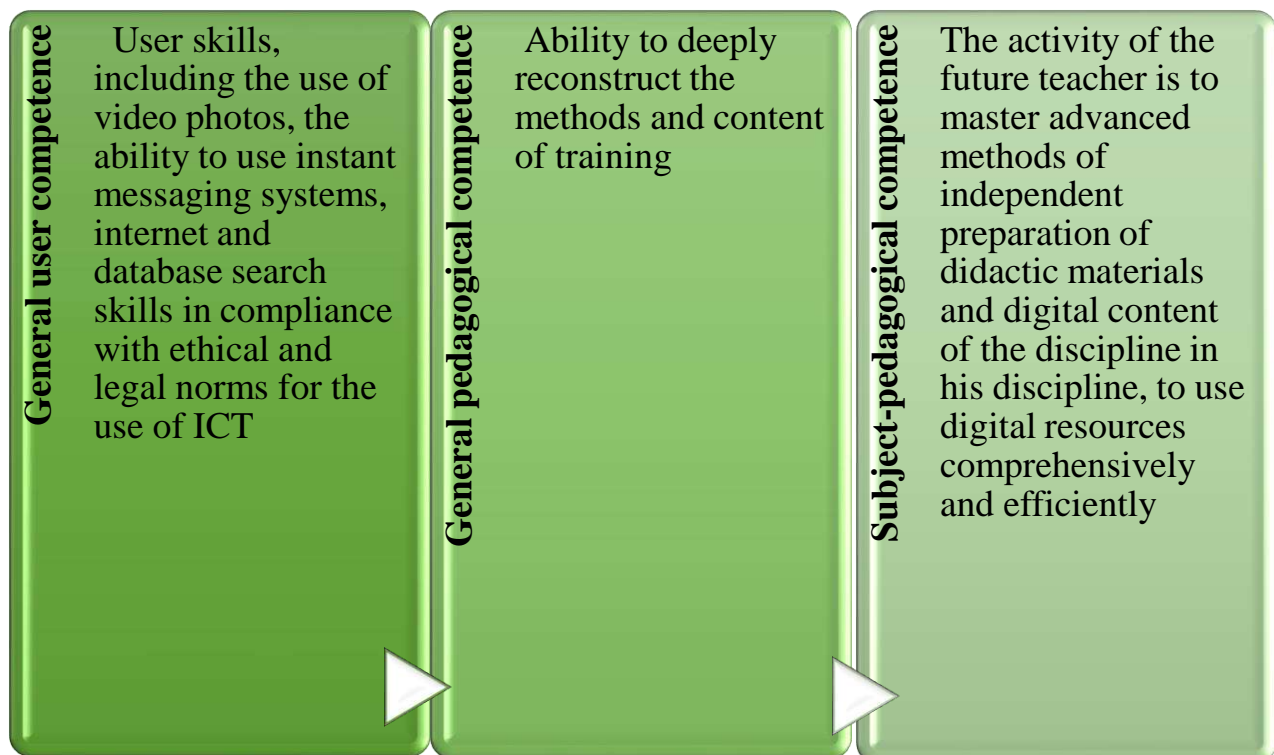


Figure 2– Digital competence of the future teacher

Future teachers who have digital pedagogical competence and actively use it in the educational process will be able to improve their digital practical knowledge faster, provide professional support to students, create new digital content, etc.

In conclusion, it should be noted that the main problem at the moment is the urgent issue of improving the quality of digital skills of future teachers, so in the

future, the digital environment should determine the main directions for improving the practical competence of future teachers.

The acquisition of pedagogical digital competence allows future teachers to find a balance between existing pedagogical values, their own theoretical, professional knowledge and acquired digital skills.

The process of informatization, which is taking place at a rapid pace in society in the XXI century, has expanded the scale of the information environment at a world level that has not existed for a long time. The process of informatization also includes the education system and requires consideration of the professional training of future teachers in a new content: the internet, internet resources, information media tools and innovative pedagogical practices in the digital environment, instant access of information to each person, including each teacher, at the same time and in the same volume without visiting their place of work, etc.

In the context of the New Kazakhstan, improving the system of training teachers in pedagogical universities and the formation of digital competencies of future teachers is becoming an urgent problem.

Training of future world competitive teachers in the conditions of Digital Kazakhstan the pedagogical university has its own innovative information pedagogical bank fund, digital content and innovative media library, is able to conduct innovative research work for the development of creative, creative, intellectual abilities of the student, conduct diagnostic expertise and pedagogical monitoring of its results, it provides for the training of future teachers with a high intellectual potential, who can form a technological map of an innovative lesson, have developed digital competencies that can carry out innovative technological activities in a digital environment.

In the psychological and pedagogical literature, the word «competence» is revealed in a broad sense. In pedagogical sciences, the concept of professional competence is considered in the form of a set of knowledge and skills, the volume of skills in solving problems, the mutual understanding of personal qualities and abilities, a complex of professionally significant personal qualities and knowledge, a whole set of theoretical and practical preparation for work [71].

Competence – the ability of a teacher to independently raise knowledge, professional skills, culture and adapt them to modern requirements as a specialist.

In accordance with modern requirements, a modern future teacher must possess the following competencies:

- 1) use of information and communication technologies (ICT) in professional activities;
- 2) planning and organization of students' project activities: online forums and seminars; mastering proprietary Web, network and multimedia technologies for organizing a virtual learning environment;
- 3) mastering the skills of processing various types of information;
- 4) mastering the programming skills using modern tools.

Digital literacy includes basic digital skills, including information and data skills, network communication and collaboration, digital content creation, security, and current problem solving.

Digital competence is one of the new concepts that describe skills related to digital technology. Digital competence is the ability to confidently, critically think and responsibly apply digital skills (knowledge and attitudes) in a specific context (for example, in education) [72].

Since 2006, digital competence has been considered as one of the eight core competencies for lifelong learning in the European Union [68;11].

Professional real digital skills – a set of special digital skills for people whose work is related to the use and maintenance of digital tools (for example, 3D printers, CAD software, robots).

Figure 3 of DIGCOMP (digital competence framework for citizens) shows the main digital competence framework divided into five areas.

Digital skills include: photo-imaging skills; reproduction skills; branching skills; information skills; socio-emotional skills; real-time thinking skills.

Four types of digital competence are distinguished: information and media competence; communicative competence; technical competence; consumer competence.

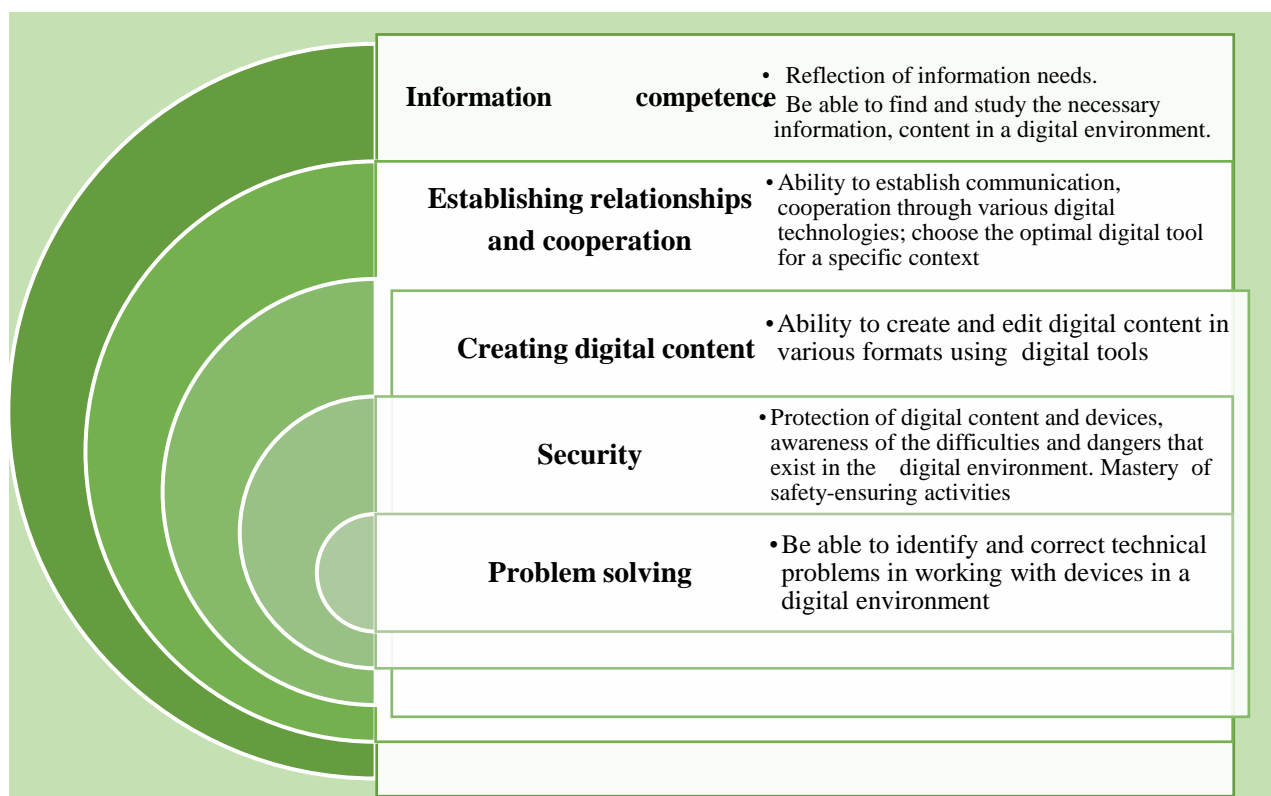


Figure 3– Description of the scope of digital competence

Information competence is the ability of a future teacher to present information, find information and store information.

Communication competence of the future teacher:

- 1) ability to work with network documents and cloud technologies;
- 2) use the ability to create internet communication channels for transmitting and exchanging information;
- 3) creating a group network policy as an opportunity to moderate network groups and implement network etiquette.

Media complexity graphic processing of text, sound, video by the future teacher; the ability to create multimedia, interactive, hypertext material and interactive didactic materials for the lesson.

The following makes the technological skills of the future teacher: adding and processing text, images and photographs; quickly and efficiently creating diagrams, tables, simple drawings; recording and processing video; adding sound and small video fragments to any slide, etc.

Information security competencies of the future teacher:

- 1) knowledge in the field of law on the use, storage and transmission of information in digital form and in the internet space;
- 2) knowledge of licensing legislation;
- 3) ability to comply with the rules for storing confidential information;
- 4) be able to respect copyright when using information products, computer models and digital prototypes;
- 5) the ability to quickly select and process freely distributed and used digital information products, digital tools and resources, including information from the internet.

In a digital environment, the content and direction of pedagogical competence of the future teacher are changing, so it is important to reveal the essence of the concepts of «digital literacy»; «digital competence» (Figure 4).

In the new century, new technologies and formats of digital education have appeared: distance learning technologies; blended learning; organization of project activities; new formats of face-to-face learning.

Today, a new branch of pedagogical science - digital pedagogy has come to life. Digital pedagogy is a new branch of pedagogy that studies the pedagogical process, which includes various digital technologies and, as a result, ensures a high quality of educational activities.

According to the research of scientists, digital literacy is the ability to find, evaluate and accurately convey information using text and other media on various digital platforms, and digital competence is the safe choice, reliable, constructive and effective use of information and communication technology by an individual in various areas of activity in life, work with digital content, communication, consumption, etc. [73].

In connection with the rapid development of information, digital and telecommunications technologies in the third millennium, the meaning of the concept of «digital competence» is expanding from year to year.

According to the research of scientists Soldatova G.U., Nestik T. A., Rasskazova E.I., Zotova E.Yu. and others, digital competence is a complex phenomenon that combines four more competencies in its composition [74]:

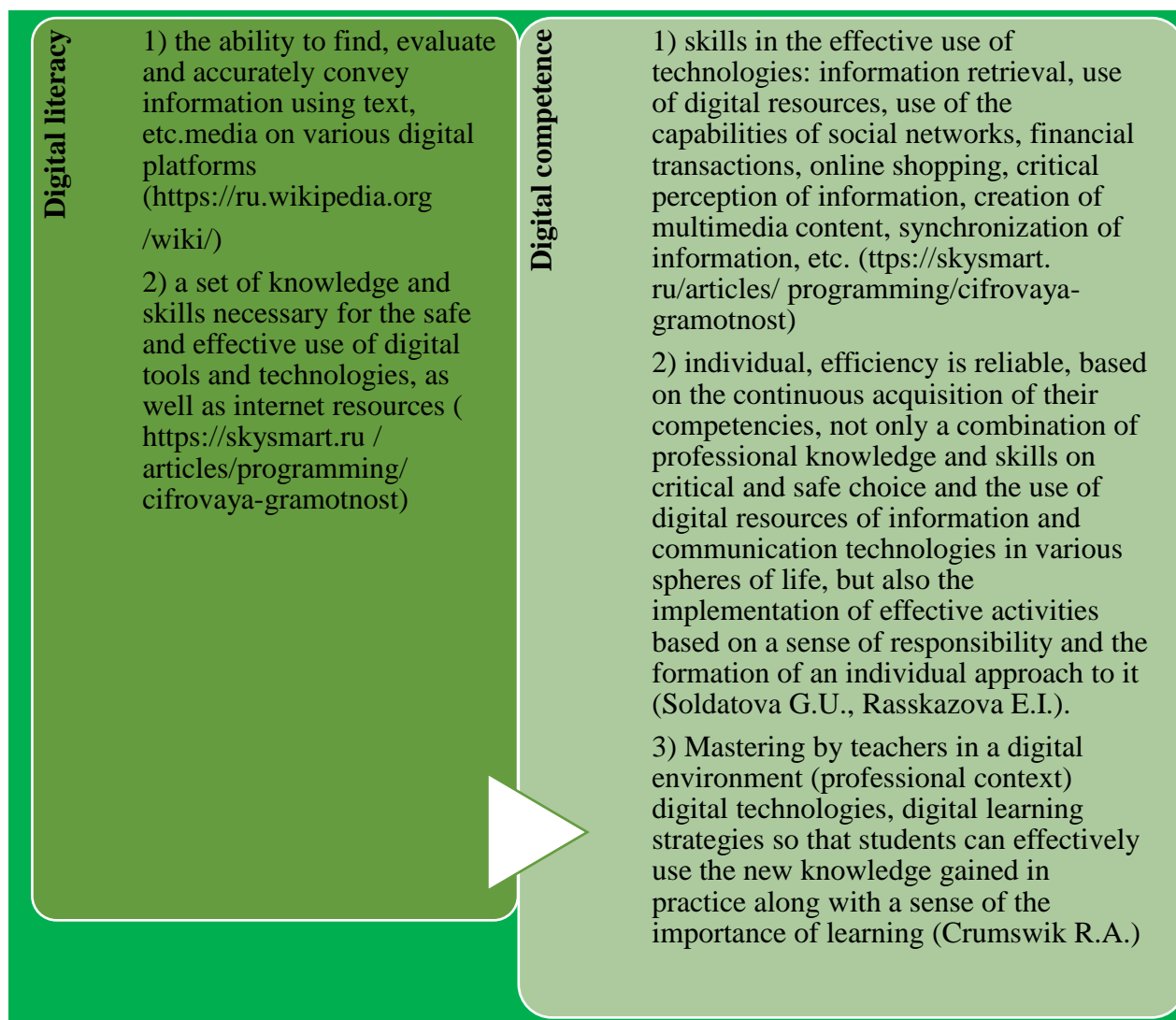


Figure 4– The essence of the concepts of «digital literacy» and «digital competence»

1) Information and media integrity. These are the knowledge, skills, incentives and responsibilities associated with the search, understanding, organization, archiving of digital information and the ability to constructively reflect it, as well as the formation of an information environment using digital resources (text, audio and video).

2) Communicative competence. This is the knowledge, skills, motivation and responsibility necessary for communication, which is created for various purposes (e-mail, chats, blocks, forums, social network, etc.).

3) Technical competence. This is the knowledge, skills, motivation and responsibility necessary to perform various tasks, safely and efficiently using technical and software tools, including a computer network, cloud services.

4) Consumer competence. This is the knowledge, skills, motivation and responsibility necessary to solve real-life situations, so that they meet various needs

with the help of digital devices and the internet in the implementation of everyday tasks (Figure 5).

Digital technologies make it possible to develop existing methods for monitoring and assessing the level of knowledge of future teachers and create new, more advanced modern methods. In addition, by analyzing a lot of information about students and their activity in the digital environment, the university teacher will be able to provide him with sufficient assistance, and the future teacher will be able to work independently in the digital environment.

However, it is important that the future teacher maintains the safety and confidentiality of information, such as knowledge of legislation and regulatory documents in the field of personal data storage, the ability to organize a safe digital educational environment, the ability to work safely with digital tools and learning platforms, the ability to create a positive image of an educational institution in a digital environment, respecting the rights of all participants in educational relations.

When working with digital resources, the future teacher must comply with the security of personal data and confidential information, as follows:

- 1) make copies of all files from time to time for precautions;
- 2) using external drives or cloud storage from trusted developers to store finished work;
- 3) using cloud storage service;
- 4) creation of additional mailboxes for the separation of official and personal correspondence.

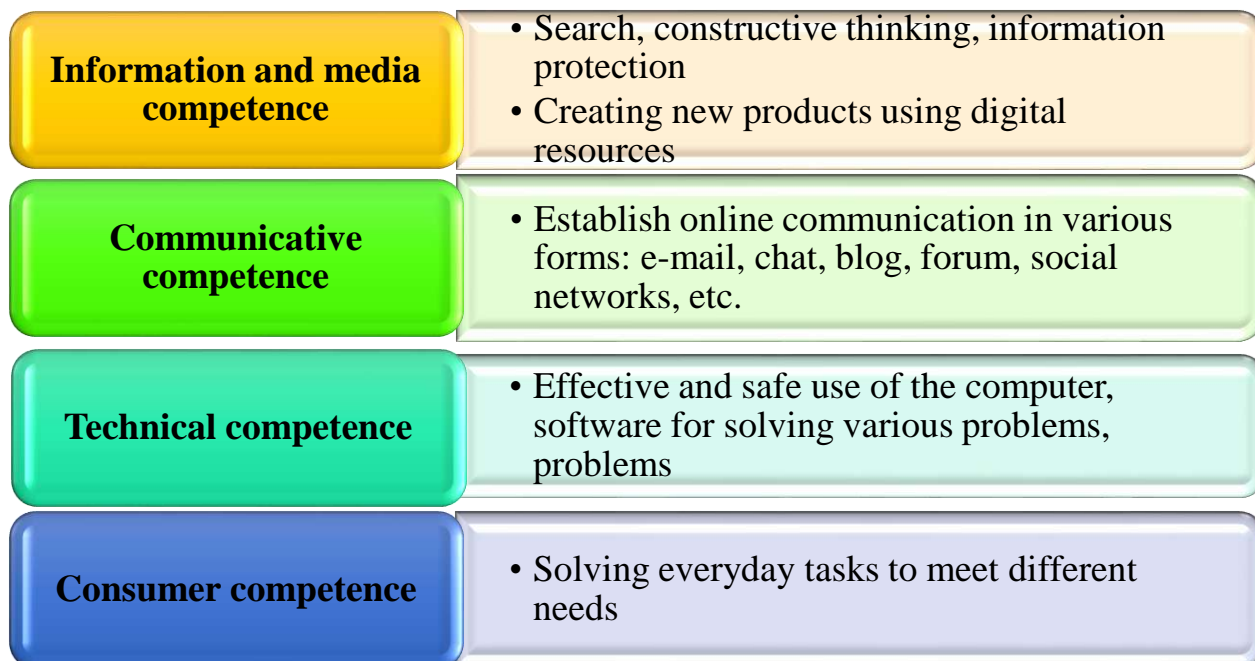


Figure 5– Types of digital competencies

Also, when working in a digital environment, the future teacher must know the following digital etiquette:

- 1) ability to communicate online and remotely;

- 2) distance conflict-free messaging capability;
- 3) the ability to stop negative statements and discussions that distract from the topic of discussion;
- 4) the ability to moderate the behavior of members of the network group: stimulate publication activity, activate discussion participants and keep the discussion relevant to the problem;
- 5) ability to determine the security of access to information sources;
- 6) the ability to verify the accuracy of information.

Figure 6 reveals the digital pedagogical competence of the future teacher in a digital environment: pedagogical competence, professional competence, technological competence.

The technology used to form the digital competence of future educators must be more or less transparent. When determining the strategy of digital education of future teachers, it is important to pay attention to the pedagogical consequences of changing the approach to education. Considering ethical questions about the role of digital technology in human development and the ability to critically evaluate information sources, it is important to pay attention to the impact of digitalization on society.

The development of digital competence of future teachers is carried out in the course of the study of two directions, practical knowledge on the one hand and self-reflection on the other: understanding; reasoning; constructive thinking; search; innovation.

When the digital competence development of future educators reaches the stage of understanding, technology is integrated into their teaching practice comprehensively, and when they reach the final stage, the ability to create and implement innovations in education, they can develop pedagogical and didactic innovations using ICT.

Increasing the digital competence of future teachers through online courses is the ability to plan, organize, manage, develop, improve the pedagogical process with the help of digital technology in a professional context.

The digital competence of future teachers includes all types of pedagogical work in a professional context in which digital technologies are used: micro level (interaction level); meso level (course level); macro level (Figure 7).

The digital competence of future teachers includes both practical and conceptual knowledge, as well as epistemological knowledge.

In the context of distance learning, there is an opportunity to additionally develop and determine the digital competencies of future teachers, namely:

- 1) training of communication opportunities with students and colleagues using digital resources (platforms);
- 2) development of skills in creating and exchanging materials with teachers in a digital environment;
- 3) use of digital content to create educational material and adapt existing ones;
- 4) deepening knowledge about ways to protect information;

- 5) assessment of the reliability of information and identification of false or one-sided information;
- 6) safe and responsible use of digital technologies;
- 7) creative use of digital technologies to solve educational problems;
- 8) use of digital technologies in the educational process and monitoring of students' online activity;
- 9) learning to use digital tools to assess and monitor the level of academic performance and intellectual growth of students and their additional use [75].

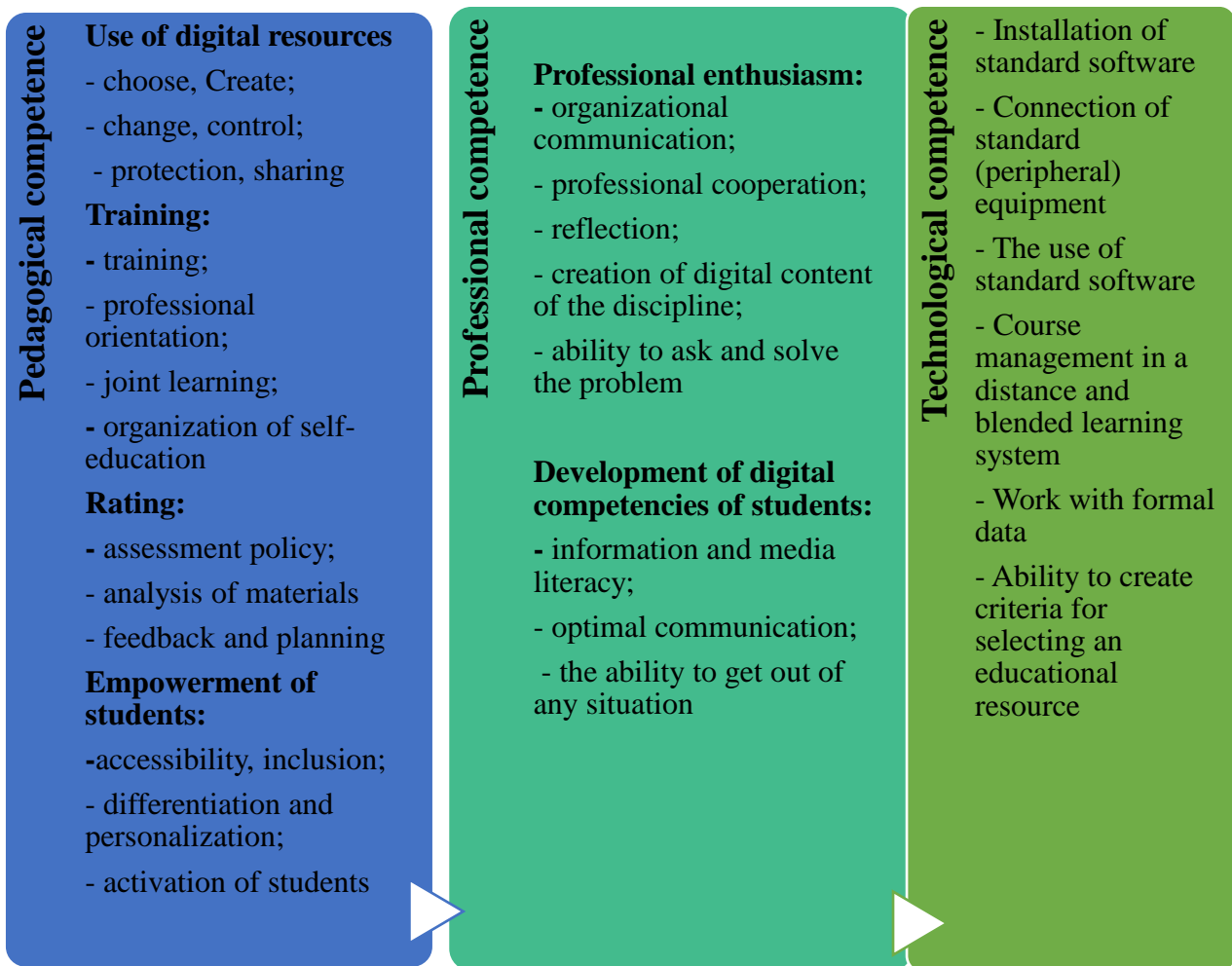


Figure 6– The Future teacher in the digital environment
digital pedagogical competence

One of the advantages of using digital technologies in training is that they have the opportunity to actively involve all students in the educational process.

Digital technologies can be used in order to adapt educational activities to the level of knowledge of each student, his interests and needs. In addition, in order not to aggravate the situation of existing inequality (for example, not all students have access to the internet and personal computer and flexibility in digital technologies) and we must make sure that technology is available to all students.

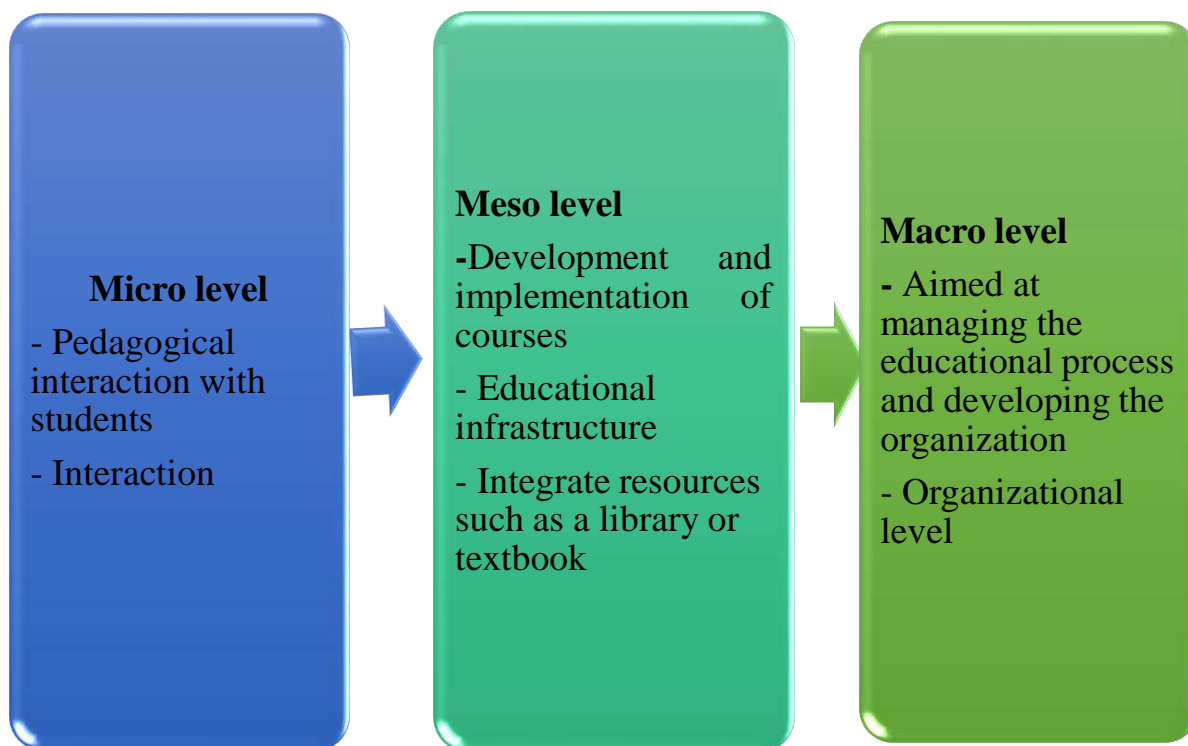


Figure 7– Levels of formation of digital competence of future teachers

1.3 Technological and methodological aspects of the formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan

In the context of the New Kazakhstan, improving the system of training teachers in pedagogical universities and the formation of digital competencies of future teachers is becoming an urgent problem.

In the XXI century, the process of informatization, which is taking place at a rapid pace in society, has expanded the scale of the information environment at a world level that has not existed for a long time.

The informatization process also includes the education system and requires a new content of professional training of future teachers.

Innovative pedagogical practices through the internet, internet resources, information media and the digital environment, that is, information instantly reaches every person, including every future teacher, at the same time and in the same volume, without visiting their place of work.

Training of future world competitive teachers in the conditions of Digital Kazakhstan Pedagogical University has its own innovative information pedagogical bank fund, innovative media library, has knowledge of new communication technologies, is able to conduct innovative research work for the development of creative, intellectual abilities of students, conduct diagnostic expertise and pedagogical monitoring of its results, provides for the training of future teachers who can form a technological map of an innovative lesson, carry out innovative

technological activities with high intellectual potential. The digital educational environment is an open complex of resources, conditions and opportunities for human learning, development, socialization. How much the pedagogical potential of this environment is in demand and used depends on the subject activity and educational independence of the student himself. In vocational secondary educational programs, students are characterized by a low level of motivational and instrumental activity in using the potential of the digital educational environment on the principle of learning.

Elements of education in the process of digitalization:

- some elements can already be digitized (due to the availability of appropriate digital tools, which makes it possible to significantly increase their pedagogical effectiveness);

- others can be digitized after the development of appropriate digital educational tools;

- thirdly, it is necessary to carry out preliminary improvement (transformation), taking into account the capabilities of digital technologies, and only then their digitization;

- there are a number of elements of the educational principle that digitalization is not pedagogically possible; they must be preserved in a traditional (unsocialized) way.

Information and methodological support of students in distance learning I.A.Malinina; pedagogical support of independent work of university students in the conditions of distance learning – L.N. Pochinalina; profile testing of educational results of students in distance learning – A.A. Malygin – development of student subjects in the process of distance learning – O.V.Gorbunova; implementation of independence in the conditions of distance learning – T.A.Fadeeva; features of stimulating educational activities of university students in distance learning technologies – N.V.Sokolskaya; program support and improvement of the information educational environment for the organization of distance learning using the internet – A.A.Karasik; adaptation of students to the use of Information Technology in the conditions of distance education – I.S.Galchenkova (Galchenkova I. S., 2004); formation of information competence of students in the conditions of distance learning – G.A.Gareeva – pedagogical conditions for the organization of distance learning in the training of future teachers – S.G.Bondareva; theoretical and methodological foundations of the formation of professional competence of teachers in distance learning – B.Zh.Nurbekov; the formation of information culture of students in the context of distance learning was studied by D.M.Jusubalieva [77- 88].

Digital education, it is proposed to independently organize and stimulate education with the active and effective use of the resources of the digital educational environment:

- 1) in conditions of low educational independence of students, it is necessary to create a digital education system of a medium-sized organization saturated with various opportunities, but a pedagogically effective digital education process under

the conditions of the organization is not enough. It is also necessary to create a system for organizing students' activities in this environment;

2) the presence of a digital educational environment and digital teaching tools is not itself a sufficient tool to support the learning motivation of students with a low level of learning autonomy [89].

The use of digital technologies creates new opportunities for creating the principle of education and solving a wide range of «eternal» and fundamentally new educational tasks that cannot be solved by traditional educational means.

It is necessary to use a complex of management tools provided by training motivation, including the means of digital technologies:

- a state of success based on the full assimilation of the given learning outcomes, which makes it possible to significantly reduce the role of fear as a dominant factor in learning motivation in traditional pre-university education;

- instant feedback when completing training tasks;

- the use of a wide range of social and emotional methods for managing learning motivation, including the use of a game environment (gamification), interaction with partners in the network, the formation of training groups, the formation of professional competencies of students, etc.

In the psychological and pedagogical literature, the word «competence» is revealed in a broad sense. In pedagogical sciences, the concept of professional competence is considered in the form of a set of knowledge and skills, the volume of skills in solving problems, the mutual understanding of individual qualities and abilities, a complex of professionally significant personal qualities and knowledge, a whole set of theoretical and practical preparation for work.

In the short dictionary of foreign words, the definition is given: «competence» (from the Latin «competens» – able, capable) – an expert in a particular field, competent, with his knowledge has the right to decide or do something» [2; 117].

Well, in the encyclopedic dictionary of the Russian language, the concept of «competence» is revealed as follows: «competence» (from the Latin «competens» – worthy, striving to achieve, corresponding) – capable, competent, fluent in their business; knowledge and experience in a particular area [1; 545].

According to the research of scientists, the word «competence» includes the concept of complex, broad content characteristics, integrated into professional, socio-pedagogical, socio-psychological, legal, etc. In general terms, the competence of a specialist indicates the interconnectedness of his abilities, quality and personal qualities for the effectiveness of his professional activity in any field.

Components of competence:

1) **organizational skills** – the ability of a specialist to create a rational connection between mutual cooperation;

2) **the ability to empathize** – to understand others; to empathize; to put oneself in the shoes of others;

3) **reflective ability** – the ability to instantly regulate one's own behavior and behavior of a partner; the ability to make effective decisions in conflict situations; the

ability to create a favorable psychological climate; the ability to predict the development of intersubject relations [90].

Figure 8 reveals the components of competence.

Competence – the ability of a teacher to independently raise knowledge, professional skills, culture and adapt them to modern requirements, competence is the path to creativity.

In a short psychological dictionary, the concept of «creativity» is defined as follows: «creativity»(creatio) is a direct translation from Latin – «creation»; «hidden power»; «ability to create». Creativity is the personality quality of an individual who shows a willingness to act productively, a willingness to make discoveries. The presence of stable motives of the individual to achieve high results [91].

Scientist B. A. Ospanova, revealing the scientific foundations of the formation of creativity of future specialists, offers the following definition of the concept of «creativity»: «creativity is the ability to be creative, thinking: the level of creative abilities that characterize a person; abnormal thinking of a person; the ability of an individual to discover new ideas; the level of creativity, talent; the ability to quickly make ingenious decisions; a high level of intellectual activity; the ability to perceive and understand the new; the ability to solve abnormal situations» [92].

The role of digital technology in the formation of digital and creative competencies of future teachers is great.

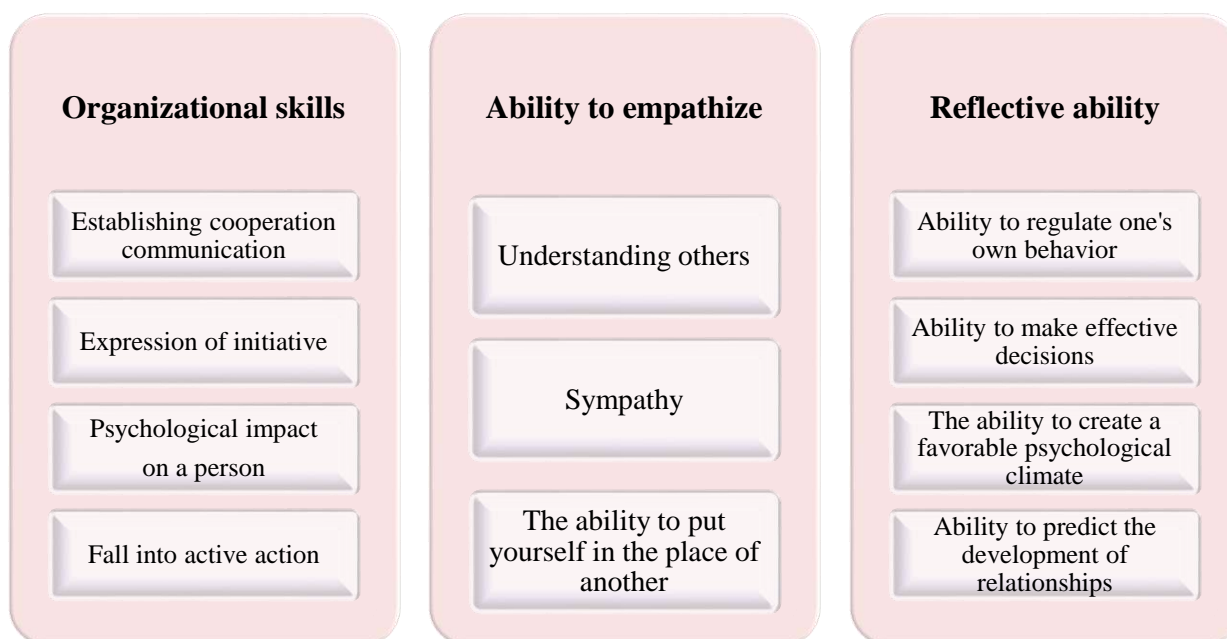


Figure 8– Components of competence

In the context of distance education, the concept of «technology» is of particular importance in the formation of creative competencies of future teachers. This term is characterized by the arrival of computer technology into life and the introduction of «new computer technology» in the field of education. In science, a new direction of development has come to life – the technological one. The

emergence of this technological direction in science and the beginning of its deeper study in pedagogy is no coincidence. Because pedagogical science has long been striving to find the most effective method in the field of education, education, training, to use it in life, to obtain high results, to find new forms and methods of teaching.

The word «technology» comes from the Greek language and is formed from two phrases: «techne» means art, skill, business; «logos» means science, doctrine and «doctrine of art» or «doctrine of skill» [93].

Initially, the concept of «technology» began to be used in the field of production, and the term «technological process» was introduced in science. A technological process is a simply controlled production process consisting of a system of operations performed in a certain sequence on the basis of previously known scientific laws [94].

Our analysis of the scientific and pedagogical literature shows that in modern pedagogical theory there is no identical approach to the concept of «pedagogical technology», some call it the technologization of educational organizations, others consider teaching as computerization, providing audiovisual means, and the next point of view is to raise didactic projects and the pedagogical system, the degree of its application in practice. All this characterizes this concept, the multifaceted nature of the phenomenon, that is, it requires justification of the methodological orientation of its study. Such orientation is characterized by consistency, action and individual approach.

B.T.Likhachev explains pedagogical technology as a pedagogical influence that affects the educational process as if it were pursuing a specific goal. Well, the technological process is represented as a certain system of units (measures) that lead to a specific pedagogical result.

B.T.Likhachev: «Pedagogical technology is not the ultimate unchanging mechanical structure, but the core of the repeated, constantly changing interaction between the student and the teacher, the content-organizing structure. The essence of pedagogical technology is to create the necessary conditions for the development of creative abilities» – reveals the essence of pedagogical technology [95].

According to V.P.Bespalko, «pedagogical technology is a content technique that implements the educational process» [96].

The well – known methodologist V.M. Monakhov defines: «pedagogical technology is a model of well-thought – out pedagogical «activity» that creates favorable conditions for joint activity between the student and the teacher in the design and organization of the educational process [97].

According to the definition of UNESCO, «pedagogical technology is a systematic method for the implementation of the entire learning process and the assimilation of knowledge technical and human resources, taking into account their mutual influence on each other, the tasks of optimizing the form in education» [98].

M.Choshanov defines: «Technology is a component part of the didactic system» [99].

According to G.K.Selevko, pedagogical technology can manifest itself in three different fields: scientific, figurative and real. In the first case, it is the part, area of pedagogical science that studies the purpose, content and methods of teaching, designing the pedagogical process [100].

Technological skills of the future teacher include: operational and methodological skills; psychological and pedagogical skills; evaluative skills; diagnostic skills; expert skills; research skills-smart skills [101].

Using the «Smart» model, it is possible to describe how digital technology affects teaching and learning.

The «Smart» model consists of four stages: replacement; assembly reconstruction; modification (Figure 9).

In the context of digitalization of the principle of education, the role of active and interactive forms of learning will increase. The principle of digitalization creates new qualitative opportunities in the presentation of educational materials and the organization of the educational principle (the emergence and spread of new types of activity in the life of children and adolescents, which are real in the conditions of socialization in a digital society).

Factors causing the need to create the principle of digital education in education and training, there are three areas that characterize the formation of a digital society:

- 1) the digital economy and the new requirements for personnel that shape it;
- 2) new digital technologies that create and develop a digital environment;
- 3) digital generation (a new generation of students with special socio-psychological characteristics).

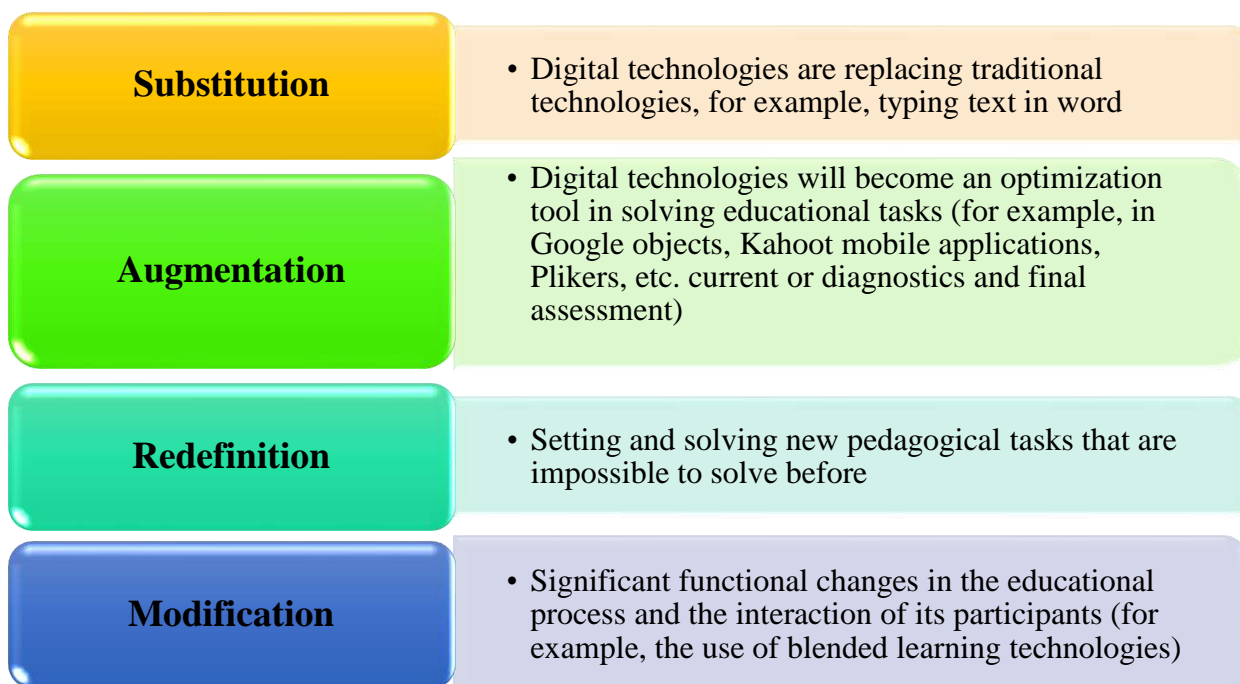


Figure 9– «SMART» model of digital technology

In addition to digital competencies, the new complex, which ensures the use of computer and digital technologies by a person and forms the core of modern functional literacy of any employee, includes the expected educational results from the content of a set of other competencies (professional, general professional, universal), which change under the influence of digitalization.

Many digital technologies have didactic (educational important) potential, the characteristics of which are: freedom, autonomy, hypertext, subculture, multimedia (multimodal), interactivity (figure 10).

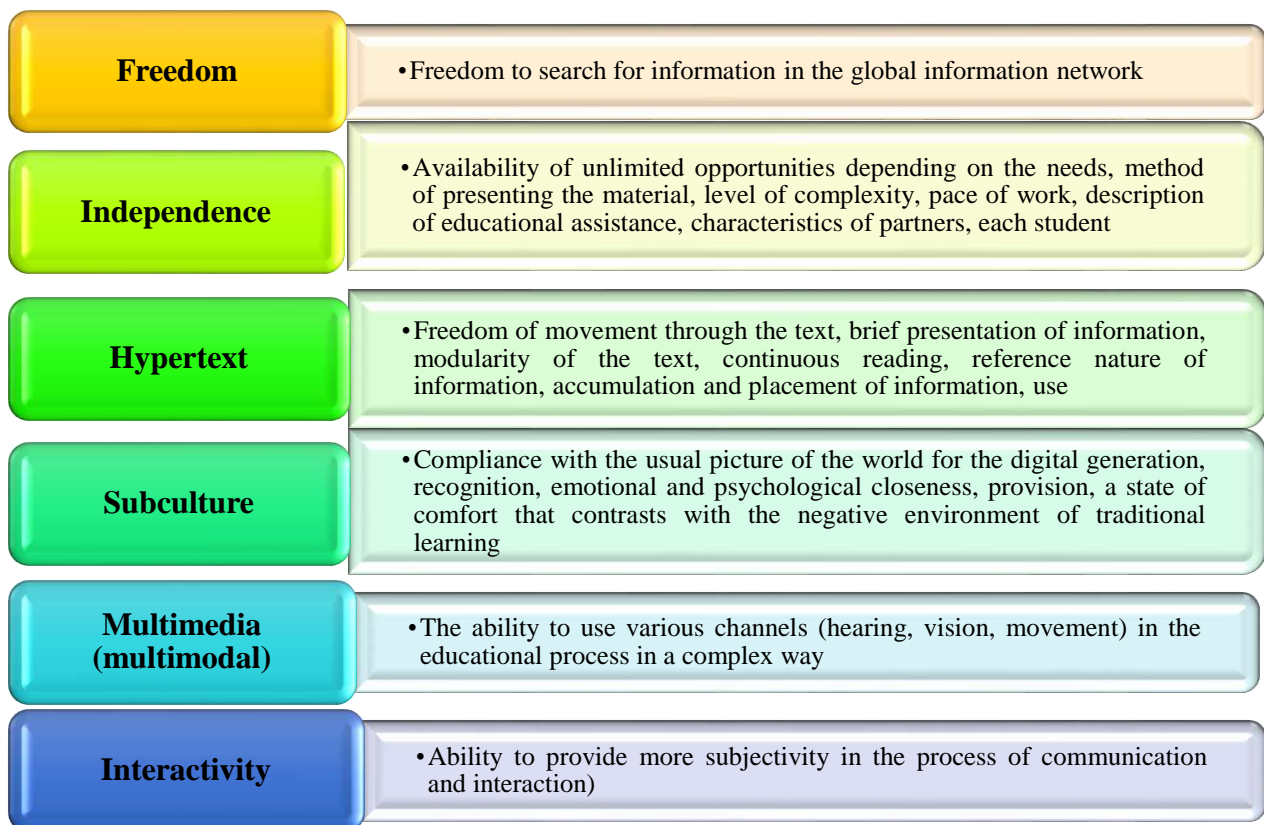


Figure 10– Didactic characteristics of digital technologies

It is beneficial to use digital technologies in the context of distance education.

And in the context of distance education, it is important to develop the creative competencies of future teachers.

Scientist B.A. Ospanova revealed the components of creativity of future specialists:

1) Purposefulness: the ability to plan the pedagogical process; think and act abnormally; clarify goals and objectives; check assumptions; constructive thinking.

2) Technological: communicability; ability to apply theoretical knowledge in practice; search for new knowledge; activity; openness to change; adaptation to non-standard activities.

3) Reflective: reflecting on the situation; self-perception; self-assessment; self-development; being able to put oneself in the shoes of others, etc. [92;108].

Scientist B.A.Turgunbaeva offers the following definition of the concept of «creativity» from the point of view of pedagogical science: «creativity is a personality trait that is observed in informational, current processes: the quality of personality that occurs through its inclusion in information substructures; a trait that manifests itself when looking for a solution when proposing a hypothesis and proving its correctness»[102].

Thus, creativity is a single, stable built – in quality of a person, which determines creativity, the ability to discover new, think abnormally, create ingenious solutions, and creativity is a set of certain processes, actions: innovative activity; a natural process arising from a person's need; discomfort (inconvenience), sensitivity caused by a feeling of lack of knowledge; identification of a problem, search for a solution, offer forecasts; announcement, formulation of the result of a solution.

In the context of distance education, the creative competencies of future teachers are the ability of the future teacher to independently and effectively work with digital educational content in the information environment.

In the context of distance education, the digital-creative competencies of future teachers are a set of knowledge, skills and abilities that allow students to freely use information and communication technology at all stages of the organization of the educational process and, starting with lesson preparation, build individual educational trajectories that help create a digital environment, motivate them and predict educational achievements [103].

Information and communication technologies help to solve problems where knowledge and communication are needed: improving educational processes, increasing the educational results of students and their learning motives, improving interaction, implementing communication and joint projects in the network of educational organizations, improving the organization and management of digital educational programs.

This is not surprising, because internet resources have become available for education, opportunities for the development of an innovative economy and modern society [104].

In recent years, many countries, including Russia, have made many efforts to study the conditions and consequences of the use of digital technologies in the educational process, described changes in the work of teachers, new requirements for the administration of education, and at the same time fully studied the positive and useful aspects of this process and the negative and negative aspects.

A detailed analysis of the experience of leading countries in the field of education made it possible to abandon the simple list of requirements for the technical qualifications of teachers in pedagogical practice. On the contrary, the ICT competencies of a teacher are characterized as a system of applied knowledge, skills and abilities that allow them to organize all stages of pedagogical work and improve the quality of education based on the effective use of digital technologies (individualization of training, technical solutions for creative tasks, interactive project work, etc.) [105].

The competence of teachers in the use of digital technologies is manifested not only in their ability to use technology in the educational process, but also in their approach to cooperation and communication with colleagues, students, teachers, the scientific community and other stakeholders: the ability to integrate innovation into their practice; the ability to professionally improve and develop themselves [106].

The purpose of the study is to identify technological and methodological aspects of the formation of digital – creative competencies of future teachers in the Republic of Kazakhstan in the context of distance education on the basis of a partnership of cooperation between Kazakh universities and foreign universities within the framework of the integration of Kazakh and European education in order to improve the system of pedagogical education in Kazakhstan in the new conditions [107].

Objectives of the study:

1. Determination of technological and methodological directions for the formation of digital-creative competencies of future teachers in the context of distance education in Kazakhstan in the new conditions.

2. Development of a model of cooperation partnership between Taraz regional university named after M.Kh.Dulaty (Dulaty university) and Shadrinsk State Pedagogical University of Russia (ShSPU) in the formation of digital and creative competencies of future teachers in the context of distance education within the framework of educational integration of Kazakhstani universities and foreign universities.

3. Identify effective ways to determine technological and methodological directions for the formation of digital-creative competencies of future teachers in the context of distance education in Kazakhstan in the new conditions [107;73].

In order to make education the central link of a new model of economic growth in the XXI century, it is necessary to focus the training program on the development of critical thinking, independent search skills, and distance learning.

In the new conditions of Kazakhstan, there is a need to modernize the system of pedagogical education, the formation of digital and creative competencies of future teachers.

The format of distance learning for the epidemic situation Covid-2019 in the world and in our country has revealed some problems. General secondary schools, colleges and even universities themselves were not 100% ready for this: insufficient digital educational resources; low digital competence of teachers, etc.

World experience shows that even in the course of distance learning, there is a full opportunity to receive innovative knowledge and improve professional skills. Distance learning is the training carried out using information and communication technologies, telecommunication means in the case of indirect (remote) or incomplete indirect mutual educational work activities of a student and a teacher.

At the stage of new development opportunities in the context of the fourth industrial revolution, future teachers are faced with the following requirements: competitiveness; high quality of education; professionalism; profitability; digital competence and creativity necessary for distance learning and training.

To ensure the 5 results of the above training, it is important to form the following professional competencies in the future teacher:

1) *creative skills*: desire for innovation, mastery of innovative technologies;

2) *search skills*: skills of learning, research, accumulation of innovative experience;

3) *ability to pedagogical reflection*: ability to analyze professional activities, constructive thinking.

In order to determine the level of digital competencies for the effective use of digital technologies by future teachers in Kazakhstan in the new conditions, students of the 1-4 courses were asked: «I will be a smart-teacher!» an online questionnaire was compiled and an online test was conducted. For this purpose, a mobile application of the online test has been developed. Not only future teachers of Kazakhstan, but also future teachers of the ShSPU of Russia take part in the experimental work, and the digital competencies of future teachers of Kazakhstan are compared with the digital competencies of future teachers of Russia, and diagnostic monitoring is carried out.

In the course of the study, indicators and criteria of the level of digital competencies of future teachers of Kazakhstan were determined, the meaning was revealed.

Among the future teachers of the Kazakh University – Taraz regional university named after M. Kh. Dulaty and the Russian university – Shadrinsk State Pedagogical University «I will be a smart-teacher!» online coaching for future teachers was organized, a comparative analysis of the level of digital competencies of future teachers was carried out, methods of deduction and induction of research were used.

An online survey was conducted on the topics «What I know about distance learning technologies» and «What I have learnt about distance learning technologies», the results were processed by mathematical and statistical methods, sorted out, developed methodological recommendations; conclusions were drawn.

Most importantly, a SWOT analysis of the formation of digital competencies of future teachers in distance learning in Kazakhstan in the new conditions was carried out.

The essence, content of technological and methodological aspects of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan were revealed and a SWOT-analysis matrix was developed:

1) the strengths and weaknesses of the formation of digital competencies of future teachers in the context of distance learning are identified, and the influencing pedagogical factors are differentiated;

2) the risks encountered in the formation of digital competencies of future teachers in the conditions of distance learning are identified, measures to prevent it are clarified, opportunities are studied; pedagogical prerequisites are determined.

The pedagogical conditions for the formation of digital competence of the future teacher in the conditions of distance learning are as follows:

- 1) Amount of information: the speed of information perception;
- 2) Ability to process information in a meaningful way: to find and sort the searched, necessary information;
- 3) Quality of information perception: assimilation of the necessary material;
- 4) The ability to make decisions based on information: to make pedagogical reflections and think constructively, etc.

In the context of distance learning, the digital and technological competence of the future teacher is determined by the formation of the skills of the future teacher to work with internet resources, a pedagogical site, a portal and a digital learning platform, modern digital educational content, electronic and multimedia textbooks, computer programs, multimedia devices, and the digital and methodological competence of the future teacher is determined by the formation of the future teacher's skills in the future specialty and the discipline in which he will teach in the future, it is characterized by the ability to create an information bank fund and an electronic media library; organize pedagogical coaching and pedagogical trainings; participate in a pedagogical forum, discussions, present their author's innovative project and defend their ideas freely (Figure 11).

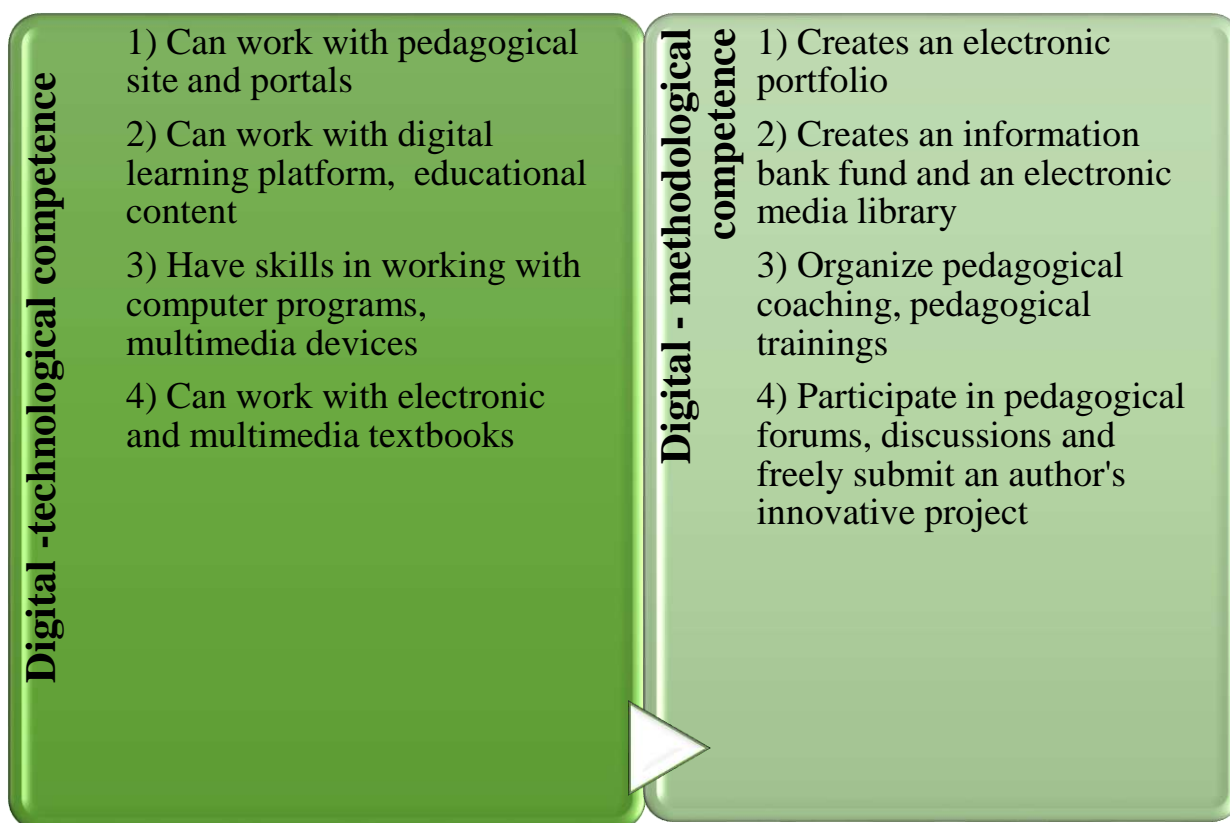


Figure 11– Digital-technological and digital-methodological competencies of the future teacher in the context of distance learning

Within the framework of the scientific project AP09259497 «Improving the system of pedagogical education in Kazakhstan in the new conditions: technological and methodological aspects of the formation of digital competencies of future

teachers in distance learning in the Republic of Kazakhstan» of grant funding of research projects of the Ministry of Education and Science of the Republic of Kazakhstan for 2020-2023 the pedagogical educational portal www.smart-pedagog.kz has been created.

The pedagogical educational portal www.smart-pedagog.kz provides formation of digital-creative competencies of future teachers, which are reflected in the creative activities of the future teacher, such as creative thinking, methodological reflection, desire for novelty, creative use of innovative technologies, constant search for improvement of the educational process, systematic use of pedagogical innovations in their practice, the ability to independently search and find information; process, accumulate, sort the received information, etc.

For the formation of digital-creative competencies of future teachers in the context of distance education, it is necessary to update the content of higher education with special methodological disciplines.

The future teacher can also acquire innovative knowledge through online courses and webinars, which are organized remotely.

For the formation of digital-creative competencies of future teachers in Kazakhstan in the new conditions, a digital pedagogical hub (pedagogical campus) should be created as an innovative virtual educational platform that will provide access to all digital educational resources in pedagogical universities.

For the formation of digital and creative competencies of future teachers in Kazakhstan in the new conditions the pedagogical educational portal www.smart-pedagog.kz has been created.

The pedagogical educational portal www.smart-pedagog.kz operates in 3 languages: Kazakh, Russian and English (fig.12).

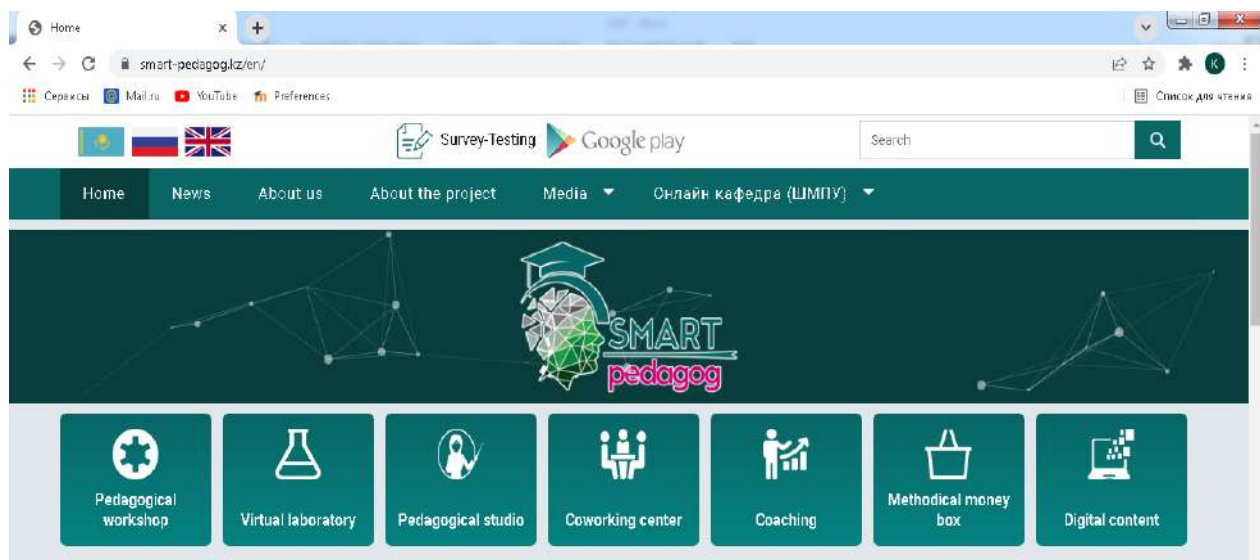


Figure 12– The main page of the pedagogical education portal www.smart-pedagog.kz

The advantage of the proposed portal of pedagogical education is that in Kazakhstan in the new conditions, a digital pedagogical hub (pedagogical campus)

DULATY will be created to train teachers and improve the digital literacy and competence of future teachers.

The digital pedagogical campus is an intelligent innovative virtual educational platform that provides access to all educational resources in education, distance learning and professional development.

The pedagogical educational portal www.smart-pedagog.kz was opened to train teachers of the Republic of Kazakhstan and to improve the digital creative competencies of future teachers operates in the following directions and uses 7 online pedagogical resources: «Smart-online pedagogical workshop («Pedagogical center»); «Smart-online virtual laboratory»; «Smart-online coworking-center»; «Smart-online coaching»; «Smart-online pedagogical studio»; «Smart-online digital content»; «Smart-online methodological basket» (figure 13).

For the effective implementation of distance education and training in pedagogical universities using internet resources, a digital learning platform, it is advisable to be guided by the following pedagogical principles:

1) It is necessary to update the content of education of pedagogical universities: introduce mandatory special disciplines (for example: «Digital Pedagogy», «Cyberpedagogy», «Media Pedagogy», etc.) to increase the digital competencies of the future teacher.

2) Future teachers studying in higher educational institutions in the pedagogical specialty should be fluent in internet resources, skills of working on a digital learning platform, which will allow them to fully improve their professional skills in the future, and not just in-depth knowledge of the subjects they teach in the future.

3) extract new ideas, necessary information from materials, information on the internet resources, digital learning platform, and guide them in future professional activities-opening pedagogical educational portals.

4) ability to sort Internet resources, information received in accordance with modern pedagogical requirements.

5) ability to adapt materials obtained from Internet resources to their specialty and subject: to take into account, take into account the personal characteristics of the specialty, discipline and each student, etc.

6) effective use of materials on internet resources in the learning process in such a way as to arouse the cognitive interest of students.

7) in the process of training, students are given tasks of various innovative content using internet resources: drawing up pedagogical cases; making presentations of small scientific projects; SWOT analysis; obtaining a video report; creating video situations, etc.

8) formation of digital-technological and digital-methodological competencies of the future teacher within the walls of the university condition: the future teacher should be able to independently develop his electronic potfolio [108].

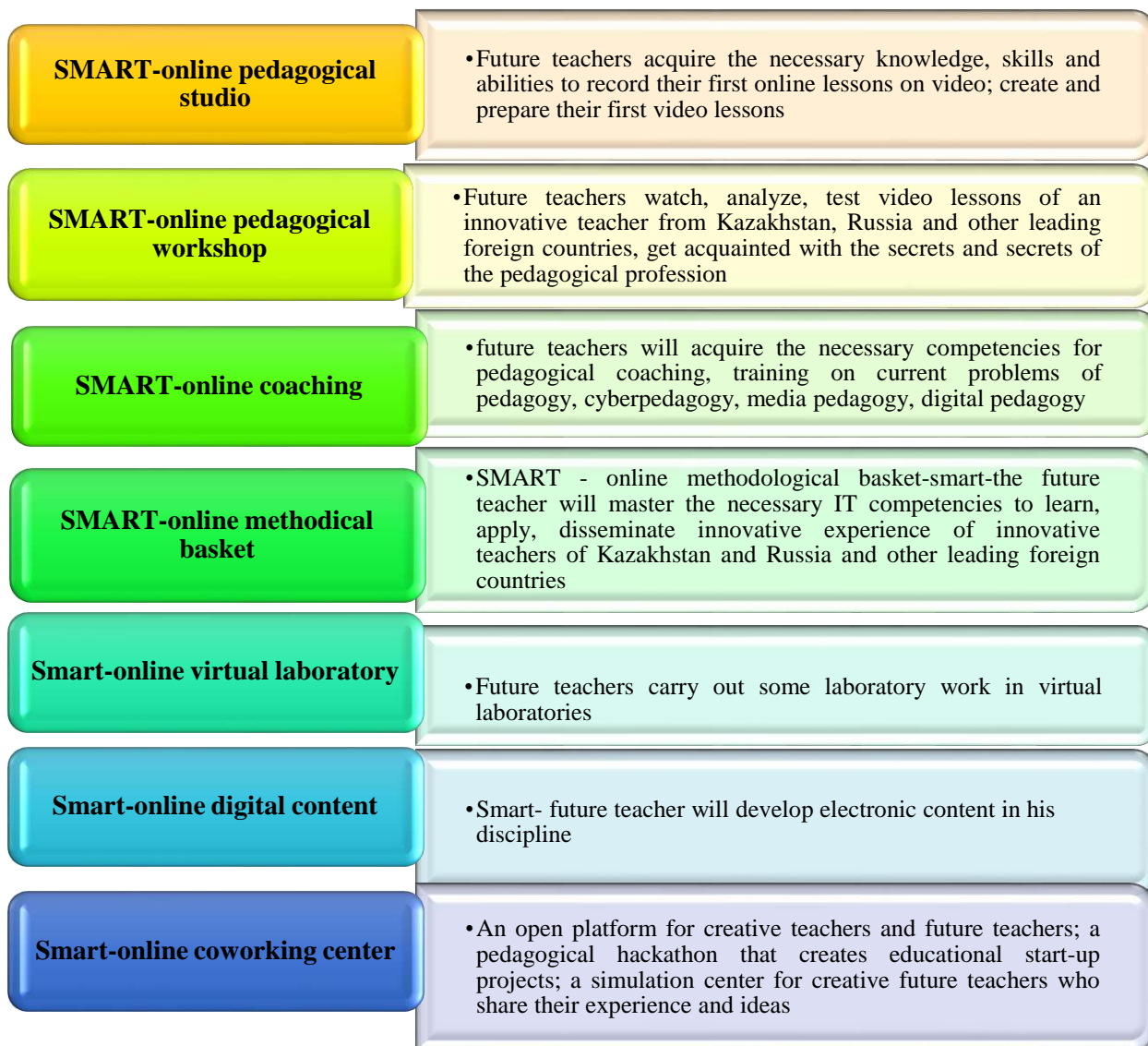


Figure 13– The essence of the resources of the portal of pedagogical education

The digital pedagogical hub will be the digital and methodological office of the future teacher - smart, where the digital and creative competencies of the future teacher are formed.

In the context of distance learning, there is an opportunity to additionally develop and determine the digital competencies of future teachers (Figure 14).

The importance of digital-creative competence of future teachers in the context of distance education is the ability of the future teacher to create, plan and implement digital technologies at different stages of training. At the same time, it is necessary to strive for the fact that in the lesson (when working in pairs, in a group) the main emphasis will not be on the teacher, but on the student himself. This can also be achieved through the use of digital technology.

Digital technologies make it possible to develop existing methods for monitoring and assessing the level of knowledge of future teachers and create new, more advanced modern methods.

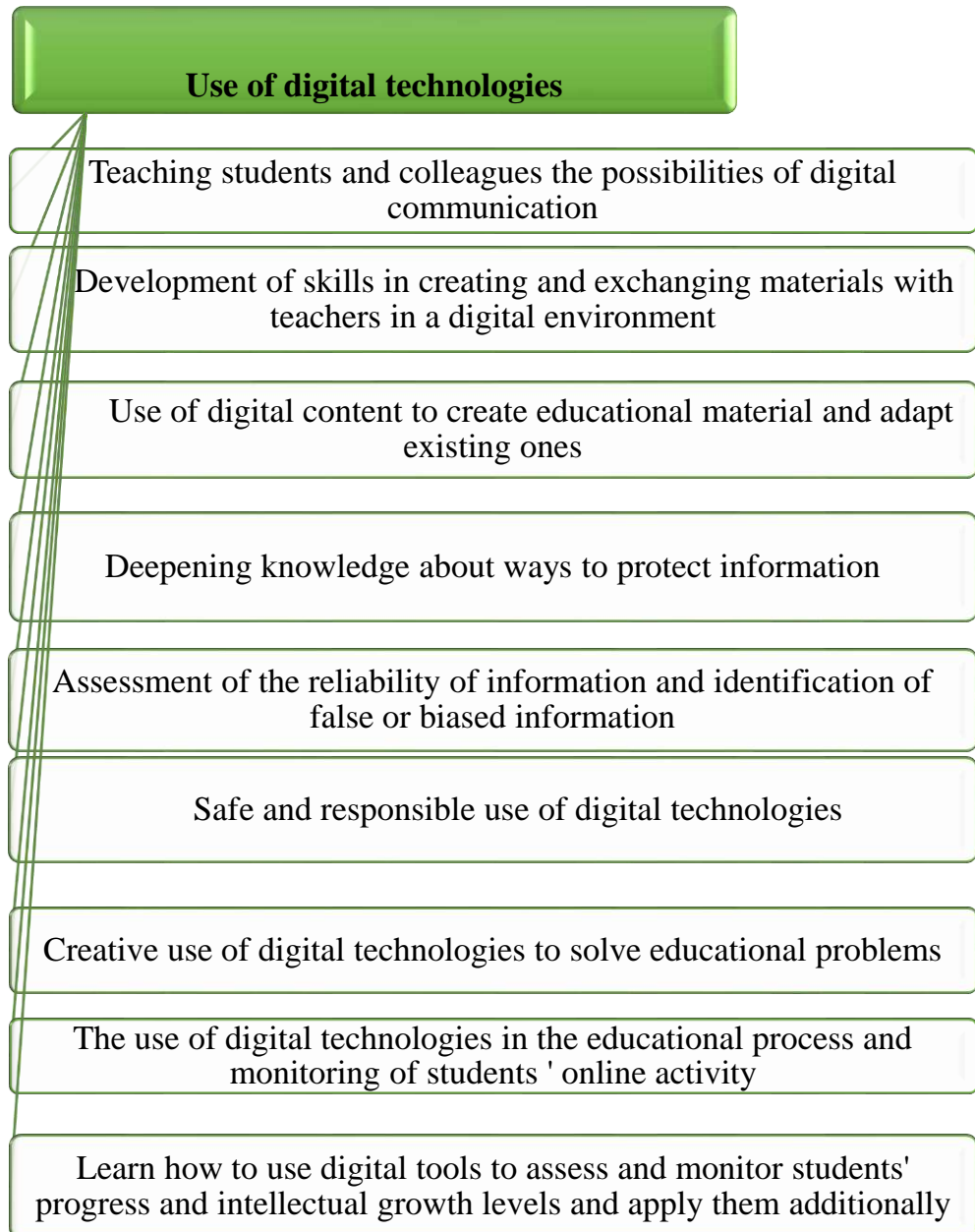


Figure 14– Advantages of using digital technologies in training

In addition, by analyzing a lot of information about students and their activity in the digital environment, the university teacher will be able to provide him with sufficient assistance, and the future teacher will be able to work independently in the digital environment.

One of the advantages of using digital technologies in training is the opportunity to actively involve all students in the educational process. Digital technologies can be used in order to adapt educational activities to the level of knowledge of each student, his interests and needs.

2 WAYS TO FORM DIGITAL AND CREATIVE COMPETENCIES OF FUTURE TEACHERS IN THE CONTEXT OF DISTANCE EDUCATION

2.1 The model of formation of digital competencies of future teachers in the Republic of Kazakhstan

In the context of the New Kazakhstan, improving the system of training teachers in pedagogical universities and the formation of digital competencies of future teachers is becoming an urgent problem.

The process of informatization, which is taking place at a rapid pace in society in the XXI century, has expanded the scale of the information environment at a world level that has not existed for a long time. The informatization process also includes the education system and requires a new content of professional training of future teachers.

Innovative pedagogical practices through the internet, internet resources, information media and the digital environment, that is, information reaches every person, including every teacher, at the same time and in the same volume without visiting their place of work.

Training of future world competitive teachers in the conditions of Digital Kazakhstan in the pedagogical university has the purpose of preparing a specialist who has his own innovative information pedagogical bank fund, innovative media library, has knowledge of new communication technologies, is able to conduct innovative research work for the development of creative, intellectual abilities of students, conduct diagnostic expertise and pedagogical monitoring of its results, provides for the training of future teachers who can carry out innovative technological activities with high intellectual potential, which can form a technological map of an innovative lesson.

In the context of distance education, it is necessary to radically change the content of higher education in order to form digital-creative competencies of future teachers.

The use of digital resources in higher education institutions is of particular importance, since the digital competencies of future teachers are formed only through their practical skills, such as critical thinking, search for new information, processing and sorting.

In the context of distance education, it is necessary to radically change the content of higher education in order to form digital-creative competencies of future teachers.

The use of digital resources in higher education institutions is of particular importance, since the digital competencies of future teachers are formed only through their practical skills, such as critical thinking, search for new information, processing and sorting.

It is important that future teachers studying in higher educational institutions in the pedagogical profession do not only have a deep knowledge of the subjects they teach in the future, but also have digital competencies that allow them to work

effectively on the digital learning platform, internet resources that fully allow them to improve their professional skills in the future.

At the present stage, the widespread use of modern technologies in the educational process has expanded the training opportunities of educational institutions, new formats of training have come to life, and the «digital generation» has come to life. Today, representatives of the new generation are studying in general education schools, secondary special and higher educational institutions, who can not think without the internet.

In the new century, the representatives of different generations are studying, working, living in Kazakhstan:

- 1) Generation GI (those born between 1900 and 1923);
- 2) Silent (jawless) generation (those who came to life from 1923 to 1943);
- 3) Bebi-Boomer descendants (those born between 1943 and 1963);
- 4) Generation X (those born between 1963 and 1984);
- 5) Generation Y (Millennium) (those born between 1984 and 2000);
- 6) Generation Z (those who have existed since 2000) [109].

It is important for teachers to know the characteristics of generation Z. Generation Z is a generation that has passed from the twentieth century to the XXI century with unique features, although they are influenced by generation Y (millennium), but they are characterized by personal independence [110].

At the present stage, along with the traditional form of training, various forms of training using digital technologies are being used: distance learning; e-learning; mass open online courses and other forms of training using the internet and digital technologies.

The labor market and employers are juxtaposing the requirements for future professionals to master digital competencies along with their professional competencies. According to the research of scientists, digital technologies are becoming not only a tool, but also a human habitat.

The digital education environment opens up new opportunities:

- 1) transition from teaching in the classroom or classroom to teaching anywhere and at any time;
- 2) design of an independent educational route;
- 3) transformation of students from users of electoral resources into creators of new resources.

Based on the results of studies conducted by the European Union to determine the level of mastery of digital competencies by teachers, «only 20-25 teachers learn the necessary digital competencies that allow them to be actively used in the learning process» [111].

In 2006, the European Union characterized the concepts of «digital literacy» and «digital competence», which are among the 8 competencies of continuing education. According to the description of the European Union, «digital competence is the ability of people to confidently and constructively use information technologies in the work environment, in their free time and for communication. The concept of «digital competence» is also the acquisition by people of primary skills, such as the

ability to use a computer in their professional activities, the ability to store information, exchange information, access network communication over the internet [111; 4].

In connection with the rapid development of information, digital and telecommunications technologies in the third millennium, the meaning of the concept of «digital competence» is expanding from year to year.

According to the research of scientists, digital competence is the safe choice, reliable, constructive and effective use of information and communication technologies by an individual in various areas of activity in life (work with digital content, communication, consumption and technosphere).

Public awareness brings new models to life in the education system:

- 1) digital technologies that are effective in disseminating knowledge;
- 2) technological startups in education;
- 3) competition for talent and the rapid development of the entire industry;
- 4) innovation and activism in education;
- 5) transparency in global education: open online courses without closing; open universities, «digital universities», etc.

A detailed analysis of the experience of leading countries in the field of education made it possible to abandon the simple list of requirements for the technical qualifications of teachers in pedagogical practice. On the contrary, the ICT competencies of a teacher are characterized as a system of applied knowledge, skills and abilities that allow them to organize all stages of pedagogical work and improve the quality of education based on the effective use of digital technologies (individualization of training, technical solutions for creative tasks, interactive project work, etc.).

The competence of teachers in the use of digital technologies is manifested not only in their ability to use technology in the educational process, but also in their approach to cooperation and communication with colleagues, students, teachers, the scientific community and other stakeholders: the ability to integrate innovation into their practice; the ability to improve and develop themselves professionally.

The digital competence of future teachers is a set of skills in the use of information and communication technologies and digital media in the process of setting and solving tasks related to the processing and functioning of this information, training, socialization and obtaining the necessary knowledge to expand available opportunities.

The technological competencies of future teachers are high - level meta-abilities that allow you to work with information, use the internet, acquire motivated, understandable, safe, critical digital technologies.

In addition to technological competencies, the new complex, which ensures the use of computer and digital technologies by a person and forms the core of modern functional literacy of any specialist, includes the expected educational results from the content of a set of other competencies (professional, general professional, universal), which change under the influence of digitalization.

World experience shows that even in the course of distance learning, there is a full opportunity to receive innovative knowledge and improve professional skills. Distance learning – training carried out using information and communication technologies, telecommunication means in the case of indirect (remote) or incomplete indirect mutual educational work activities of a student and a teacher.

At the stage of new development opportunities in the context of the fourth industrial revolution, future teachers are subject to the following new requirements: competitiveness; high quality of education; professionalism; profitability; digital competence and creativity necessary for distance learning and training.

In the framework of improving the system of pedagogical education in Kazakhstan in the new conditions, 160 future teachers of Taraz regional university named after M.Kh.Dulaty took part in the research work to identify technological and methodological aspects of the formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan.

During the study, an online survey and an online test were conducted. In order to determine the level of digital competencies for the effective use of digital technology by future teachers in Kazakhstan in the new conditions, during 3 years an online questionnaire «I will be a smart-teacher!» was compiled and an online test was taken among the students of 1-4 courses. For this purpose, a mobile application of the online test has been developed. Only future teachers from Kazakhstan took part in the experimental work, and the digital competencies of future teachers from Kazakhstan were compared with the digital competencies of future teachers from Russia and diagnostic monitoring was carried out.

In the course of the project, indicators and criteria of the level of digital competencies of future teachers of Kazakhstan are determined, the meaning is revealed.

Among the future teachers of the Kazakh University – Taraz regional university named after M. Kh. Dulaty and the Russian university – Shadrinsk State Pedagogical University «I will be a smart-teacher!» online coaching for future teachers will be organized, a comparative analysis of the level of digital competencies of future teachers will be carried out, methods of deduction and induction of research will be used.

The levels of digital competencies of future Kazakh and Russian teachers who took part in the online course before and after the online course were determined.

An online survey of the topics «What I know about distance learning technologies» and «What I know about distance learning technologies» is conducted, the results of which are processed by mathematical and statistical methods, sorted out, methodological recommendations are developed; conclusions are drawn.

Most importantly, a SWOT analysis of the formation of digital competencies of future teachers in distance learning in Kazakhstan in the new conditions was carried out.

The essence, content of technological and methodological aspects of the formation of digital competencies of future teachers in the conditions of distance

learning in the Republic of Kazakhstan were revealed and a SWOT-analysis matrix was developed:

1) the strengths and weaknesses of the formation of digital competencies of future teachers in the context of distance learning are identified, and the influencing pedagogical factors are differentiated;

2) the risks encountered in the formation of digital competencies of future teachers in the conditions of distance learning are identified, measures to prevent it are clarified, opportunities are studied; pedagogical prerequisites are determined.

The phrases and concepts of «Generation Z», «Digital generation», «Network generation», etc. are widely used today in everyday life in educational and professional activities to identify the younger generation socialized in the context of digital technologies.

A representative of the digital generation, differing in perception, memory, thinking, motivation, behavior patterns, life expectancy, world, is a person who is in demand in a digital society, acquires socially and professionally important competencies. Digital («advanced», «smart», «SMART») technologies form the core of the modern stage of technological development, retain their dominant role in the near future.

Smart-oriented education is based on the words personality, motivation, aptitude, access to free resources, and the use of technologies. Smart-education is self-directed, motivated, flexible, technological learning based on self-management, evidence-based, flexible, resource-enriched, and technological teaching methods. The ultimate goal and vision of the smart - education strategy is to promote the development of creative, global human capital through a «revolution in the classroom», which includes educational content, teaching methods and evaluation, changing the educational environment in accordance with the new educational paradigm.

The use of digital and information technologies, electronic textbooks in the educational process of a higher educational institution helps the future teacher to improve his knowledge on his own, and also contributes to the formation of his creativity, allows him to fully and deeply master the material.

In the context of distance education, there is a need to update the content of higher education for the formation of digital and creative competencies of future teachers.

The pedagogical conditions for the formation of digital competence of the future teacher in the conditions of distance learning are as follows:

1) amount of information: the speed of information perception;

2) ability to process information in a meaningful way: to find and sort the searched, necessary information;

3) quality of information perception: assimilation of the necessary material;

4) the ability to make decisions based on information: to make pedagogical reflections and think constructively, etc.

In the context of distance learning, the digital and technological competence of the future teacher is determined by the formation of the skills of the future teacher to

work with internet resources, a pedagogical site, a portal and a digital learning platform, modern digital educational content, electronic and multimedia textbooks, computer programs, multimedia devices, and the digital and methodological competence of the future teacher is determined by the formation of the future teacher's skills in the future specialty and the discipline in which he will teach in the future, it is characterized by the ability to create an information bank fund and an electronic media library; organize pedagogical coaching and pedagogical trainings; participate in a pedagogical forum, discussions, present their innovative project and defend their ideas freely (figure 15).

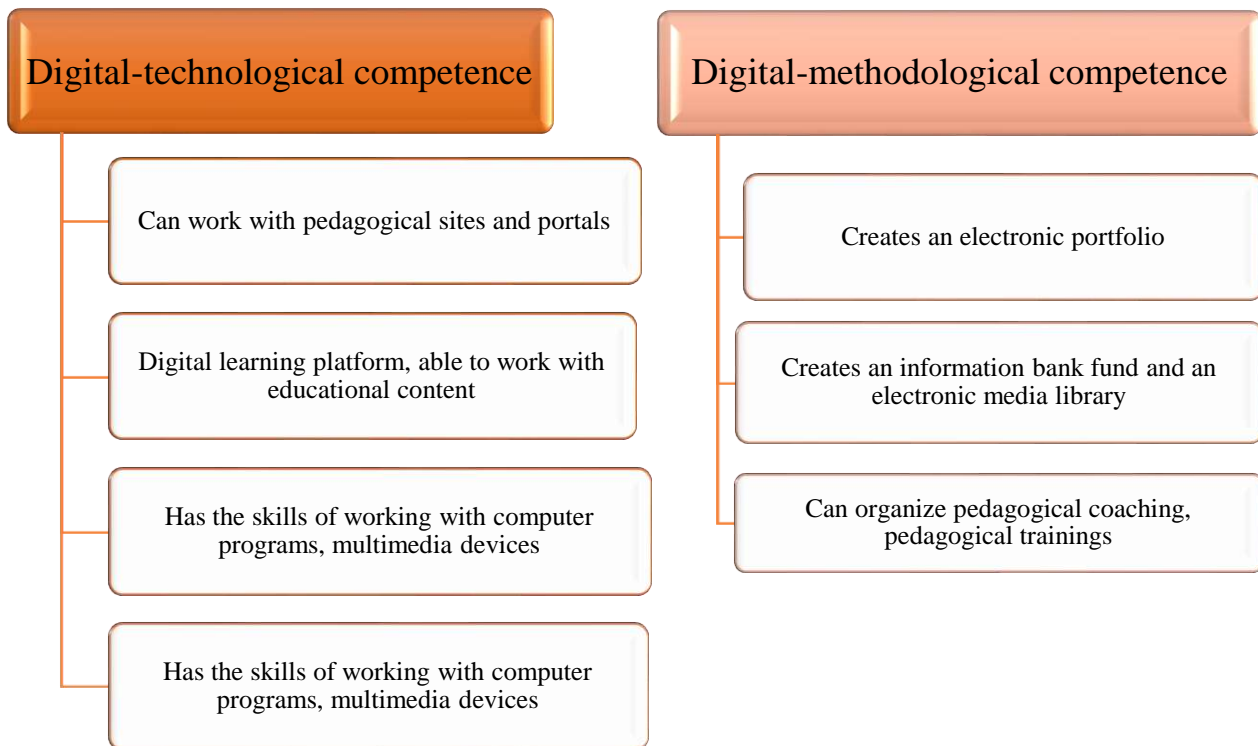


Figure 15– Digital-technological and digital-methodological competencies of the future teacher in the context of distance learning

According to V.P.Tikhomirov, «Smart is a society that needs a new paradigm of development, new opportunities for the internet and specially trained people who create new knowledge». The concept of smart education is an adaptive environment for continuous development in order to create intellectual friendship and the acquisition by students of knowledge, skills and abilities in the interests of society and the state. The main idea of smart education is new sources of knowledge used alongside traditional lectures and technology recognition, etc [112].

Smart education is a creative educational environment that combines the efforts of professionals. The transition to active content in the acquisition of world-class knowledge requires the modernization of the education system and an intellectual, critical-thinking, problem-solving teacher in the conditions of creating a modern New Kazakhstan.

Smart education is an area that includes the complex connection of all educational processes, as well as the methods and technologies used in these processes. Sources of knowledge students are not only students and teachers working in groups or electronic environments, but also need to be in the internet space at any time and anywhere in the world.

At the present stage, the research potential in the field of development of professional competence of an individual, description of phenomena and related approaches «information competence», «digital competence» and «smart-personality competence» is growing.

Smart-society is a new quality of society, in which the set of technical means, services and use of the internet by trained people leads to qualitative changes in the interaction of subjects, which makes it possible to obtain new impressions – social, economic and other benefits for a better life. In previous studies, some scientists view smart-society from three perspectives: as specific changes in the socio-cultural paradigm; as an intersubject space that arises with people trained in terms of technical means, services and the use of the internet.

The world of information reality is perceived, in which qualitative changes in the interaction of subjects play a key role, allowing to obtain new impressions of life associated with the introduction of smart technologies. smart-society as a formation coexists in the world of SMART-technologies.

Contributes to the actualization of information competence, digital competence, smart competence of the individual in the context of Smart-society, Smart-Education, Smart-technologies.

Smart - competence in pedagogical science is an unstable and little – studied phenomenon. At the present stage, approaches to the study and definition of smart - competence as a phenomenon of modern society are being identified. Smart competence – an individual's mastery of smart technologies for searching, analyzing information and creating innovations that interact in professional online communities. Based on the analysis carried out, it summarizes the views of scientists on the phenomena of «information competence», «digital competence», «smart-competence» [113].

Information technology is hardware and software based on the use of computer technology that provides storage and processing of educational information, its delivery to the Student, Interactive interaction of the student with the teacher or pedagogical software, as well as testing students ' knowledge.

The cultural and historical potential of approaches to the phenomena of «information competence», «digital competence» and «smart competence of a teacher» is distinguished by their evolution and change in the direction of the formation of an intellectual personality, ensuring harmony. «Information competence», «digital competence» and «smart-teacher competence» as phenomena of modern reality are reflected in the Information Society, Digital Society, SMART-society.

Information competence is a competence that is associated with the experience of activities in the world of Information Intelligence, ways of interacting with

techniques and technologies for the implementation of general and professional information needs of the individual.

In the use of digital technologies in teaching and learning, the computer as a working tool acts as a tool for preparing and memorizing text; text editor; drawing, table tool, graphic editor; counter machine; thumbnail tool.

The use of digital technologies in teaching and learning is a method used to understand, evaluate, analyze and synthesize information obtained as a result of observation, experience, reflection and reasoning.

The use of digital technologies in teaching and learning involves the collection of relevant information; critical analysis and evaluation of evidence; guaranteed solutions and accumulated conclusions; revision of forecasts and recommendations based on extensive experience.

In the context of distance education, the theoretical knowledge of future teachers should be carried out in the direction of professional training, and not only the subject «pedagogy» should be taught in pedagogical universities, the following branches of modern pedagogy should also be taught: «Digital Pedagogy»; «Cyberpedagogy»; «Media Pedagogy», etc.

Smart-future teacher digital pedagogical campus to improve the digital creative competencies of future teachers in the Republic of Kazakhstan includes 7 online pedagogical resources(figure 16).



Figure 16– Smart-7 pedagogical resources of the future teacher digital pedagogical campus

In the context of distance education, the practical knowledge of future teachers is directed to professional education, and online methodological coaching and special online courses for future teachers should be conducted in pedagogical universities on the effective use of digital educational content in the educational process on distance education.

Figure 17 presents a sketch of the formation of digital-creative competencies of future teachers in the context of distance education.

Smart-online pedagogical workshop (pedagogical Center).

The future teacher can also acquire innovative knowledge through online courses and webinars, which are organized remotely.

For the formation of digital and creative competencies of future teachers in Kazakhstan in the new conditions, a digital pedagogical hub (pedagogical campus) should be created as an innovative virtual educational platform that will provide access to all digital educational resources in pedagogical universities.

Future teachers will be able to form technological competencies by studying the experience of innovative scientists and innovative teachers.

In the digital pedagogical hub, future teachers carry out research, research and research and creative work in cooperation with domestic and foreign scientists:

1) goes to pedagogical sites and portals, receives innovative knowledge from electronic textbooks;

2) creates an information Bank fund and an electronic media library in their specialty and future subject;

3) digital learning platform used for distance learning (BilimLand; Kyndelik. Carries out pedagogical diagnostics, monitoring and SWOT analysis of educational content, computer programs, multimedia devices.

4) participate in coaching, pedagogical training, forums, discussions on topical problems of distance learning in the pedagogical coworking, express their thoughts and acquire the necessary digital and creative competencies.

5) the future teacher learns to control himself: he makes pedagogical reflections on each of his actions.

One of the key competencies necessary for the intellectual development of any future teacher is the ability to evaluate educational resources and select, sort, modify, modify digital resources and materials that correspond to the goals of training, the characteristics of the group of students and the style of teaching, create a new version and share their project (version) with others, prove their idea, etc.

The international online coaching webinar was attended by well-known scientists, future teachers, methodologists of educational organizations.

The purpose of the international online coaching webinar is to identify priority areas for the formation of digital competencies of future teachers.

At the online coaching webinar «I am a smart teacher!» the presentation of pedagogical ideas was made.

Future teachers had the opportunity to test and improve their digital competencies by passing a specially prepared test consisting of 10 Questions.

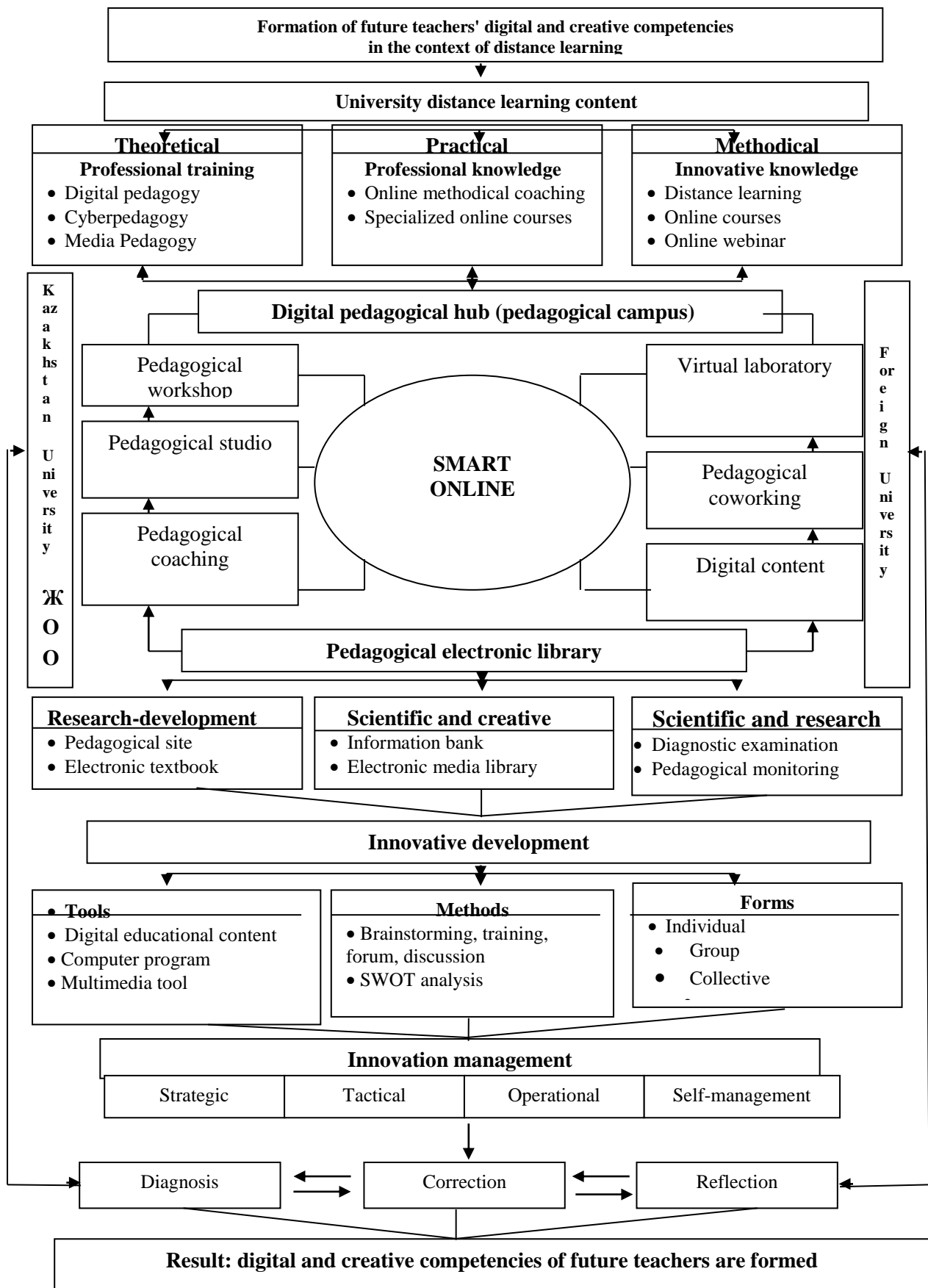


Figure 17– Model of formation of digital-creative competencies of future teachers in the context of distance learning

Future teachers see the appearance of a smart teacher – an innovative teacher who provides high-quality education to each student in a comfortable school, is critical, very kind, has boundless love for the child, sincerely loves the child, has a warm, cheerful character, understands the student's soul with his heart, is constantly ready to explain to the child incomprehensible material over and over again, help, advise, meet the needs of each child; a master teacher who has developed digital competencies and effectively uses information and communication technologies in the educational process so that he can work in a digital environment; a creative teacher who has a high reflective competence, is critical, can evaluate the teacher himself as a professional, is constantly in search of improving the quality of Education; a creative teacher who recognizes personality-forming pedagogical activity as art.

The online coaching webinar provided future teachers with advanced forms of teaching technologies from the point of view of digital education, the partnership between the teacher and the student guided the effective use of new forms of digital content of educational material, opened the way for future smart teachers to get acquainted with the best achievements of world-class science and innovative practices of well-known scientists.

Within the framework of the international coaching webinar, participants were invited to participate in the «use of digital educational resources in training. An online test consisting of 10 Questions was presented on the topic «information and communication competence (ICT)».

The purpose of the test is to study the competencies of future teachers on the types of digital educational resources and the possibilities of their use in the educational process.

160 future teachers took part in the online test, but not a single participant was able to correctly answer all the questions.

The maximum 8 points were awarded to 30 participants - future teachers. And this corresponds to 8 correct answers out of 10 Questions. 50 of the future teachers participating in the online test correctly answered 7 questions, which indicates that the digital competencies of future teachers are sufficiently well formed .

Table 2 «the use of digital educational resources in teaching. The results of the online test on the topic» ICT competence were presented.

Based on the results of the test, three questions were identified that were most often given the correct answers, these are:

Question # 5, called « the benefits of using a computer in teaching», was answered by 100% of the respondents who took part in the online test correctly.

«Automated workplace ... » 93,75% of respondents who took part in the online test answered the question # 8 correctly, that is, 150 respondents.

The question №9 «choose from the list of educational facilities that include a remote format » was answered correctly by 68,75% of respondents, that is, 110 respondents.

In recent years, informatization of Education has begun to be carried out within the framework of educational organizations. The pandemic of 2020 reassessed

existing approaches to informatization of education and pushed it beyond the boundaries of organizations, isolating the teacher and student at the place of residence.

This radically changes both the established organization of education and the requirements for teachers, the recipients of education themselves and their parents.

Question 1 on informatization called «ICT competence is» was answered correctly by 87,5% of respondents, that is, 140 future teachers, as «a set of measures to transform pedagogical processes based on the introduction of information products, tools, technologies in education».

The results of Question 1 showed that 6,3% of respondents (10 future teachers) who took part in the online test received an incomplete answer «development of information perception skills of users through computers», and 6,3% of respondents (10 future teachers) chose an incorrect answer called «the use of computers in the education system».

Table 2 – «The use of digital educational resources in teaching. Results of the online test on the topic» ICT competence

№	Question	«Right» answer, %	«Wrong» answer, %
1	Informatization of education means	87,5% (140)	12,5% (20)
2	Information and Communication Technology (ICT) is:	93,8% (150)	6,2% (10)
3	ICT literacy is:	93,8% (150)	6,2% (10)
4	ICT competence is:	68,8% (110)	31,2% (50)
5	Benefits of using a computer in teaching	31,2% (50)	68,8% (110)
6	Digital educational resources	81,3 % (130)	18,7% (30)
7	Difference between digital educational resources and traditional «paper» textbooks	62,5 % (100)	37,5% (60)
8	Automated workplace ... it is called	6,3% (10)	93,7% (150)
9	Select educational facilities that include a remote format from the list	31,3 % (50)	68,7% (110)
10	What are digital educational resources?	75% (120)	25% (40)

Information and communication technologies (ICT) play an increasingly important role in our lives, including communication and learning.

It is necessary to be able to use these technologies effectively for students and the learning community as a whole.

In this regard, the second question was devoted to understanding the essence of the concept of ACT.

Question 2 called «The Information and Communication Technology (ICT) is» was correctly answered by 93,8% of respondents (150 future teachers) as «pedagogical technology that uses special methods, software and technical means to work with information», only 6,3% of 10 respondents, that is, only 10 future teachers chose the wrong answer «using a computer as a tool for building an optimal learning strategy».

If 93,8% of respondents (150 future teachers) correctly answered question 3 called «ICT literacy is the use of digital technologies, means of communication and/or networks to access, manage, integrate, evaluate and create information to work in modern society», then only 6,3% of 10 respondents, that is, only 10 future teachers, chose the wrong answer «a special type of competence necessary for the successful work of a programmer».

One of the Information and Communication Technologies is a computer. Computerization of learning can be defined both in a narrow sense and in a broad sense: in the narrow sense, «the use of this computer as a teaching tool», and in the broad sense, «the multi-purpose use of this computer in the educational process». The test participants were asked to choose the advantages of using a computer in training.

«ICT competence – this is the correct answer to question 4, which is called» 68,8% of respondents (110 future teachers) correctly answered «confident mastery of all components of ICT literacy skills by the user to solve problems arising in educational and other activities», 30 future teachers (18,8%) chose the wrong answer «knowledge of various computer programs and their use for information processing», 10 future teachers (6,3%), use of communication tools».

Several correct answers were proposed to question 5, which is called «the benefits of using a computer in teaching». 68,8% of respondents (110 future teachers) who took part in the online test chose the wrong answer «interactivity (interaction with the student, imitation of natural communication», 50 future teachers, i.e. 31,3% of respondents found the correct answer «adaptability of educational material», and 30 future teachers, that is, 18,8% of respondents chose the answer «facilitate the work of the teacher», and 30(18,8 %) future teachers chose the correct answer «control the individual work of students outside of school hours», which is more appropriate for the use of synchronous communication platforms in distance learning than using a computer in general education.

81,3% of respondents (130 future teachers) who took part in the online testing of the so-called «digital educational resources» submitted the correct answer: «a set of electronic objects that can be used in different forms of organizing educational activities, in different combinations, for different purposes», while 20 future teachers, i.e. 12,5% of respondents, were satisfied with the wrong answer «digital encyclopedias», 10 future teachers, i.e. 6,3% of respondents answered «electronic training sessions» he pointed to the wrong answer.

The development of information and Communication Technologies shows that digital educational resources take their rightful place. Therefore, it directly depends on the teacher how the choice of educational resources will be pedagogically justified. The development of high-quality digital educational resources allows you to

automate the educational process. Creating resources with students can diversify project activities and increase their interest in research activities.

The results of the answers to the sixth question indicate that not all respondents understood the concept of digital educational resources.

To check whether future teachers have a deeper understanding of digital educational resources, 62,5% of respondents (100 future teachers) who took part in the online test of Question 7 «the difference between digital educational resources and traditional» paper «textbooks» chose the correct answer «interactivity of learning, motivation of active student activity and learning motivation», and 30 future teachers, i.e. 18,8% of respondents, chose the answer «ensuring the integrity and continuity of the didactic learning cycle, another 30 (18,8%) future teachers were satisfied with the answer «saving paper production and printing textbooks».

«Automated workplace ... only 6,3% of respondents (10 future teachers) who took part in the online test correctly answered «software and hardware complex of an automated system for automating a certain type of activity», while 75% of respondents (120 future teachers) chose the wrong answer» ergonomic provision of an automated system for coordinating the parameters of the working environment at the workplaces of personnel of an automated system, 20 (12,5%) future teachers received the answer «technical support of an automated system for automating certain types of activities», and 10(6,3%) future teachers received the answer «software complex of an automated system for automating certain types of activities».

The linguistic resources necessary to support the educational environment are created and used not only in research projects, but also in the framework of creating a university educational environment in the form of a system of individual automated workplaces.

Only 31,3% of respondents (50 future teachers) who took part in the online test correctly answered «electronic, mobile, network» to question 9: «Select forms of education from the list that include remote formats, «50% of respondents (80 future teachers) chose the answer «electronic, mobile, network, autonomous, mixed», and 18.8% of the remaining respondents (30 future teachers) chose the answer «mobile, network, offline, mixed, shared».

Since digital educational resources include graphic, text, digital, speech, music, video, photo and other information aimed at realizing the goals and objectives of modern education, the question «What are digital educational resources? only 75% of respondents (120 future teachers) who took part in the online test correctly answered «all of the above options are correct», while 12,5% of respondents (20 future teachers) chose the answer «multimedia files, and 12,5% of the remaining respondents (20 future teachers) chose the answer «presentations».

Future teachers are well versed in the concepts of «Information and Communication Technology», «ICT literacy», «ICT competence», «The digital educational resources», and the concepts of «Automated workplace», «Educational facilities with a remote format» (Figure 18).

In solving certain problems, there is a free movement of information, which determines the need not only to receive information, but also to activate it: to ensure maximum use in all types of information, including electronic ones, helps to disseminate and acquire knowledge.

In order to learn, use, study, and promote innovative practices in distance education in the training of globally competitive teaching staff in Kazakhstan in the new conditions, the international contest «My first online lesson» was organized.

The international contest was attended by well-known scientists of the Republic, future teachers, methodologists of educational organizations and scientists and future teachers of the Shadrinsk State Pedagogical University of Russia.

The purpose of the international online contest is to develop the digital competence of students of pedagogical educational programs, stimulate the creative activity of future teachers, improve the quality of educational activities and improve the scientific and methodological support of the educational process.

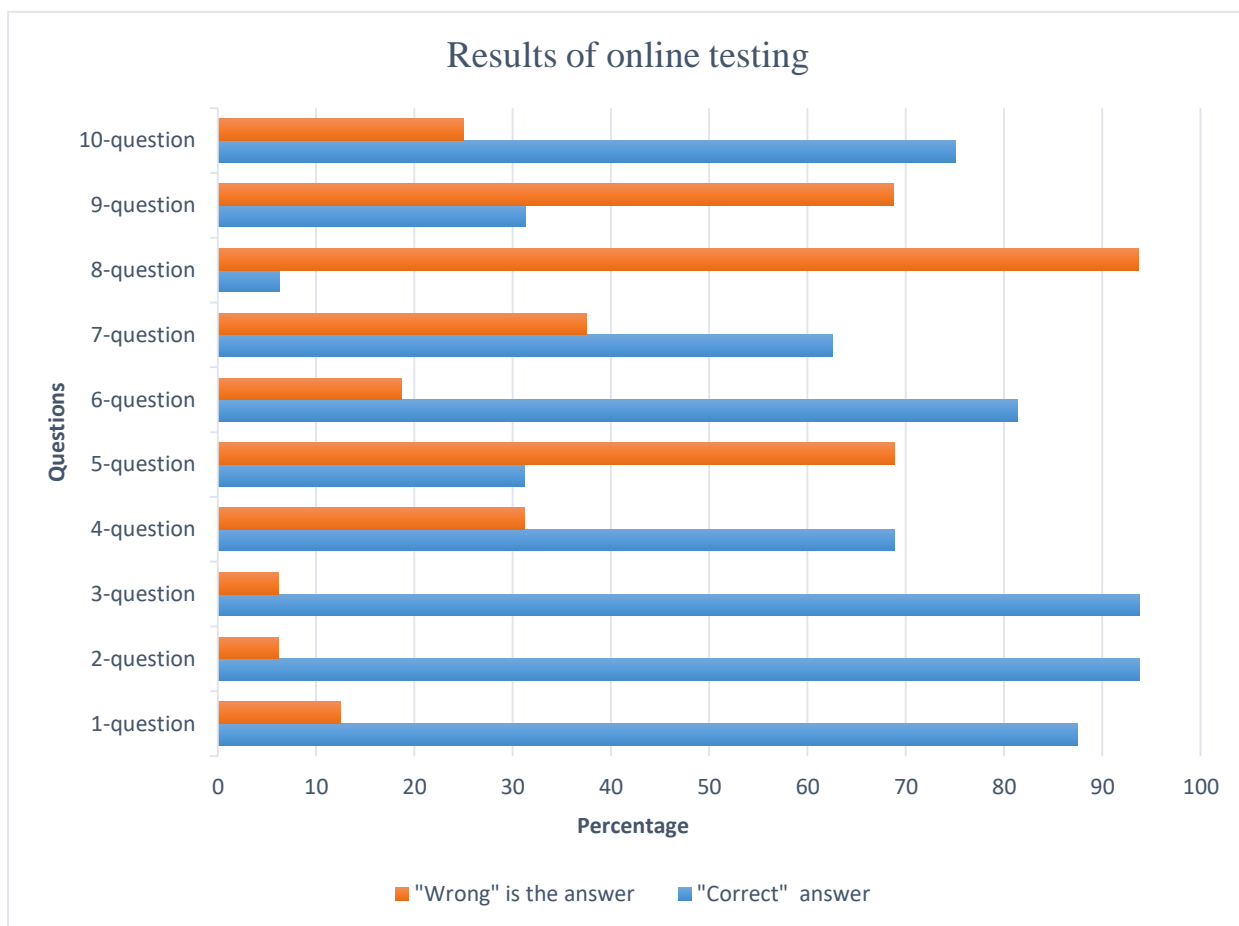


Figure 18–General statistics of online testing

With the effective use of digital educational resources, it is possible to improve the working conditions of both the teacher and the student: the lesson will be informative, interesting, presentable, the educational space and time will change, and the illustrative material will significantly expand. Digital educational resources create problem situations and organize the search activity of students, strengthen the

emotional background of learning, form the motivation of future teachers, individualize and differentiate the educational process.

The online competition «My first online lesson» was able to solve the tasks of activating the creative and professional potential of future teachers; introducing modern innovative educational technologies into the practice of the educational process; improving the professional skills of future teachers; forming a social and professional image of future teachers, etc.

Online-lessons of future teachers were evaluated according to 5 criteria: compliance of the content of educational material with didactic requirements; mastery of subject and technological competencies and general erudition of the future teacher; speech culture and optimal style of communication with students; general culture of the future teacher; quality of the video lesson, logic of storyline construction, optimality, content and informativeness of selected fragments; quality of materials attached to the video lesson; effectiveness of the use of information and communication technologies; technical level of recording and editing of a video lesson.

Future teachers who took part in the competition used the capabilities of digital educational platforms Zoom, Microsoft Teams, Google Meet, Google Classroom, Padlet, Clideo, Quizizz, Wordwall, Crossword Labs, Canva, Survio, etc. in their classes.

The online competition will guide future teachers to the effective use of new forms of digital content of educational material, with the aim of mastering more advanced forms of teaching technologies from the point of view of digital education.

The importance of digital-creative competence of future teachers in the context of distance education is the ability of the future teacher to create, plan and implement digital technologies at different stages of training. At the same time, it is necessary to strive for the fact that in the lesson (when working in pairs, in a group) the main emphasis will not be on the teacher, but on the student himself. This can also be achieved through the use of digital technology.

For the effective implementation of distance learning and training in pedagogical universities using internet resources, a digital learning platform, it is advisable to be guided by the following pedagogical principles:

1) it is necessary to update the content of education of pedagogical universities: introduce mandatory special disciplines (for example: «Digital Pedagogy», «Cyberpedagogy», «Media Pedagogy», etc.)

2) future teachers studying in higher educational institutions in the pedagogical specialty should not only have a deep knowledge of the subjects they teach in the future, but also be fluent in the skills of working on internet resources, a digital learning platform, which will fully improve their professional skills in the future.

3) extract new ideas, necessary information from materials, information on the internet resources, digital learning platform and guide them in future professional activities.

4) ability to sort internet resources, information received in accordance with modern pedagogical requirements.

5) ability to adapt materials obtained from internet resources to their specialty and subject: to take into account the personal characteristics of the specialty, discipline and of each student, etc.

6) effective use of materials from internet resources in the learning process in such a way as to arouse the cognitive interest of students.

7) in the process of training, students are given tasks of various innovative content using internet resources: drawing up pedagogical cases; making presentations of small scientific projects; SWOT analysis; obtaining a video report; creating video situations, etc.

8) formation of digital-technological and digital-methodological competencies of the future teacher in the university conditions: the future teacher should be able to independently create his own electronic portfolio.

Digital technologies make it possible to develop existing methods for monitoring and assessing the level of knowledge of future teachers and create new, more advanced modern methods. In addition, by analyzing a lot of information about students and their activity in the digital environment, the university teacher will be able to provide him with sufficient assistance, and the future teacher will be able to work independently in the digital environment.

In the context of distance learning, there is an opportunity to additionally develop and determine the digital competencies of future teachers, namely:

1) training of digital communication opportunities with students and colleagues;

2) development of skills in creating and exchanging materials with teachers in a digital environment;

3) use of digital content to create educational material and adapt existing ones;

4) deepening knowledge about ways to protect information;

5) assessment of the reliability of information and identification of false or biased information;

6) safe and responsible use of digital technologies;

7) creative use of digital technologies to solve educational problems;

8) use of digital technologies in the educational process and monitoring of students' online activity;

9) learn how to use digital tools to assess and monitor the level of academic performance and intellectual growth of students and apply them additionally.

One of the advantages of using digital technologies in training is the opportunity to actively involve all students in the educational process. Digital technologies can be used in order to adapt educational activities to the level of knowledge of each student, his interests and needs. In addition, in order not to aggravate the situation of existing inequality (for example, not all students have access to the internet and personal computer and flexibility in digital technologies) and we must make sure that technology is available to all students.

2.2 Stages of formation of digital competence of the future teacher in the context of distance learning

The president of the Republic of Kazakhstan K. Tokayev in his address to the people of Kazakhstan: «A just state. United Nation. Blessed society»: «teachers who are dedicated to their work make a great contribution to the development of education. The quality of secondary education is another important condition for a successful nation. It is necessary to create favorable conditions for the full development and education of each student. For this purpose, the national project «Comfortable school» was launched. We will create conditions for 800 thousand children to study in a modern school by 2025» – noted that the need for a SMART teacher to work efficiently in a comfortable school is an urgent problem [114].

Modernization of the system of pedagogical education in Kazakhstan in the new conditions there is a need for the formation of digital and creative competencies of future teachers.» are directly related to each other: thanks to active creativity, research work is born, and as a result of any systematic research work, a «scientific hypothesis» is born, which opens the way to discovery, that is, the possibility of forming research competence of future teachers is expanded. In the philosophical literature, the invariant cycle of any activity is presented in a generalized sketch as follows:

GOAL ⇒ TOOL ⇒ COMPETENCE ⇒ RESULT

The formation of research competence of future teachers allows the scientific community or teacher to master new knowledge, to use it in their practice in the future. The means of achieving the goal is a system of methods and techniques of research activity that ensure the researcher's connection with the object of knowledge. And the system of methods and techniques of effectively organized repetitive scientific creativity forms the technology corresponding to the same activity.

The Information Research Center is of great importance in the formation of research competence of future teachers.

In the pedagogical literature, the pedagogical activity of a teacher is considered in the following aspects:

- a) scientific and pedagogical abilities (M.N.Skatkin, etc.);
- B) research knowledge, skills, abilities (L.Gorbunova, etc.);
- B) professional activity (A.E.Abylkasimov, Z.A.Isaeva, M.S. Moldabekova);
- C) pedagogical creative activity (V.I.Sklyanoy);
- D) research activities (N.V. Kukharev, A.I. Kochetov, Sh.T.Taubaeva, etc.)
- e) scientific creative activity (Ya.A.Ponomarev, etc.);
- e) pedagogical thinking activity (Yu. N.Kulyutkin, G.S. Sukhobskaya);
- G) the level of development of professional competence (A.K. Markova);
- H) improvement of pedagogical activity (K.M.Varshavsky, T.I. Salomatova);
- L) research activities in the learning process (Shamova T.I., etc.);
- m) innovative activities (L.S.Podymova, I.I.Tsyrukun, K.D. Buzaubakova, etc.);

H) technological activity (G.K.Selevko) [115].

Research work consists of several stages.

At the first stage of preparation, the future teacher collects information about the novelty by proving the need for a novelty, selects the necessary novelty from the variety and makes a decision on its application. The future teacher moves to the second stage of innovative activity. Here, the future teacher draws up a plan for introducing the novelty chosen by the research and applies it in practice. In the process of applying the novelty, the future teacher makes the necessary changes in his activities, taking into account the factors hindering the introduction.

Figure 19 reveals the stages of the formation of digital competence of the future teacher in the conditions of distance learning.

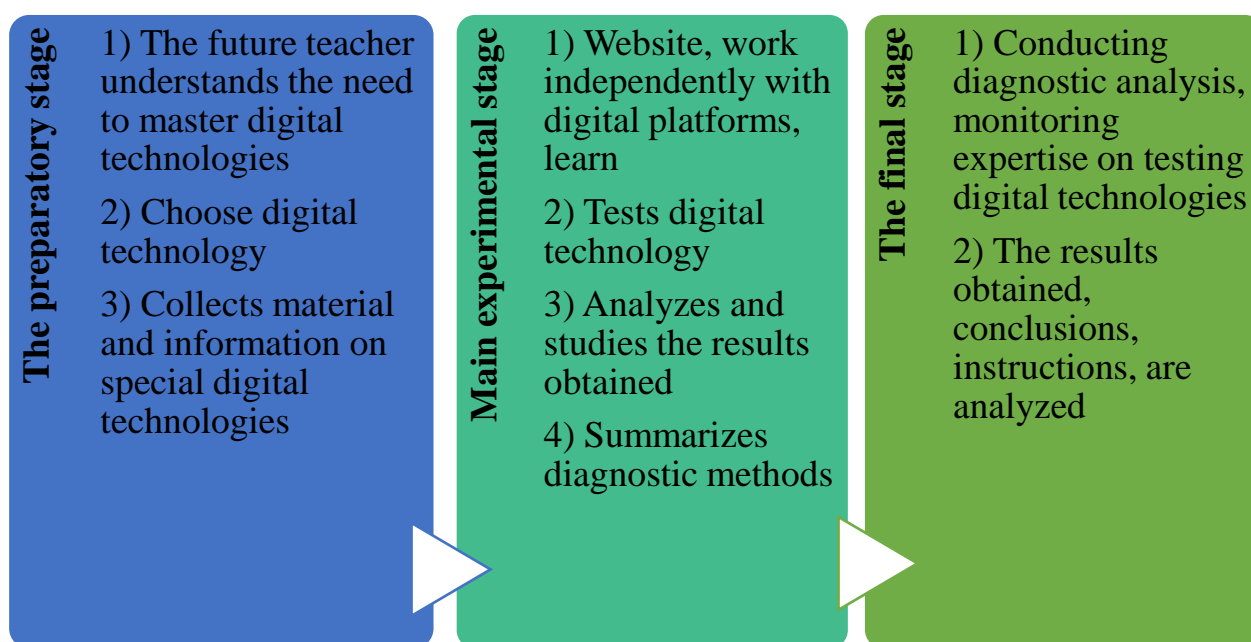


Figure 19– Stages of formation of digital competence of the future teacher in the conditions of distance learning

At the first stage, the future teacher, by analyzing his actions, necessarily evaluates it and makes the necessary changes. At the end of the time for the introduction of the novelty, the innovation activity proceeds to the third stage.

At this stage, the future teacher analyzes the educational work organized in a new context, determines its impact on improving the results of educational work, sets the conditions for the effective introduction of the novelty into the educational process and proposes to disseminate it.

Reproductive level is the level of ability to perceive activity, knowledge to the set limit, a stable attitude to pedagogical innovations, shows satisfaction with pedagogical activity.

The manufacturer is trying to find a new solution only in the amount of action, but under standard conditions. Understands the need for alternative technologies in training and education. The ability of the future teacher is characterized by the use of

ready-made methodological recommendations in their work by making minor changes. The future teacher understands the need for professional self-improvement.

Heuristic level – innovative activity is characterized by purposeful, constant, conscious introduction of innovation in a general form. The future teacher is engaged in the search and invention of new ways to solve pedagogical tasks. The main place in ensuring the introduction of innovation in the activities of the future teacher is occupied by reflection, empathy.

Creative level – the level of abilities aimed at inventing a new one, innovative activity is characterized by high step-by-step effectiveness. In the innovative activities of the future teacher, creative activity, pedagogical intuition, author's views on education appear. In the future teacher, scientific and pedagogical need and interest will find harmony.

A prerequisite for the introduction of new pedagogical technologies in the educational process is the formation of innovative training of the future teacher. Every future teacher who has mastered the new pedagogical technology will be able to see his lesson from the side of productive development. The future teacher studies, masters, applies, improves new pedagogical technologies, checks the results, performs a diagnostic examination, develops.

The scientist M.N.Skatkin in his research reveals the content of the possibility of conducting active research work. According to the author, scientific and pedagogical abilities «mean the participation of the future teacher in pedagogical research work, constant enthusiasm for innovation, enthusiasm for creative work, experimentation, systematic study of literature, learning, research, use of the best experience of colleagues» [116].

Let's consider the ways of implementation of the experiment, which is carried out in general education schools.

Diagnostic (setting the problem and justifying its relevance):

- disclosure of the problematic aspects; the role of the acquired problem in the modern educational process;
- show contradictions; read literature on the problem.

Prognostic stage: determining the goal, objectives; making a forecast; summing up (viewing) the result obtained. Organizational stage: development of the program of the experiment; preparation of the material base; methodological equipment.

The final stage: processing the results obtained; the ratio of the set goal and the result obtained; analysis of the result; correction of the forecast (making changes); the ability to present the result obtained in a prominent way.

Over the years of the experiment, the teacher reviews the scientific and methodological literature in the direction of his research, summarizes the innovative experience of advanced teachers, schools, author's and named schools, gives open lessons, participates in various seminars and competitions.

The activities carried out in this direction encourage the teacher to innovate, open the way to the formation of his own experience of activity, its scientific justification. As a result, the teacher's creativity increases and raises his methodological level to the scientific-methodological level.

Summing up the results: preparation of an abstract, report, article (for publications), a program, a didactic tool, an auxiliary tool, an educational and methodological manual, a methodological instruction, etc.

Innovative activity is the process of creating new models and methods of training and education that qualitatively change the productivity of pedagogical labor. The formation of innovative activities of a teacher: with the ability to change, improve, perceive the innovative experience of others, taking into account their personal qualities; with the need to comprehend the results of their work, being aware of new scientific ideas and the experience of others; with the continuous introduction into practice of new scientific research, their methodological implementation; with the independent development of new methods and; it is characterized by an active fight against pedagogical backwardness.

Each criterion for independent development and improvement of innovative activity is specified by a set of indicators. Their connection makes it possible to determine that the formation of digital competence of the future teacher has three main levels of cognitive independence, which are observed in the main activities:

A) higher level – creative-ideological (new scientific and pedagogical general idea, concept and laws are used creatively in the educational process);

B) average level-changing-driving level (new scientific and pedagogical ideas are summed up from the point of view of teaching ideas of the humanities, combining reproductive consent with creative elements);

B) the lower level is the reproductive level (the new position and rules of training and education are not sufficiently summarized in terms of professional and pedagogical knowledge, the conclusion is carried out in a reproductive way).

Innovative activity refers to the dynamics of qualitative growth of innovation, gradually introduced at a certain stage, which gives a much higher result in the practice of the future teacher. Innovative activity creates a deviation from the already established traditional goal. Innovative activity is distinguished by such stages as the emergence and implementation of a novelty.

The pedagogical process, like other processes, requires innovative activity. Pedagogical innovative activity is characterized mainly by the stages of new formation, processing and distribution.

The main goal of innovative activity in the formation of digital competence of the future teacher:

- identification of the subject of communicative relationship between teacher and student;

- ensuring the expansion of the information environment at the stage of the pedagogical process.

In accordance with this, figure 20 reveals the stages of the formation of digital competence of the future teacher. The formation of digital competence of the future teacher goes through 3 stages: the first stage before the introduction of digital technology; the stage of introduction of digital technology; the last stage after the introduction of digital technology in the pedagogical process.

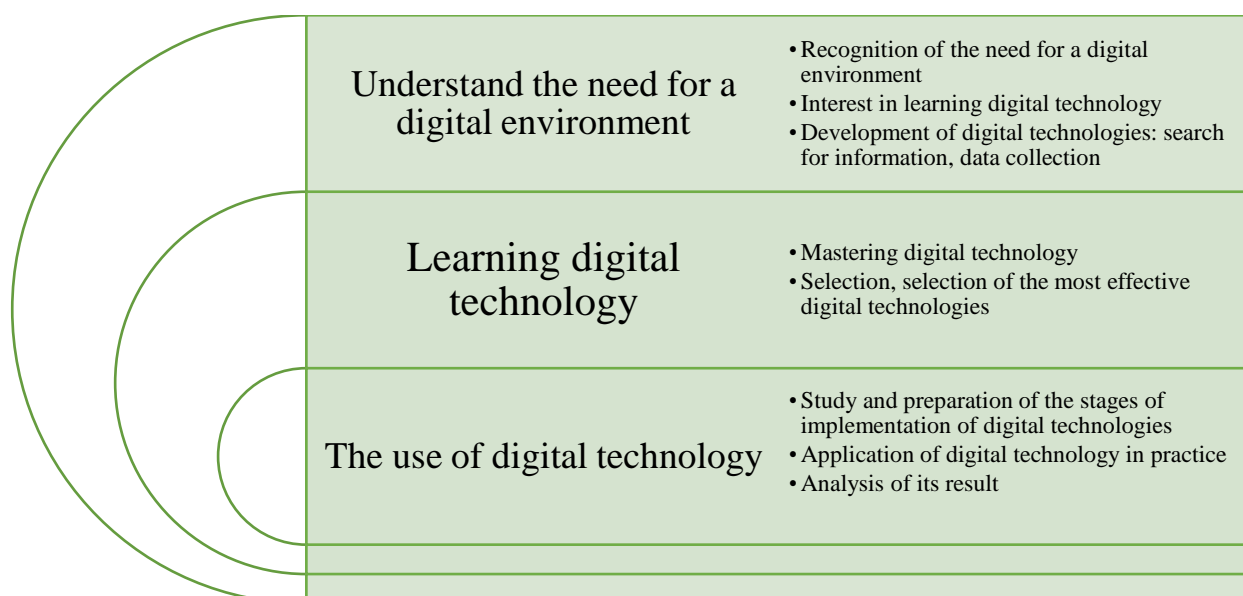


Figure 20– Stages of formation of digital competence of the future teacher in the context of distance learning

At the initial stage before the use of digital technology, the future teacher chooses methods for mastering a new digital platform: solves the problems of which digital technology to use, how to use it, etc. This stage is determined by the reproductive level of the formation of digital competence of the future teacher.

Formation of digital competence of the future teacher reproductive level-professional self-improvement of the future teacher: the future teacher shows a stable approach to digital technologies, understands the need for digital technologies in the conditions of alternative distance learning in teaching and upbringing, seeks to find a new solution in the volume of the state educational standard, is characterized by minor changes to the educational and methodological complexes.

At the operational stage of the formation of the digital competence of the future teacher in the conditions of distance learning, the future teacher uses digital technologies in his practice, determines the most effective methods of using digital technologies in the pedagogical process. This stage corresponds to the second heuristic level of formation of the digital competence of the future teacher. The heuristic level is characterized by the systematic introduction of digital technologies into the educational process by the future teacher with a specific goal: the future teacher is engaged in the search for new methods for solving pedagogical tasks, reflection occupies a central place in the formation of digital competence of the future teacher.

In the conditions of distance learning, at the final stage after the introduction of digital technologies into the pedagogical process, the future teacher will be able to identify the achievements and shortcomings of the digital technology used by him, identify the factors that prevented the development of innovative activities, and conduct a diagnostic examination of them. This stage corresponds to the creative level of formation of digital competence of the future teacher. The creative level is

characterized by a high stage in the formation of digital competence of the future teacher. In the innovative activity of the future teacher, there is creative activity, search.

In the context of distance learning, the formation of digital competence of the future teacher should be guided by the following pedagogical principles:

- compliance of the chosen digital technology with the laws of learning;
- compliance of digital technology with the goals and objectives of didactic training;
- compliance of the new digital technology with the personal characteristics of individual students;
- compliance of the chosen digital technology with the material and technical base of the educational institution;
- compliance of digital technology with the level of training of the future teacher, etc.

In the context of distance learning, the innovative activities of the future teacher in the direction of forming digital competencies will have positive results.

Therefore, in the conditions of distance learning, a prerequisite for the introduction of digital technology into the educational process is the formation of digital competence of the future teacher.

Figure 21 presents the main functions for the formation of digital competencies of future teachers: informational; orientation; predictive; analytical; modeling.

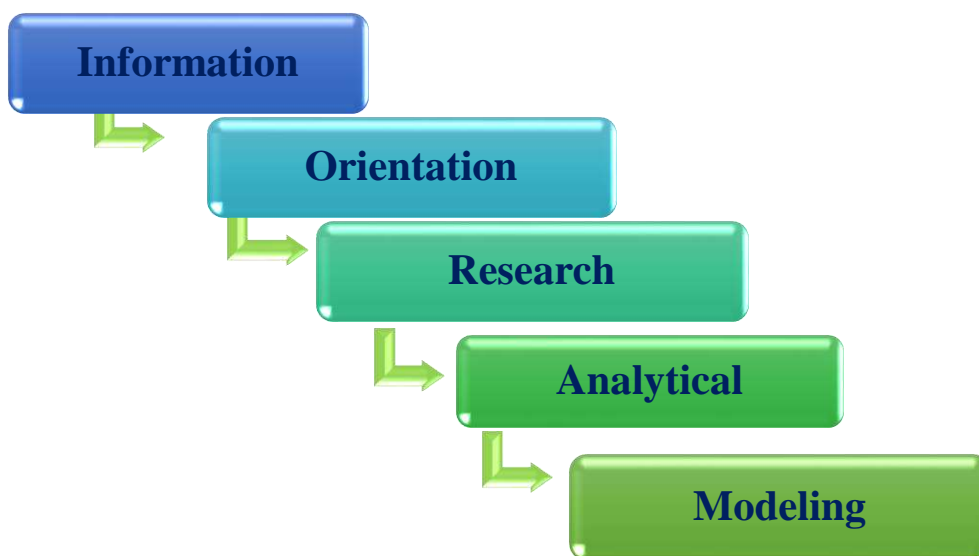


Figure 21–The main functions of the formation of digital competence of future teachers

Information and telecommunication tools, as well as new information and communication technologies, play a special role in the formation of digital competencies of future teachers.

In the information age, the development of intellectual activity is inextricably linked with the computer and modern means of communication. This information technologization has a fundamental impact on the business activity, education, culture of a person, and in general, on science and vision. Information technology is determined by the processing of knowledge and changes the material and spiritual state of society.

Information is an adaptation to random processes in the external environment, received from the world around us, and a meaningful sign of life activity in this environment, a discovery, a message that reveals the secret of the unknown.

The main important aspect of information lies in the clarity of qualitative and quantitative communication. In the modern world, acquiring knowledge, skills, the ability to work with a computer, mastering a computer program, searching and processing information forms the inquisitiveness of the teacher and encourages creativity.

The purpose of creating an information and research center for the formation of digital competencies of future teachers in the context of distance learning:

- the need for future teachers to master digital technologies that can provide world competitive education;
- the need for future teachers to have digital information and communication skills;
- the need for the formation of digital literacy of future teachers;
- the need for future teachers to constantly improve their knowledge of digital technologies, etc.

In the context of distance learning, the research activity of the digital environment is of great importance in the formation of digital competence of future teachers, because the future teacher must be able to quickly find the innovative information he needs, process it and use it in his own conditions.

In the 21st century, when the flow of information has ceased, the only source of obtaining new information is the creation of media libraries. Media libraries play not only the role of collecting and storing information, but also the function of transmitting information.

Table 3 defines the criteria for the formation of digital competencies of future teachers in the context of distance learning.

New forms of information storage also began to enter the third millennium: electronic document, website, portal web pages, CD, audio -, video cassettes, portal, etc.

Figure 22 reveals the function of forming digital competencies of future teachers in the context of distance learning: transformative; informational; cognitive; communicative; normative; symbolic; research.

Media library (English word media – continuator, delivery tool) - a set of documents that provide various information (books, periodicals, audio, video cassettes, CDs, DVDs, Internet resources), CDs, electronic textbooks [117].

Table 3 - Criteria-indicators of the formation of digital competence of future teachers in the context of distance learning

Component	Dimensions	Indications
Motivational	Interests, activities and pursuits in digital technologies	<ul style="list-style-type: none"> • Interest in learning digital technologies • Digital technologies Search
Content	Necessary theoretical knowledge on digital technologies, mastering the theoretical foundations of the content of new knowledge	<ul style="list-style-type: none"> • Selection, selection of digital technologies • Proficiency in digital technologies
Activity	Ability to use digital technologies, technological skills, make decisions to achieve new results	<ul style="list-style-type: none"> • Qualification of effective acquisition using digital technologies • Ability to evaluate the results of using digital technologies •

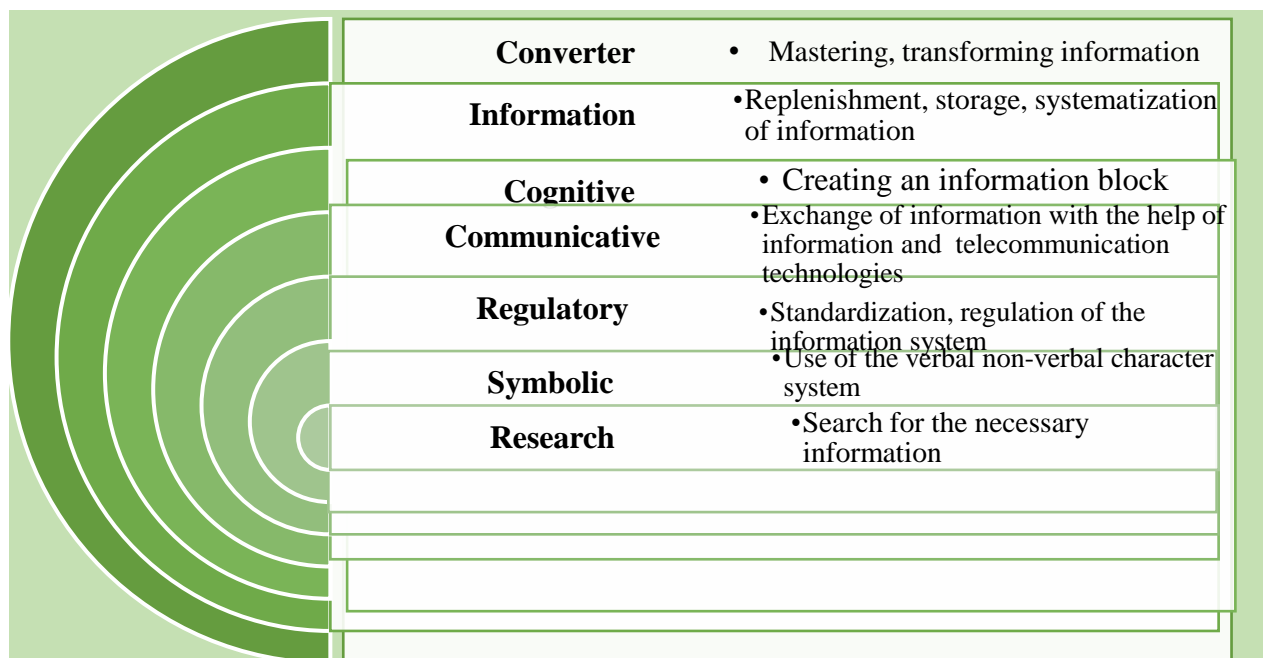


Figure 22– The function of forming digital competencies of future teachers in the context of distance learning

At the present stage, there are media libraries, multimedia training centers, electronic reading rooms, electronic libraries, internet classes, multimedia classes, digital platforms, media libraries based on direct information acquisition.

Also, the media library is an electronic reading room that works with electronic library resources.

Currently, 4 types of media libraries are widely used: paper Media Library; magnetic media library; digital media library; telecommunications media library (fig.23).

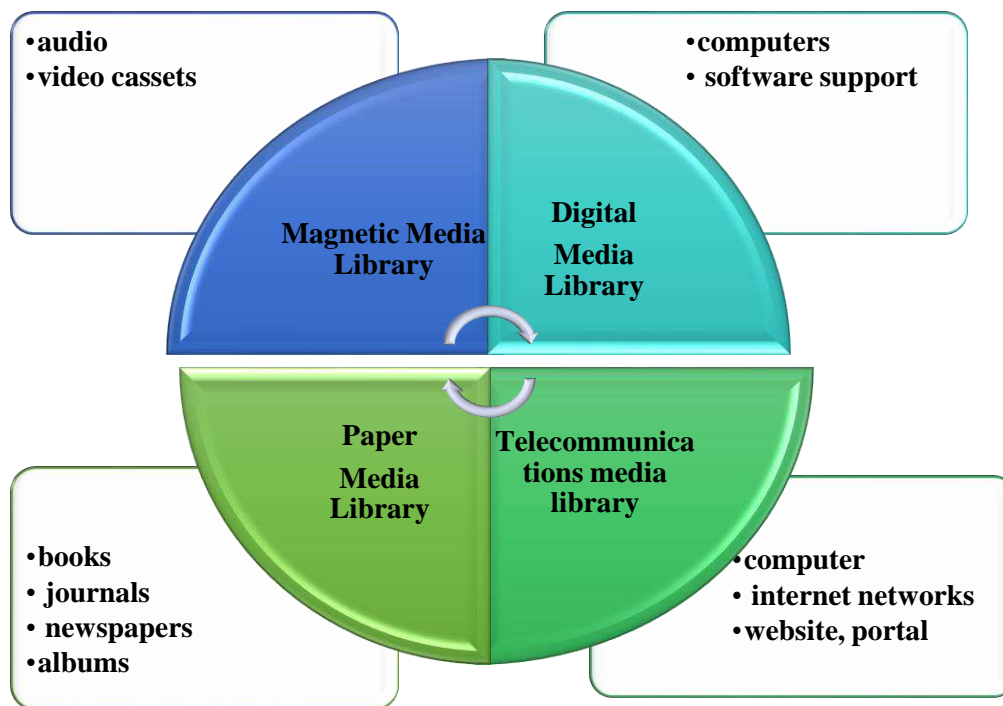


Figure 23– Types of Media Library

A website or educational portal is an interactive information and reference tool. The methodological website is a brief information tool that reveals the aspects of the effective use of modern teaching technologies. And the innovative methodological website is one of the interactive information and reference tools that ensure the content of the lesson with innovative materials, show ways to effectively use digital technologies, and contribute to the improvement and improvement of future teachers' knowledge.

The innovative methodological website consists of 2 sections: general section, interactive section.

The general section of the innovation methodological website reveals the general purpose, objectives of the website, and the interactive section discusses how to use digital technology in the classroom, provides a website plan for an innovative lesson.

Stages of development (creation) of a methodological website or educational portal: initial, main, final.

At the initial stage, such works as selection, systematization, processing of materials included in the website or educational portal; creation of a database of data

on materials included in the website; development of a mathematical model of the website; development of a standard form of a methodological website, its presentation to the public are carried out.

At the main stage, the original version of the website or educational portal is created; databases are created in accordance with the information structure of the website; software modules are compiled; the website is supplemented with the latest information; the website is connected to the internet.

At the final stage, recommendations, comments, comments by e-mail on the proposed website or educational portal are collected and the website is methodically processed in the previous time.

At the present stage, in the educational process of general secondary schools, there is a widespread use of the capabilities of the local and global system of computer technology. Among them, there are opportunities for comprehensive mastery of the internet resources of the electronic library, electronic publications, electronic textbooks, etc., access to distance learning centers has been identified.

Future teachers have the opportunity to work with a Web server, post their experience and innovative technologies, other information on their Web pages, Web Sites, participate in various teleconferences by e-mail using a telecommunications system.

In the conditions of the present fourth industrial revolution, the development of digital technologies is one of the key indicators that determine the global competitiveness and economic growth of any state, any country.

The main goal of digitalization of education is to improve the quality of education, train future competitive specialists within the framework of various international research programs, including in the field of «artificial intelligence» and «large – scale data». In the context of distance learning, the use of electronic resources for the formation of the personality, intellectual culture, technological competencies of a future specialist is important for his survival in the information society, training a professional who will make the right orientation in its information flow and find an effective solution.

In the conditions of distance learning, the professional competence of the future teacher is characterized by his professional and individual qualities. The professional competence of the future teacher is the unity of his theoretical and practical training, achieving high results for the implementation of pedagogical activity.

The factors that give rise to the need to create a digital educational process of education and training are three components of a digital society: the digital generation (a new generation with special socio-psychological features); new digital technologies that shape the digital environment and develop in it; the digital economy and new requirements for personnel that it forms.

The phrases and concepts of «generation Z», «digital generation», «network generation», etc. are widely used today in everyday life in educational and professional activities to identify the younger generation socialized in the context of digital technologies.

Table 4 – Directions of scientific and methodological work on the formation of digital competencies of future teachers in the context of distance learning

Name	Purpose	Objectives	Content
Pedagogical training	Systematization of innovative knowledge in pedagogy, psychology, methods of teaching the discipline	Consideration of various ways of introducing digital technology into the educational process	Preparation of reports that suggest effective ways to integrate digital technology into the educational process in the context of distance learning
Theoretical seminar	Improving the digital competence of future teachers	Identification of priority areas of work of the teaching staff in the innovative direction	Familiarization with the work of specialized websites and pedagogical portals on digital technologies
Practical seminar	Strengthening cooperation	Introduction to the types of digital technology	Demonstration of ways to effectively use digital technology in the educational process, formation of research skills
Scientific and practical seminar, conferences	How to use digital platforms effectively	Familiarization, learning and promotion of innovative practices in the use of digital platforms	Listening to reports on the effective use of digital platforms, analysis of the results of the conducted experimental work, preparation of proposals
Festival of innovative pedagogical ideas	Scientific justification of innovative pedagogical experience	Organization of work that forms the digital competence of the future teacher	Familiarization of the future teacher with innovative work, creating a presentation of the author's technology
Innovative information bank-digital environment	Familiarization with digital products, electronic content, website, portal	Creating digital content: creating video tutorials, videotapes, opening your own website, portal	Preparation of electronic textbooks using digital technology, creation of a fund of video lessons, creation of digital content of the discipline
Innovation resource center	Exchange of experience in the implementation of digital technologies in the educational process	Additional education in the formation of digital and technological competence of the future teacher	Organization of educational and methodological seminars, conferences, forums on a digital platform

A representative of the digital generation, differing in perception, memory, thinking, motivation, behavior patterns, life expectancy, world, is a person who is in

demand in a digital society, acquires socially and professionally important competencies. Digital technologies form the core of the modern stage of technological development, retain their dominant role in the near future.

The digital education environment opens up new opportunities: the transition from teaching in the classroom or classroom to teaching anywhere and at any time; designing an independent educational route; transforming students from users of electronic resources into creators of new resources.

Digital competence – the ability of future teachers to use effectively information technologies in educational conditions, in their free time and for communication, store information, exchange information, communicate on the internet; safe choice of information and communication technologies in the digital area, work with digital content in a reliable, digital environment, etc.

The directions of scientific and methodological work on the formation of digital competencies of future teachers in the context of distance learning are diverse (Table 4).

In connection with the rapid development of information, digital and telecommunication technologies in the third millennium, the meaning of the concept of «digital competence» is expanding from year to year.

Digital technologies make it possible to develop existing methods for monitoring and assessing the level of knowledge of future teachers and create new, more advanced modern methods.

In the new century, new technologies and formats of digital education have appeared: distance learning technologies; blended learning; organization of project activities; new formats of face-to-face learning.

At the present stage, in the context of distance learning, there is a need to identify effective ways to form digital and creative competencies of future teachers, to develop a methodology.

In the context of distance learning, there is an opportunity to develop and determine the digital competence of future teachers, in particular:

1) training of communication opportunities with students and colleagues using digital resources (platforms);

2) use of digital content to create educational material and adapt existing ones;

3) assessment of the reliability of information and identification of false or one-sided information;

4) safe responsible use of digital technologies;

5) creative use of digital technologies to solve some problems in education;

6) use of digital technologies in the educational process and monitoring of students' online activity;

7) learn how to use digital tools to assess and monitor the level of academic performance and intellectual growth of students and apply them additionally.

The online coaching webinar provides future teachers with improved forms of teaching technologies from the point of view of digital education, the relationship between the teacher and the student, built in partnership, will serve as a guide to the effective use of new forms of digital content of educational material.

By adapting the experience of international pedagogical and professional education centers to the current Kazakh market, we need to prepare future teachers with high digital and creative competencies for global competitiveness.

In the context of Information Science of Digital Kazakhstan, the use of electronic resources for the formation of the personality, intellectual culture, technological competencies of a future specialist is important for his survival in the information society, training a professional who will correctly navigate in its information flow and find an effective solution.

2.3 Determining the level of formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan

In the new conditions of Kazakhstan, there is a need to modernize the system of pedagogical education, the formation of digital and creative competencies of future teachers.

The state program «Digital Kazakhstan», approved by the resolution of the government of the Republic of Kazakhstan dated December 12, 2017 No. 827, identified such a key strategic task as improving digital literacy in secondary, technical, professional, and higher education [118].

The information educational environment of distance learning is a systemically organized set of data transmission tools aimed at meeting the educational needs of users, hardware-software and organizational and methodological support for the use of information resources, the distribution of educational programs through technologies outside the educational organization, such as cable or satellite television, video or audio recordings, fax, modem, videoconference.

In the period from 2021 to 2023, a large-scale work was carried out on the formation of digital competencies of future teachers (Table 5).

In the context of distance education, there is a need to identify effective ways to form digital and creative competencies of future teachers, to develop a methodology.

On the basis of innovative cooperation between Taraz regional university named after M. Kh. Dulaty (Dulaty University) and Shadrinsk State Pedagogical University of Russia (ShSPU), an intellectual innovation virtual educational platform was created – the pedagogical education portal, which provides access to all educational resources of future teachers to provide distance learning and advanced training [119].

The theoretical-methodological, innovative-technological and network-methodological foundations for the formation of digital-creative competencies of future teachers in the context of distance education in Kazakhstan in the new conditions have been identified and a pedagogical education portal www.smart-pedagog.kz has been opened.

An international online coaching webinar on the formation of digital and creative competencies of future teachers in the context of distance learning was organized in the Republic of Kazakhstan.

Table 5 – Priority areas of the activities carried out

№	Event name, content	Link
1	A cooperation agreement was signed with the ShSPU of Russia (28.10.2021, Shadrinsk)	https://dulaty.kz/2020-01-30-02-50-58/item/3589-dulati-universiteti-men-resejdi-shadrinsk-memlekettik-pedagogikaly-universiteti-arysynda-yntyma-tasty-bajlanysny-ayuda.html
2	the pedagogical portal smart-pedagog.kz was developed and opened	smart-pedagog.kz https://bilimdinews.kz/?p=174531
3	On the basis of the Shadrinsk State Pedagogical University (ShSPU) of Russia, the online department «SMART-PEDAGOG» was created (decision of the Academic Council of SHSPU: Protocol No.1, dated 28.10.2021).	https://dulaty.kz//kk/2020-01-30-02-50-58/item/3589-dylati-universiteti-men-resejdi-shadrinsk-memlekettik-pedagogikaly-universiteti-arysynda-yntyma-tasty-bajlanysnu-ayuda.html https://www.instagram.com/p/CWFnFpeM0K5/?utm_medium=cory_link
4	Mobile application for online testing «SMART – future teacher» has been developed	https://play.google.com/store/apps/details?id=smart.aplivfm&hl=ru&gl=US
5	International online coaching webinar «I am a Smart teacher» was held	https://dulaty.kz/ru/2020-01-30-02-50-58/item/4507-onlajn-konkurs-moj-pervyj-onlajn-urok.html
6	An online contest «My first online lesson» was organized	https://dulaty.kz/ru/2020-01-30-02-50-58/item/4507-onlajn-konkurs-moj-pervyj-onlajn-urok.html https://dulaty.kz/2020-01-30-02-50-58/item/4603-dulati-universitetini-studenti-khaly-araly-baj-ayuda-zhe-iske-zhetti.html
7	A scientific conference «Don't brag without finding science, if you want to become a person!»	https://dulaty.kz/ustaz-institute-kaz/ustaz-news/item/4732-lylym-tappaj-ma-tanba-adam-bolam-dese-iz.html
8	An online survey and an online test were conducted	http://test.max-tech.kz/?page=author&lang=kaz
9	An online course «Distance learning technologies» was held	https://www.instagram.com/p/Cn7FSMGNocn/?igshid=MDJmNzVkMjY
10	International Congress «Distance learning: challenges, modern trends and strategies»	https://dulaty.kz/2020-01-30-02-50-58/item/4913-ashy-tan-bilim-beru-khaly-araly-kongress.html
11	International scientific and practical seminar «Modern teaching technologies»	https://dulaty.kz/kk/2020-01-30-02-50-58/item/3845-aza-standy-zh-ne-resejlik-alymdar-kollaboratsiyaly-lylymizertteu-zh-mystaryn-zh-rgizude.html

In order to establish a single common joint network and methodological connection between Dulaty University (Kazakhstan) and Shadrinsk State Pedagogical

University of Russia in order to study, use, research and promote innovative practices in the conditions of distance learning in the training of globally competitive teaching staff in Kazakhstan in the new conditions, an international online coaching webinar «I am a smart teacher!» was organized.

The benefits of the educational portal www.smart-pedagog.kz are not limited to students, but also apply to teachers. The interactive teaching and educational methods used on the portal open up a new perspective for future teachers, who will be able to apply the methods they have learned in the future in ordinary classrooms.

In the new conditions of Kazakhstan in distance learning, the effective ways of forming digital-creative competencies of future teachers have been identified: the rules of the international online contest «My first online lesson» have been developed and organized.

The international online coaching webinar was attended by well-known scientists, future teachers, methodologists of educational organizations and scientists and future teachers of the Shadrinsk State Pedagogical University of Russia.

The purpose of the international online coaching webinar is to identify priority areas for the formation of digital competencies of future teachers.

The online coaching webinar focused on the effective use of new forms of digital content of educational material by the teacher-student partnership, providing future teachers with improved forms of teaching technologies from the point of view of digital education.

An online course «Distance learning technologies» with a volume of 72 hours was held for future teachers.

As a result of the research work, electronic textbooks «Pedagogy» and «Digital pedagogy» were published.

The electronic textbook «Pedagogy» has the advantages of creating creative search, digital competencies of future teachers: critical thinking, search for new information, processing and sorting; the ability to ask questions, search for answers to questions, sort results, etc. research activities, etc.

The use of digital technologies in teaching and learning includes the collection of relevant information; critical analysis and evaluation of evidence; guaranteed solutions and accumulated conclusions; revision of forecasts and recommendations based on extensive experience

The main menu of the electronic textbook consists of 6 blocks: «Theory»; «Bilgen marzhan»; «Ulyndan ulagat»; «Glossary»; «Photo Gallery»; «Literature» (figure 24).

The electronic textbook «Pedagogy» develops the digital-creative competencies of future teachers, arming future teachers with the theory of pedagogical activity.

An innovative information bank on the subject «Pedagogy» was created: 12 video lectures on the subject «Pedagogy», an electronic textbook «Pedagogy» and a textbook «Digital pedagogy» were uploaded to the pedagogical portal created within the framework of this project.

6 scientific works received certificates of state registration of rights to the copyright object (Table 6).



Figure 24– Main menu of the electronic textbook

Within the framework of the International Congress, the author's courses of domestic and foreign scientists, master classes of innovative teachers, psychological and pedagogical trainings were organized in online and offline formats.

In the context of information science of Digital Kazakhstan, the use of electronic resources for the formation of the personality, intellectual culture, technological competencies of a future specialist is important for his survival in the information society, training a professional who will correctly navigate in its information flow and find an effective solution.

The International Congress «Distance education: challenges, modern trends and strategies» was organized in order to identify modern trends in professional training of teaching staff in a digital society; to identify modern trends in distance learning; to reveal the essence of digital technologies that improve the quality of education in the critical context of the XXI century; to study the innovative experience of the world's best universities in training teaching staff.

In the 2021-2022 academic year, a member of the project, magisrant Zh.Zhakup, studying under the educational program 7M01104 - Pedagogical dimensions, successfully defended his magistracy thesis «Technological and methodological aspects of the formation of digital-creative competencies of future teachers in the Republic of Kazakhstan».

Acts of implementation of the results of the research work carried out by educational organizations in the educational process were announced.

Table 6 – Scientific products from which the certificate of state registration of rights to the copyright object is obtained

№	Scientific product name	Product type	Document
1	The electronic textbook «Pedagogy»	Computer program	Copyright certificate № 23213; February 1, 2022 y.
2	The pedagogical education portal www.smart-pedagog.kz	Computer program	Copyright certificate № 235 88; February 14, 2022 y.
3	Digital pedagogy	Computer program	Copyright certificate №26090; May 3, 2022 y.
4	Digital pedagogy	Scientific work	Copyright certificate №32153; January 31, 2023 y.
5	The textbook «Digital Pedagogy»	Scientific work	Copyright certificate №32153; January 2, 2023 y.
6	The electronic textbook «Digital Pedagogy»	Computer program	Copyright certificate №35341; May 3, 2023 y.

The innovative experience of distance education in the training of competitive pedagogical personnel in the conditions of the New Kazakhstan was studied: a single joint methodological link was established between Dulaty University (Kazakhstan) and ShSPU (Russia); a pedagogical portal smart-pedagog was opened; an online department «SMART-PEDAGOG» was opened with ShSPU as a partner university; an innovation and information bank was created; the results achieved in the course of research work were processed.

In the module «Pedagogical studio» of the pedagogical portal smart-pedagog.kz, videos were posted on the creation of video lessons (Table 7).

In order to make education the central link of a new model of economic growth in the XXI century, it is necessary to focus the training program on the development of critical thinking, independent search skills, and distance learning.

By adapting the experience of international pedagogical and professional education centers to the current Kazakh market, we need to prepare future teachers with high digital and creative competencies for global competitiveness.

Also, www.smart-pedagog.kz on the portal of pedagogical education, you can access the web version and mobile application of the online test and online questionnaire «Smart-future teacher».

In the online questionnaire «Smart-future teacher» of the pedagogical education portal www.smart-pedagog.kz 10 questionnaires are offered, there is an opportunity to choose a language by clicking on the above buttons.

A total of 2879 respondents took part in the online survey «Smart - future teacher». The survey was attended by 2,621 future teachers, including 2,505(87) respondents from the Taraz regional university named after M. Kh. Dulaty, 58 (2) respondents from other universities of Kazakhstan (figure 25).

Table 7 – The link to the video lessons in the module «Pedagogical studio» of the pedagogical portal smart-pedagog.kz

№	Video product	Link
1	Creating a video lesson on a computer	https://youtu.be/k0suOPywAXA
2	Creating a video lesson on a smartphone	https://youtu.be/-8eQLt7adVI
3	Screencast (screen capture)	https://youtu.be/i7UZFSyQ-PM
4	The electronic textbook «Pedagogy»	https://cloud.mail.ru/public/yNJ3/UmAWNQXXU
5	The textbook «Digital pedagogy»	http://lib.dulaty.kz/rus2/all.doc/Elektron_res/Buzaubakova.html



Of the respondents in the online survey «Smart-future teacher», 1353 (47%) were future teachers studying in the humanities, 489(17%) were future teachers studying in the natural sciences, 58(2%) were future teachers studying in the technical specialty, and 346(12%) respondents were future teachers studying in the technology specialty (fig. 26)

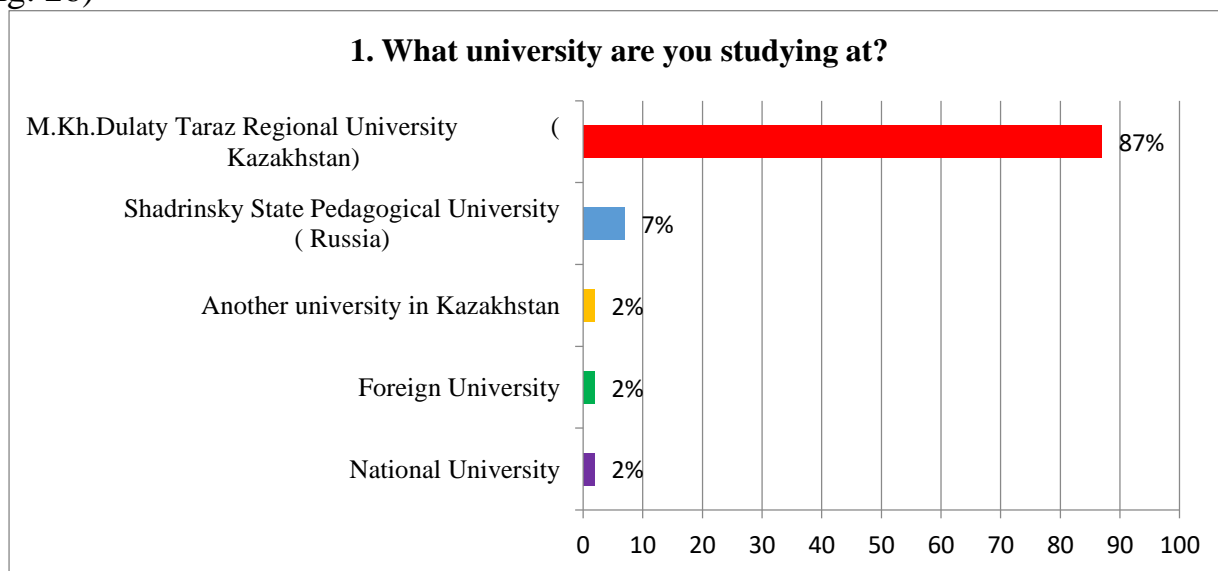


Figure 25– The result of Question 1

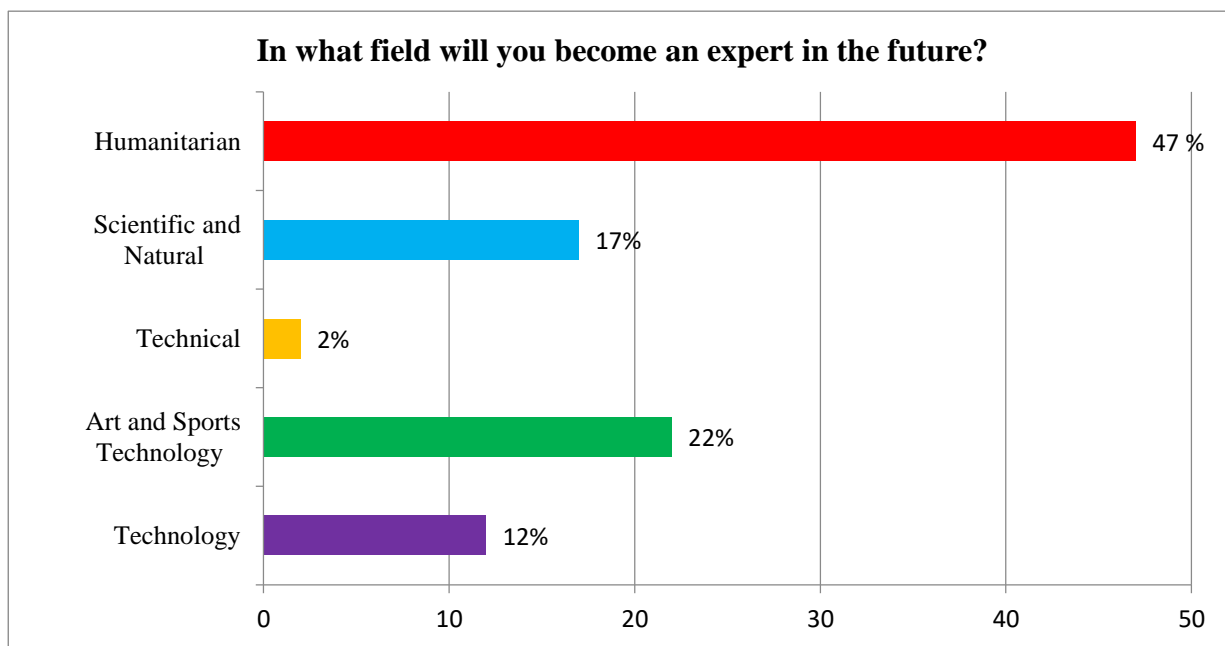


Figure 26– The result of Question 2

Students of 1-5 courses took part in the online survey «Smart-future teacher». Of the respondents who took part in the online survey, 2246(78%) were 1st-year students, the specific weight of 2nd-year students was 201 (7%), and the specific weight of 3-5th-year students was 144 (5%). The vast majority of respondents who took part in the online survey were 1st year students (figure 27).

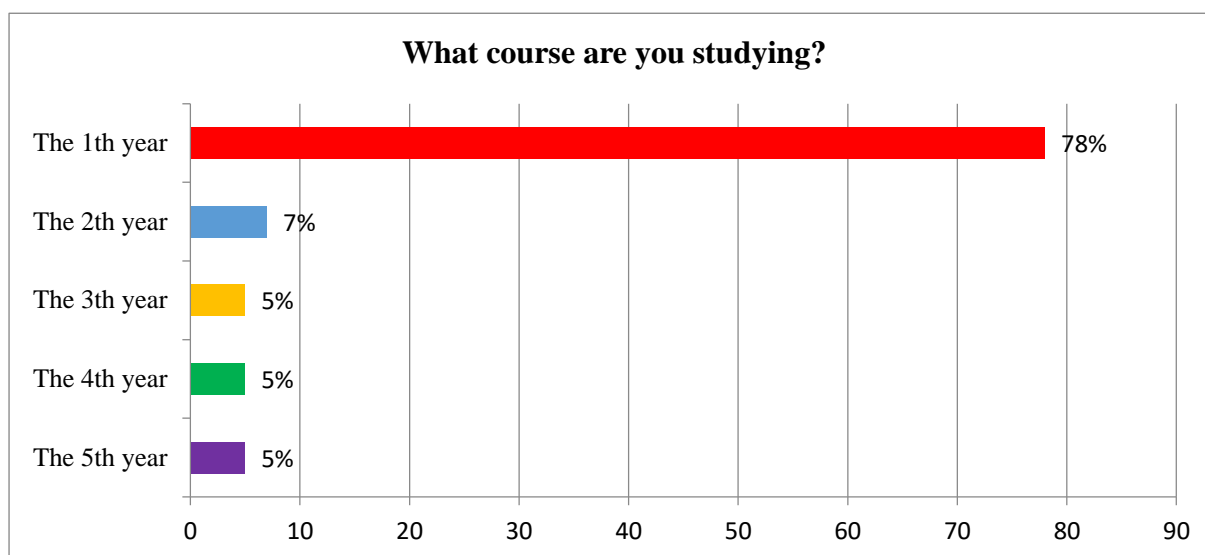


Figure 27– The result of Question 3

111To the question «Express your opinion on the distance education system», 46 of the respondents in the online survey supported the distance education system, 17 of the respondents (489) expressed no support for the distance education system, 12 of the respondents (346) expressed partial support, 12 of the respondents (346)

expressed partial support, and 17 of the remaining respondents (489) remained neutral, stating that they could not give a clear answer (figure 28).

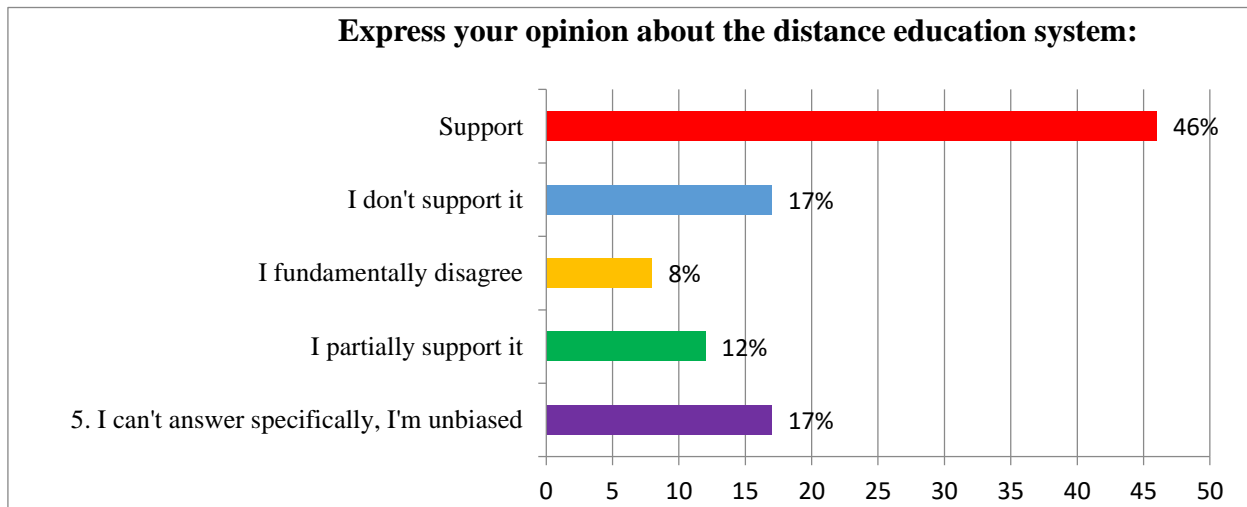


Figure 28– The result of Question 4

«How, in your opinion, will the educational load of students change in the conditions of distance learning compared to traditional training?» 45% (1296) of the respondents in the online survey showed that the educational load of students in distance learning increases compared to traditional training, 18%(518) of the respondents considered that the educational load of students in distance learning decreases compared to traditional training, 5%(144) of the respondents noted that the educational load of students in distance learning is the same as in traditional training, and 20 %(576) of the respondents indicated that in the conditions of distance learning, as opposed to traditional training, the educational load of students depends on the subject being studied, and 1%2 (346) of the remaining respondents remained neutral, stating that they could not give a clear answer (figure 29).

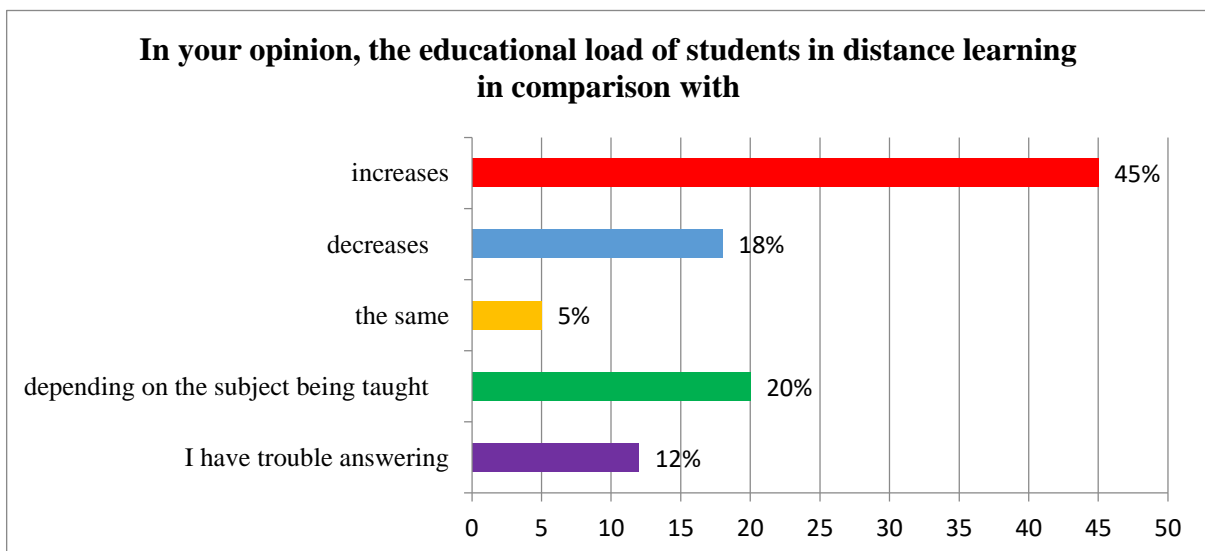


Figure 29–The result of Question 5

To the question «Indicate the most pressing problem of distance learning», 16%(461) respondents in the online survey noted the low computer literacy of students, 26%(749) emphasized the low computer literacy of teachers, 12% (346) of the respondents expressed partial support, 24% (691) of the respondents noted the weak feedback, and 22% (632) of the remaining respondents said that they could not give a clear answer and remained neutral (30-figure).

In the question «Name the main advantage of distance learning», 15% (432) of the respondents who took part in the online survey noted the flexibility of the educational process, 36%(1036) emphasized the possibility of combining work with learning, 26%(749) emphasized the technologization of the learning process (the use of information technologies), 12%(346) of the respondents referred to the formation of practical skills, and 11%(316) of the remaining respondents noted the ease of updating the content and the ability to archive material, that is, any educational material remains available for download (figure 31).

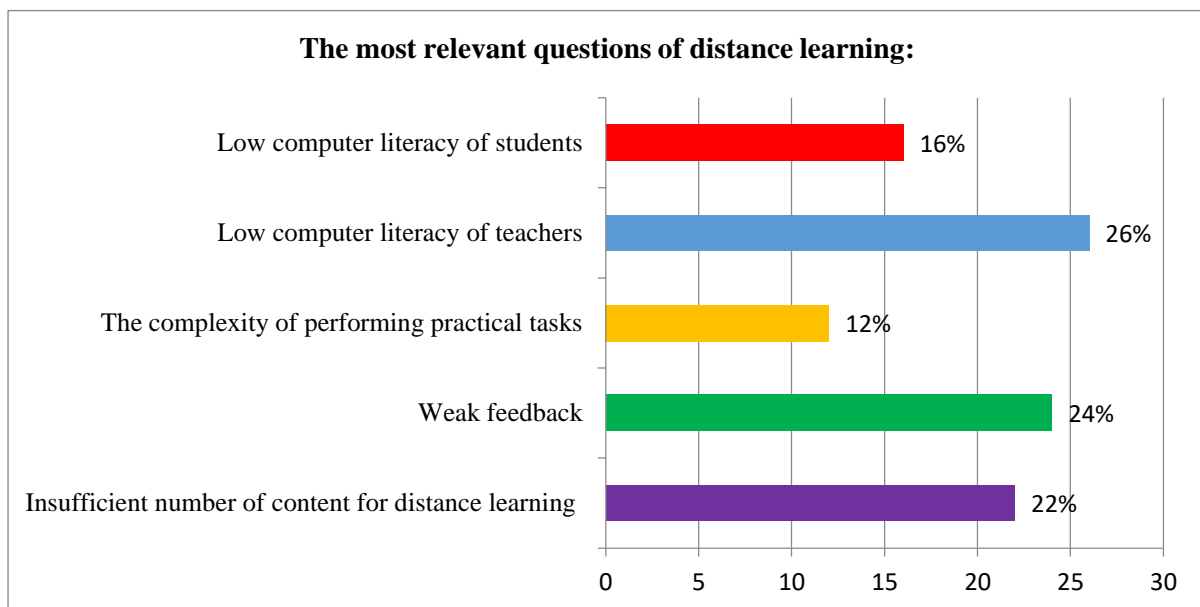


Figure 30–The result of Question 6

«How will the learning outcomes change in distance learning compared to traditional learning?» 20%(577) of the respondents in the online survey showed no significant difference in learning outcomes in distance learning compared to traditional learning, 10%(288) indicated a higher educational outcome in distance learning, 59%(1699) of the respondents stressed that education outcomes in traditional learning were higher, 4%(114) said no difference, and 7%(201) of the remaining respondents expressed difficulty in answering (figure 32).

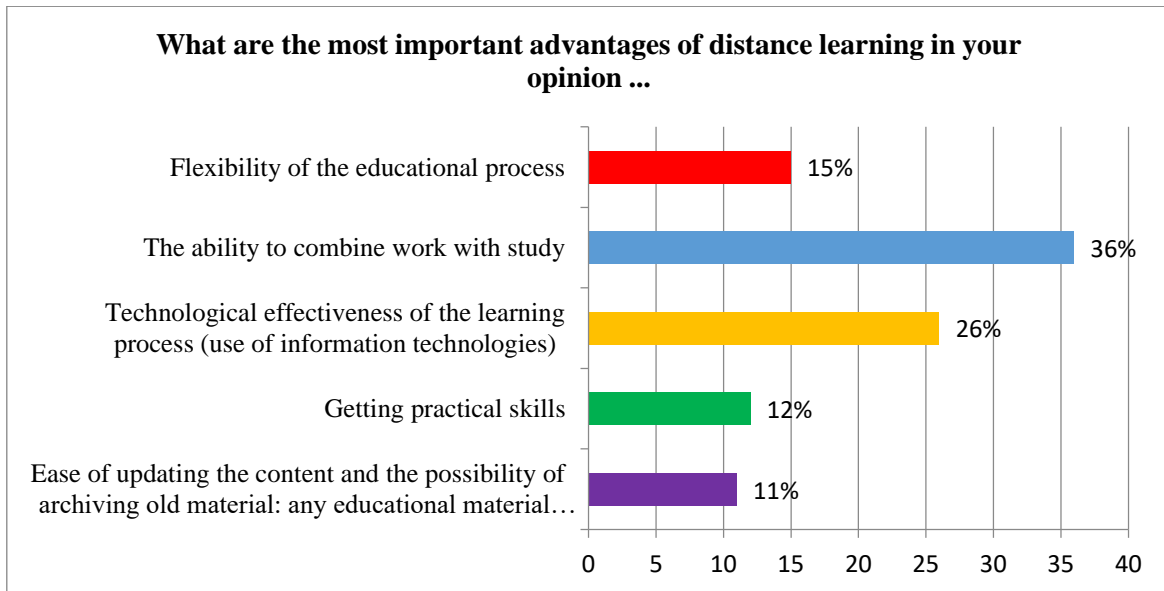


Figure 31– The result of Question 7

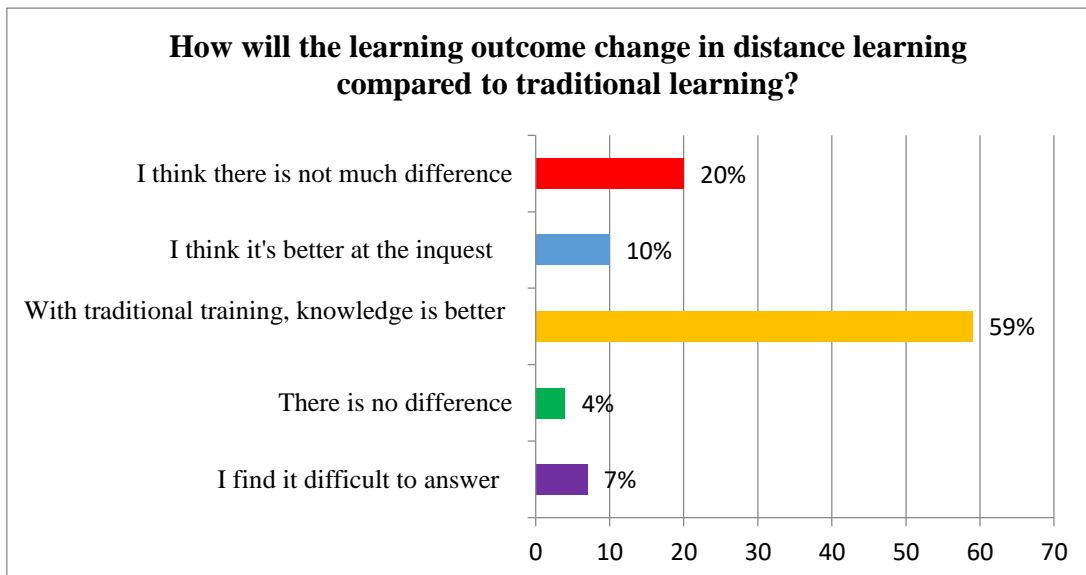


Figure 32– The result of Question 8

«Which group of students is better to use distance learning ?» 30%(864) respondents in the online survey considered it acceptable to use distance learning for those who are lagging behind in the subject, 24%(691) said it was acceptable to use distance learning for those who are interested in the subject, 12%(346) respondents considered it acceptable to use distance learning for those who have difficulties in communicating with a teacher, and 25%(719) respondents said it was acceptable to use distance learning for those who are temporarily unable to attend school (due to illness, departure to another city, etc.), of the remaining respondents, 9% (259) answered that distance learning can be used in all cases (figure 33).

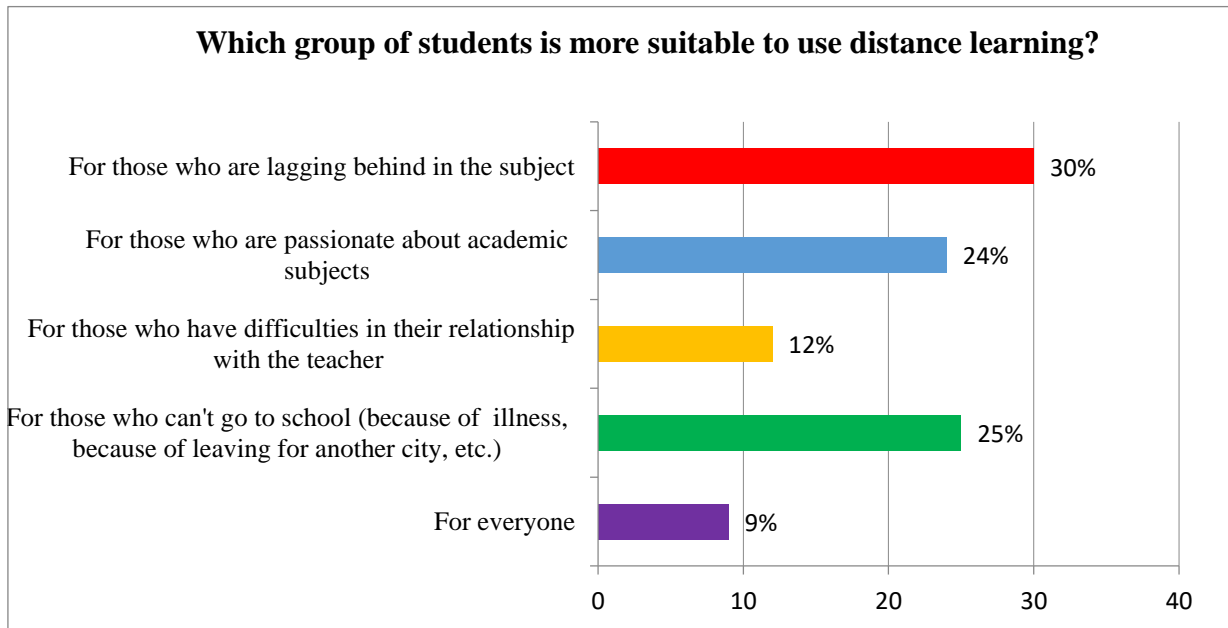


Figure 33–The result of Question 9

«Do you want to use distance learning for educational purposes?» 28%(806) of the respondents in the online survey expressed their desire to use distance learning for educational purposes, 12%(346) expressed their unwillingness to use distance learning for educational purposes, 8%(230) of the respondents expressed difficulty in answering, 29%(835) of the respondents noted that distance learning can be used for educational purposes as the case may be, and 23%(662) of the remaining respondents noted that distance learning can be partially used for educational purposes (34-figure).

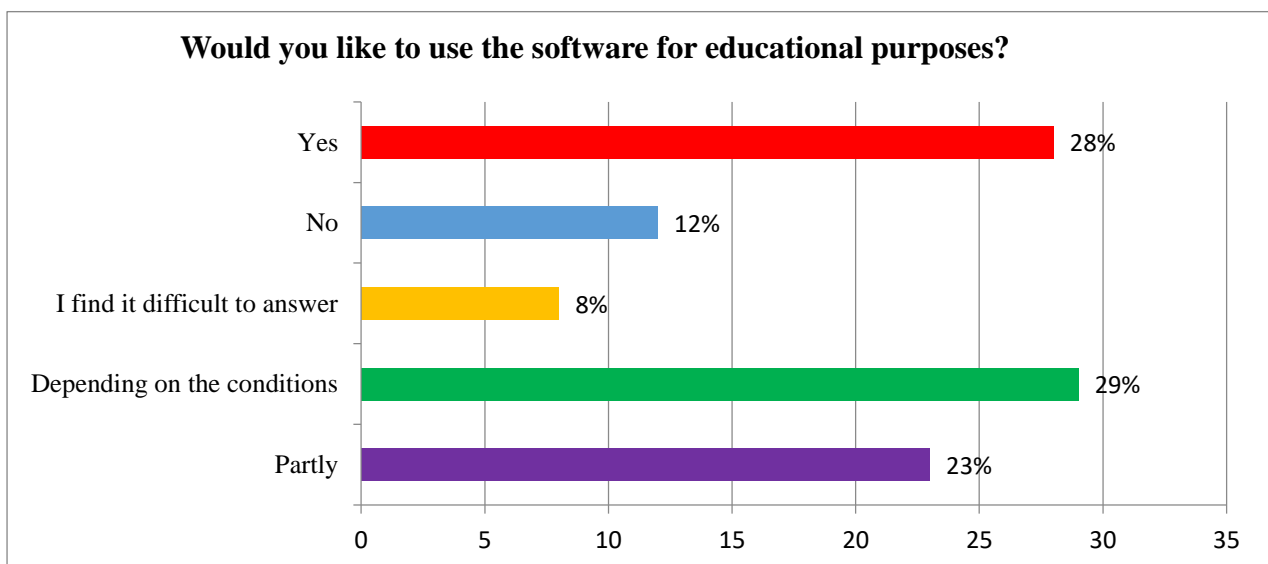


Figure 34– The result of Question 10

On the pedagogical education portal smart-pedagog.kz, you can go to the web version of the online test «Smart- future teacher».

By clicking on the online test button «Smart-future teacher», the future teacher will have the opportunity to test his knowledge by passing a test consisting of 15 test tasks.

The portal of pedagogical education will make a significant contribution to the formation of digital and creative competencies of future teachers.

To determine the level of digital and creative competence of future teachers, the online test «Smart-future teacher» was taken. The online test «Smart-future teacher» consisted of 15 questions and presented 5 answers to each test.

Table 8 presents the results of the online test «Smart - future teacher».

In total, 2879 respondents took part in the online test «Smart-future teacher».

Respondents who took part in the online test answered «digital literacy» to the question: «The set of knowledge and skills necessary for the safe and effective use of digital technologies and internet resources is»: 41%(1180), and 24%(691) respondents answered «digital knowledge», 3%(86) respondents answered «digital skills», 8%(231) respondents answered «digital skills», and the remaining 24%(691) respondents answered «digital competence»(figure 35).

Table 8 – The results of the online test «Smart- future teacher»

№	Question	Right answer	Wrong answer	Differe
1	A set of knowledge and skills necessary for the safe and effective use of digital technologies and internet resources	41%	59%	18%
2	Confident possession of all the constituent skills of information and communication technology for solving problems in the course of educational and other activities	56 %	44%	12%
3	A set of knowledge and skills that determine the effectiveness of Labor	49 %	51%	2%
4	Readiness and ability of a person to confidently, effectively, critically and safely use information and communication technologies in various areas of life, based on the acquisition of knowledge and skills	14 %	86%	72%
5	What is an IP address?	67%	33%	34%
6	What is a browser?	67%	33%	34%
7	The following magnifications are suitable for text files	56 %	44%	46%
8	Program for preparing and viewing presentations	73%	27%	46%

9	In Microsoft Power Point, a presentation may include the following:	35%	65%	30%
10	A type of service for conducting online quizzes, online tests and surveys that can be effectively used for didactic purposes	15%	85%	70%
11	Specify the distance learning platform that is often used in general secondary schools:	74%	26%	48%
12	A software complex consisting of educational materials and tests in a particular discipline	53%	47%	6%
13	Computer systems with integrated support for audio and video recording	44%	56%	12%
14	Training using textbooks, personal computers and computer networks	45%	55%	10%
15	What service can be used to create a virtual class?	15%	85%	70%

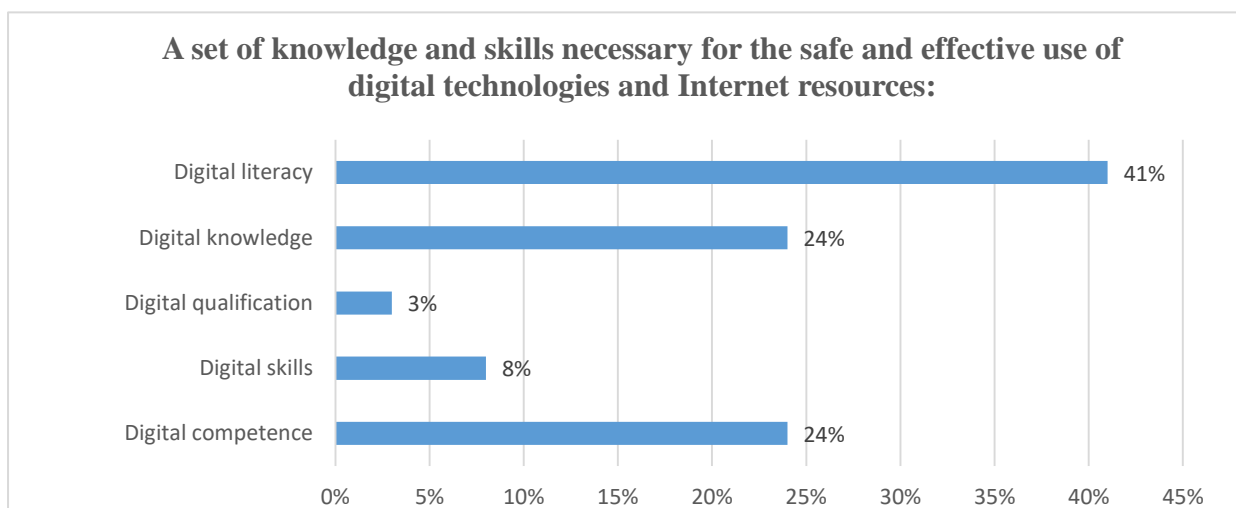


Figure 35– The result of the first question

The specific weight of those who answered question 1 correctly is 41%(1180), the specific weight of those who answered incorrectly is 59%(1699).

Respondents who took part in the online test answered 56%(1612) «information and communication competence» to the question «Mastery of all the constituent skills of information and communication technology for solving problems in educational

and other activities», 19%(547) respondents chose the answer «digital competence», 22%(634) respondents answered «technological competence», 3%(86) respondents answered «professional competence», and none of the respondents answered «creative competence» (figure 36).

The specific weight of those who answered question 2 correctly is 56%(1612), the specific weight of those who answered incorrectly is 44%(1267).

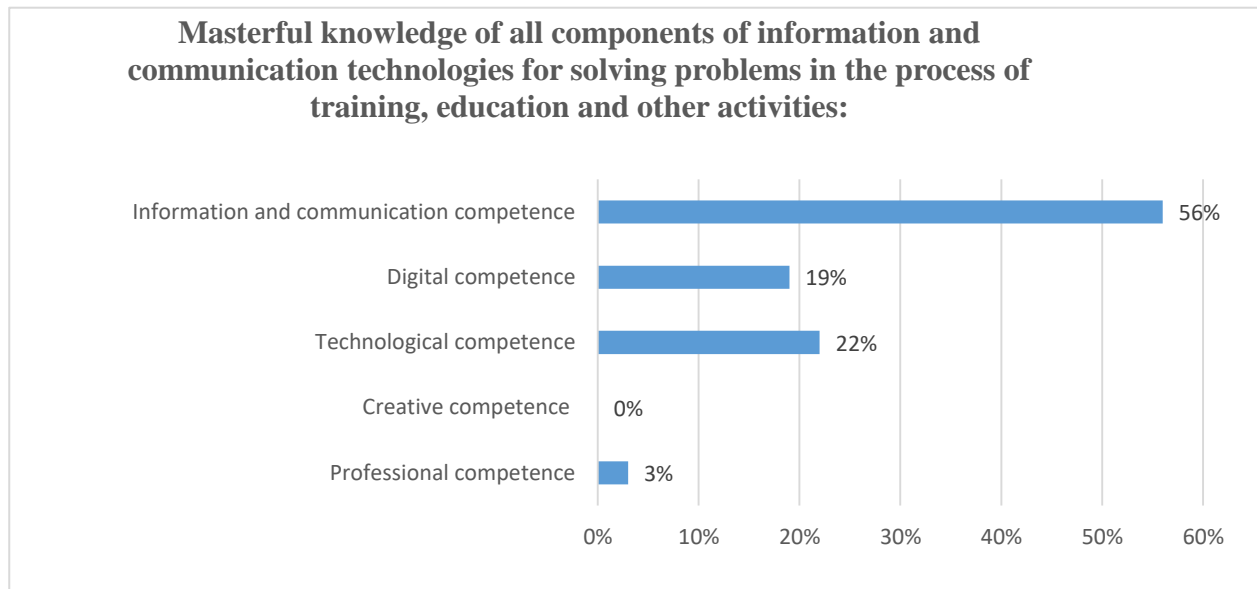


Figure 36– The result of the second question

Respondents who took part in the online test answered 49%(1411) «professional competence» to the question «A set of knowledge and skills that determine labor performance», 17%(489) respondents chose the answer «digital competence», 17%(489) respondents answered «technological competence», 6%(173) respondents answered «creative competence», and the remaining 11%(317) respondents recognized «information and communication competence» (fig.37).

The specific weight of those who answered question 3 correctly is 49 (1411), the specific weight of those who answered incorrectly is 51 (1468).

Respondents who took part in the online test 14%(403) answered «digital competence» to the question «Readiness and ability of a person to confidently, effectively, critically and safely use information and communication technologies based on the acquisition of knowledge and skills» 23% (662) respondents chose the answer «professional competence», 26 %(749) respondents answered «technological competence», 17%(489) respondents answered «creative competence», the remaining 20%(576) respondents recognized «information and communication competence» (figure 38).

The specific weight of those who answered question 4 correctly is 14%(403), the specific weight of those who answered incorrectly is 84%(2476).

Respondents in the online test answered «What is an IP address» at 67%(1929) «unique network address of a node in a computer network», 3%(86)

respondents chose the answer «computer password», 6%(173) respondents answered «personal computer user ID» and 6%(173) respondents answered «unique code of your personal computer», and the remaining 18%(518) respondents answered «supplier address recognized » (figure 39).

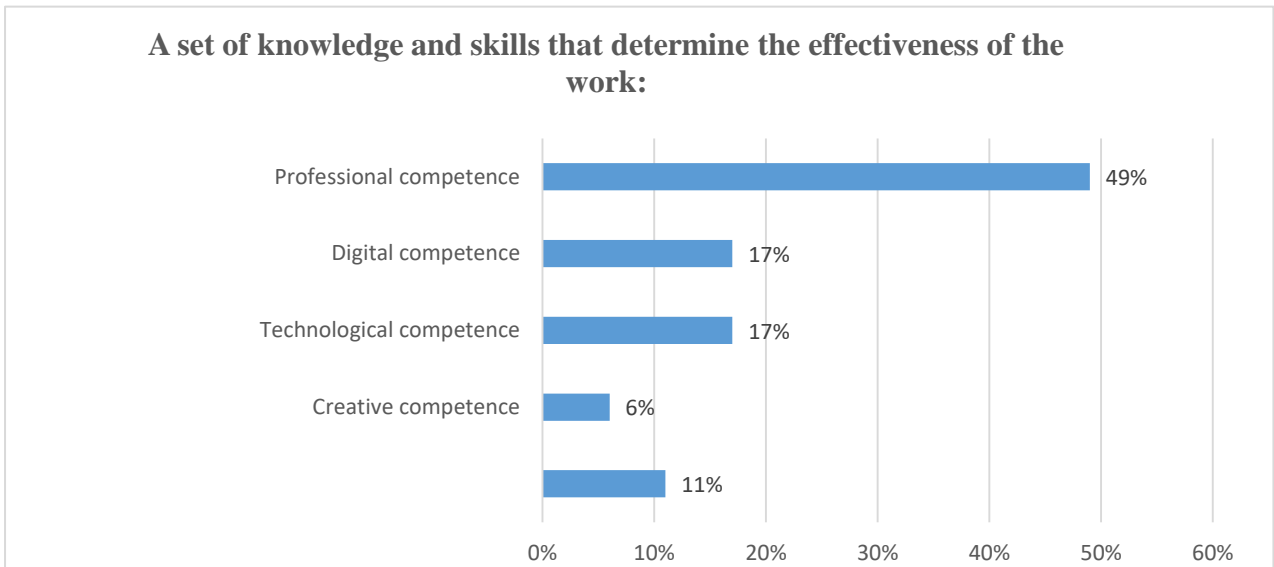


Figure 37– The result of the third question

The specific weight of those who answered question 5 correctly is 67%(1929), the specific weight of those who answered incorrectly is 33% (950).

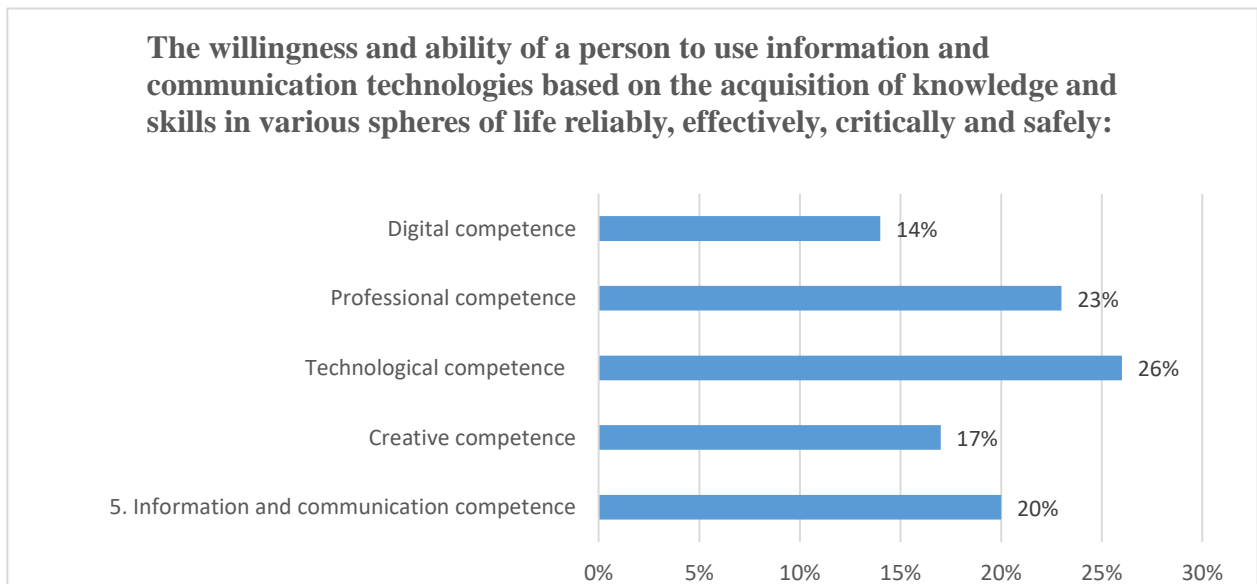


Figure 38 – The result of the fourth question

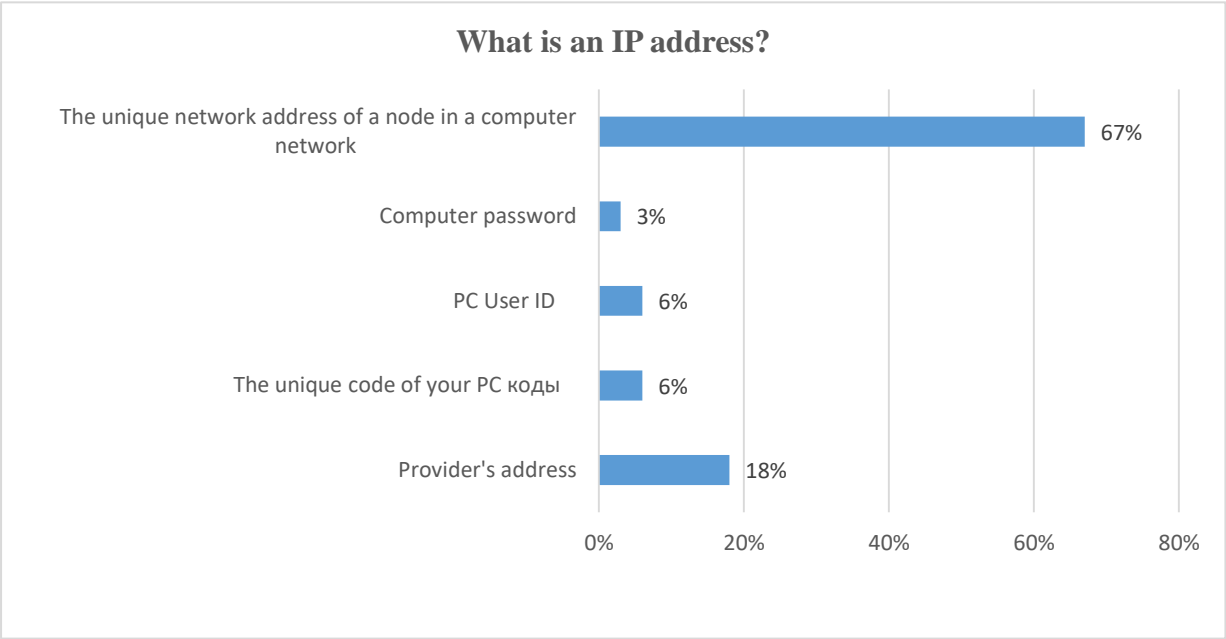


Figure 39– The result of the fifth question

Respondents who took part in the online test were asked: «What is a browser?» 67% (1929) answered «A program for searching and viewing information from a computer network on a computer screen», 18%(518) respondents chose the answer «Internet Explorer», 6%(173) respondents answered «A program for reducing the amount of information (compression) of files», 9%(259) respondents answered «A complex of interrelated programs for managing computer resources», and none of the respondents could answer «Antivirus program» (figure 40).

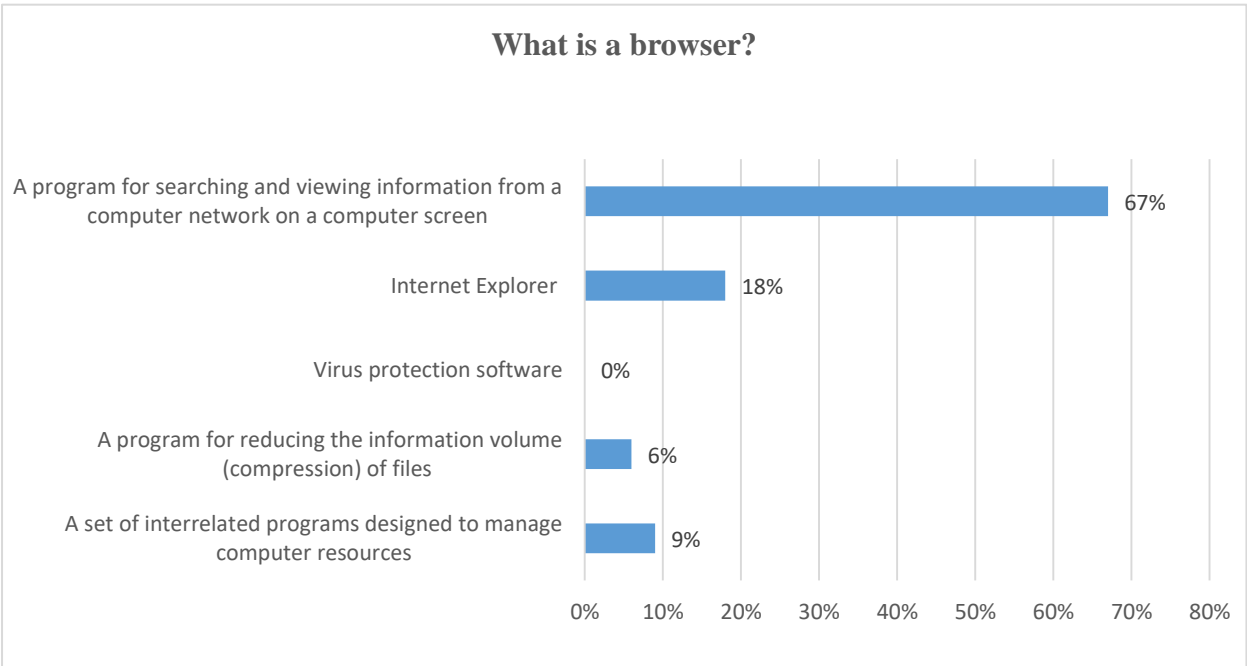


Figure 40 – The result of the sixth question

The specific weight of those who answered question 6 correctly is 67%(1929), the specific weight of those who answered incorrectly is 33%(950).

Respondents who participated in the online test, when asked «the following increments correspond to text files», asked 56 %(1612) «TXT, RTF, DOC, ODT ... » 6%(173) respondents answered «AVI, MPG, MP4 ... » they chose the answer «JPG, PNG, TIFF, BMP» from 15%(432) respondents ... 3%(86) respondents said, «XLS, ODS ...» the other 20% (576) respondents answered «html, htm, dom... » (figure 41).

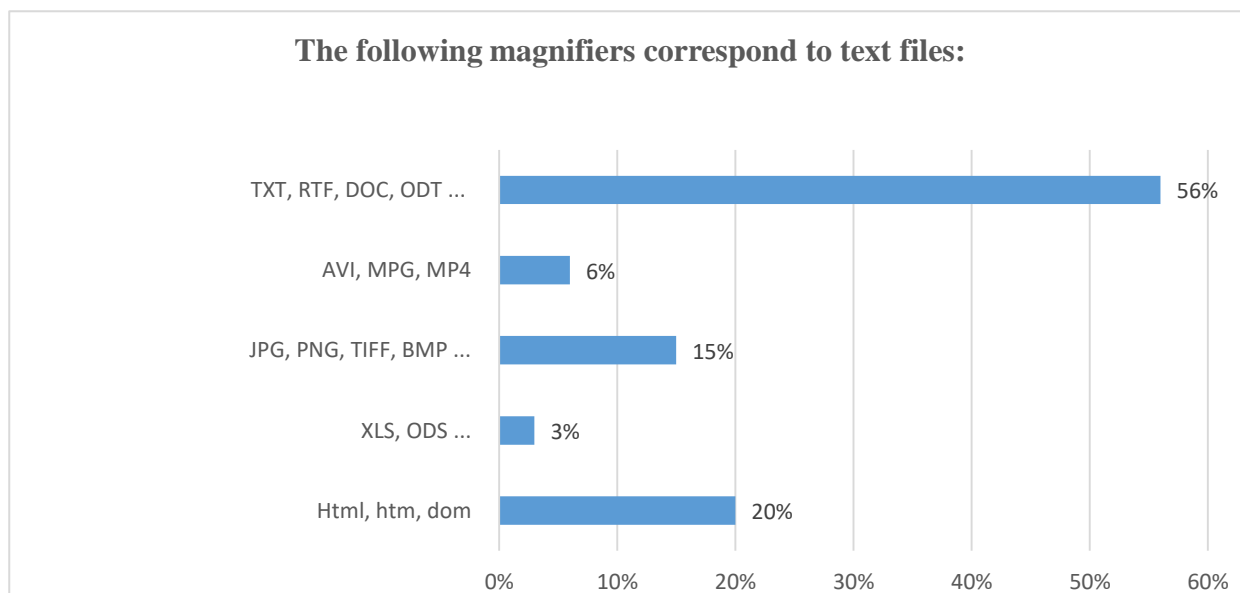


Figure 41–The result of the seventh question

The specific weight of those who answered question 7 correctly is 73%(2102), the specific weight of those who answered incorrectly is 27% (777).

Respondents who took part in the online test answered «presentation preparation and viewing program» at 73%(2102) «Microsoft Power Point», 18% (518) respondents chose the answer «Prezi», 6%(173) respondents answered «Kahoot», 3%(86) respondents answered «Clogster», and none of the respondents recognized «Adobe Captivate» (figure 42).

The specific weight of those who answered question 8 correctly is 73%(2102), the specific weight of those who answered incorrectly is 27%(777). Respondents who took part in the online test answered «Presentation in Microsoft Power Point may include»: 35%(1008) answered «All of the above», 29%(835) respondents chose the answer «Text, diagram, table», 30%(863) answered «Photo, Picture, pictures», 6%(173) answered «Hyperlink», and none of the respondents answered «Audio and video materials» (figure 43).

The specific weight of those who answered question 9 correctly is 35%(1008), the specific weight of those who answered incorrectly is 65%(1871).

Respondents who participated in the online test answered «Kahoot» in 15%(432), «Kahoot» in 24%(691) to the question «A type of service for conducting online quizzes, online tests and surveys that can be effectively used for didactic

purposes», 21%(604) respondents answered «Prezi», 15%(432) respondents answered «Microsoft Power Point Clogster», and the remaining 25%(720) respondents answered «Microsoft Power Point» was recognized by respondents as «Adobe Captivate» (figure 44).

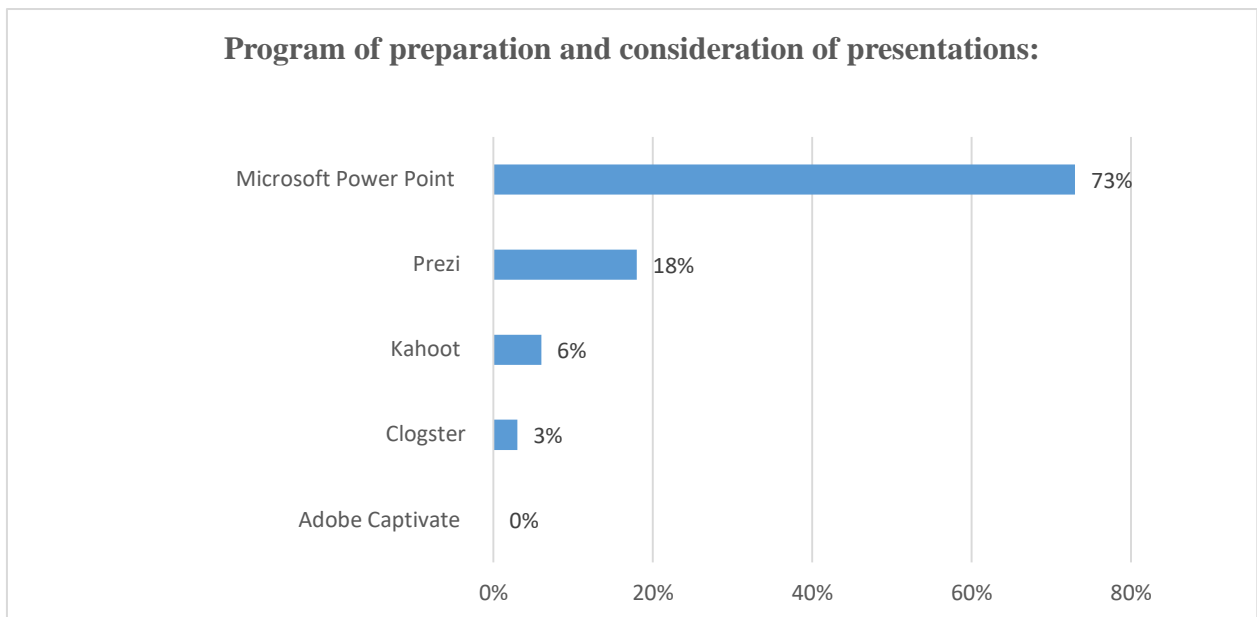


Figure 42– The result of the eighth question

Respondents in the online test answered 74%(2130) «ZOOM» to the question «Specify the distance learning platform most often used in secondary schools», 8%(230) respondents chose the answer «Adobe Captivate», 3%(86) respondents answered «Cisco Webex Meetings», 6%(173) respondents answered «Teams», and the remaining 9%(260) respondents answered «Skype».

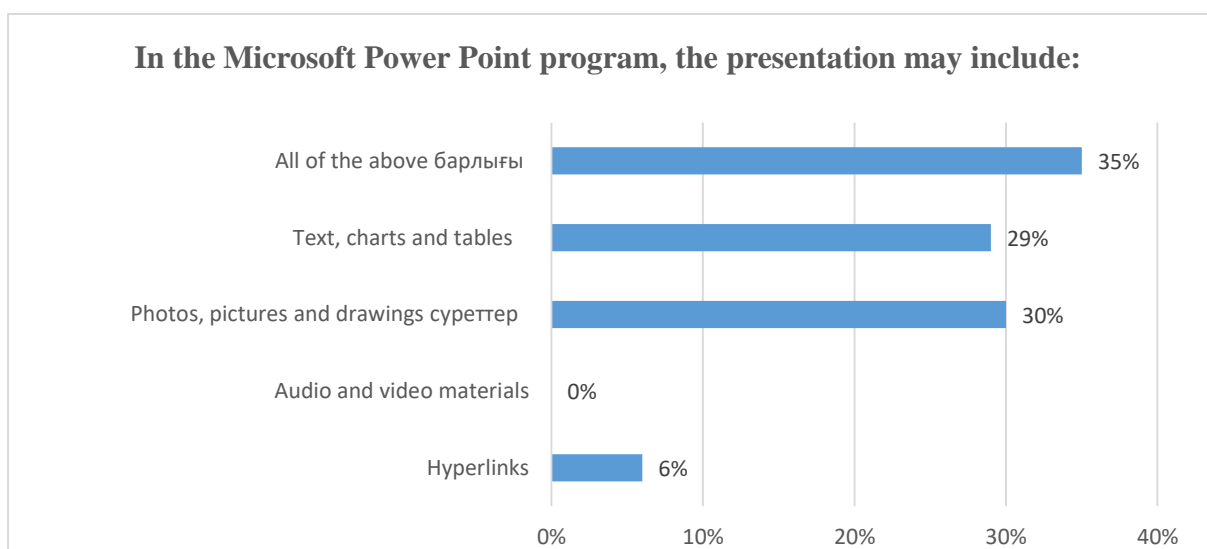


Figure 43– The result of the ninth question

The specific weight of those who answered question 10 correctly is 15%(432), the specific weight of those who answered incorrectly is 85%(2447).

The specific weight of those who answered question 11 correctly is 74%(2130), the specific weight of those who answered incorrectly is 26%(749).

Respondents who took part in the online test answered 53% (1526) «electronic textbook» to the question «software complex consisting of educational materials and tests in a particular subject», 12%(346) respondents chose the answer «text textbook», 18%(518) respondents answered «electronic dictionary», 9%(259) respondents answered «Simulator», and the remaining 8%(230) respondents recognized the answer «handwritten book» (figure 45).

The specific weight of those who answered question 12 correctly is 53%(1526), the specific weight of those who answered incorrectly is 47%(1353).

Respondents who took part in the online test answered «Computer systems with integrated audio and video recording» at 44%(1267) «Multimedia», 18%(518) respondents chose the answer «Media Service» and 18%(518) respondents answered «Audiovisualization», 17%(490) respondents answered «Interactive», and the remaining 3%(86) respondents answered «Database» (figure 46).

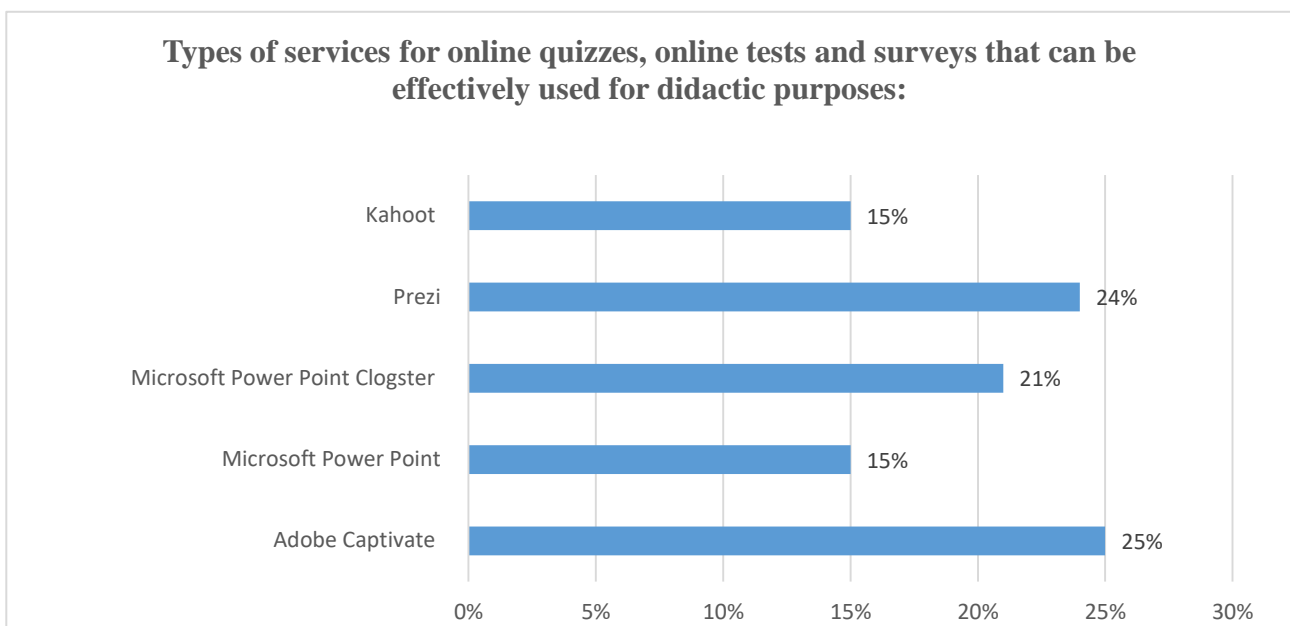


Figure 44– The result of the tenth question

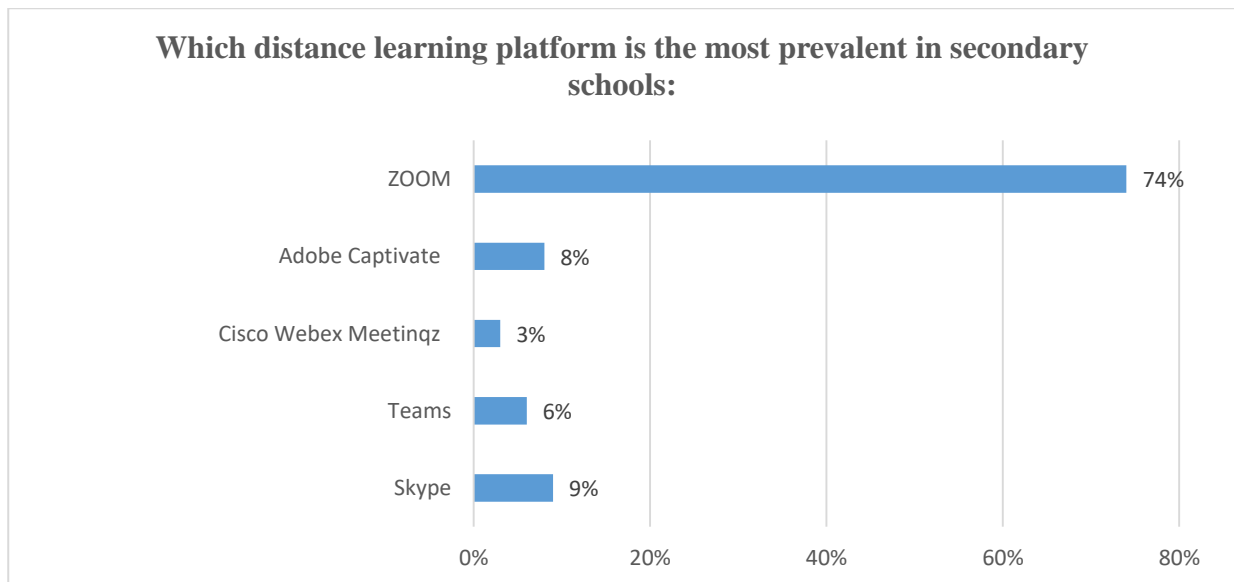


Figure 45– The result of the eleventh question

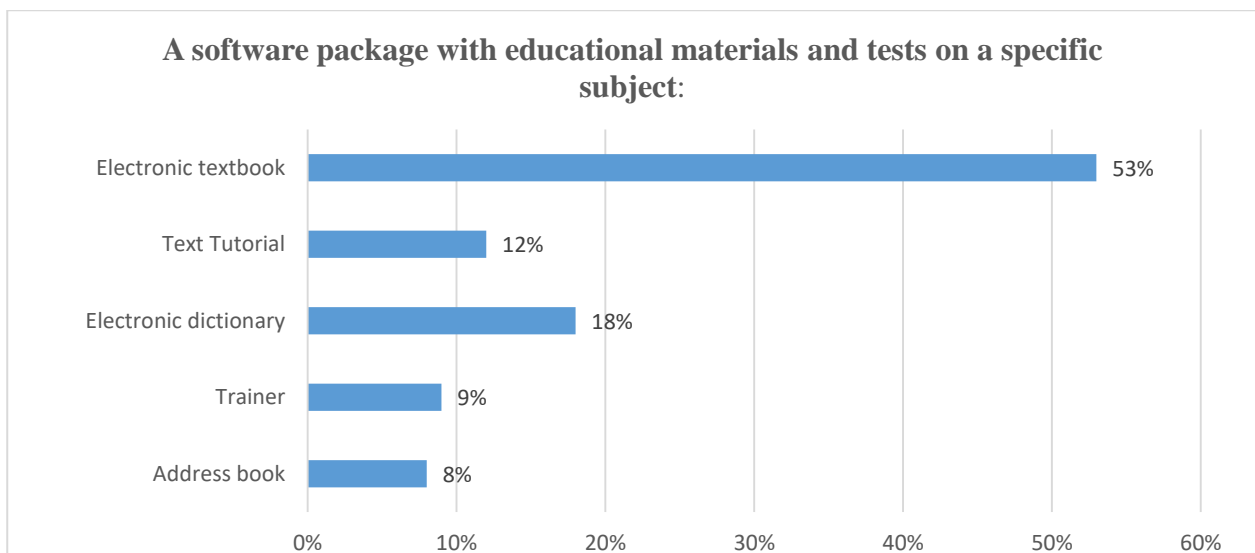


Figure 46–The result of the twelfth question

The specific weight of those who answered question 13 correctly is 44%(1267), the specific weight of those who answered incorrectly is 56%(1612).

Respondents who took part in the online test answered «Learning using textbooks, personal computers and computer networks» at 45%(1296) «Distance learning», 6%(173) respondents chose the answer «Communication learning», 9%(259) respondents answered «Navigation learning», 33%(950) respondents answered «Interactive learning», and the remaining 7%(201) respondents recognized «Traditional learning» (figure 47).

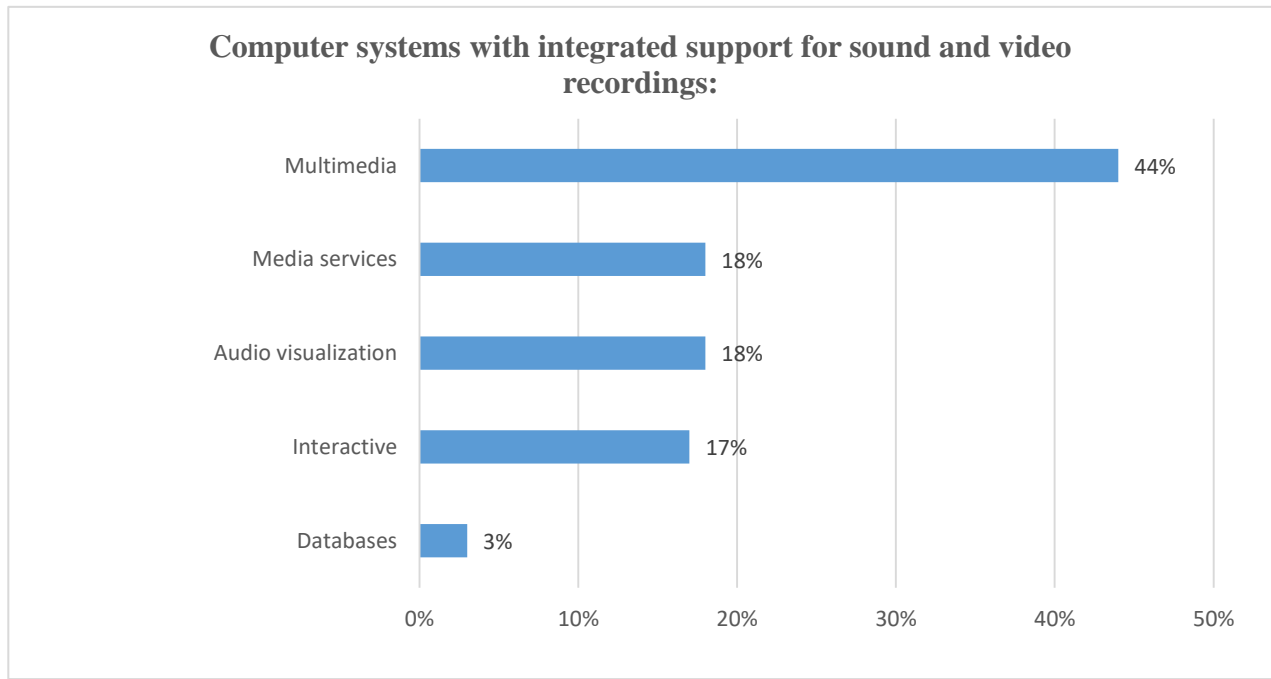


Figure 47– The result of the thirteenth question

The specific weight of those who answered question 14 correctly is 45%(1296), the specific weight of those who answered incorrectly is 55%(1583).

Respondents who took part in the online test were asked: «What service can be used to create a virtual class?» 15% (432) answered «Google Classroom», 6%(173) answered «Quizizz», 3%(86) answered «Plickers», 39% (1123) answered «Whatsapp», and the remaining 37%(1065) answered «ZOOM» (figure 48).

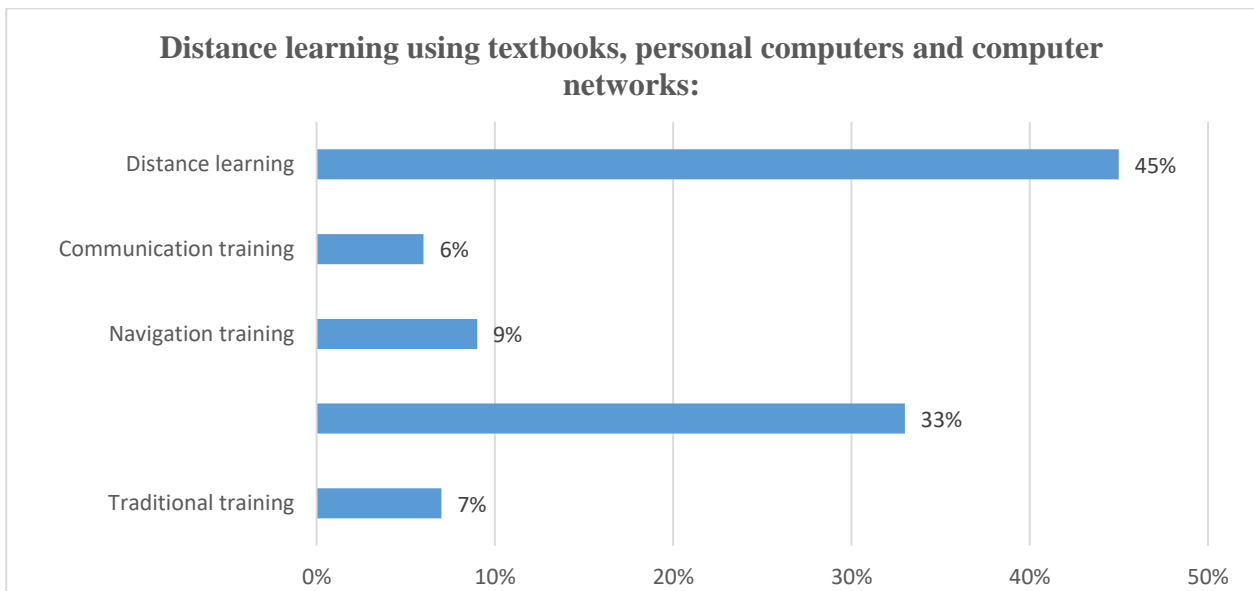


Figure 48– The result of the fourteenth question

The specific weight of those who answered question 15 correctly is 15%(432), the specific weight of those who answered incorrectly is 85%(2447) (figure 49).

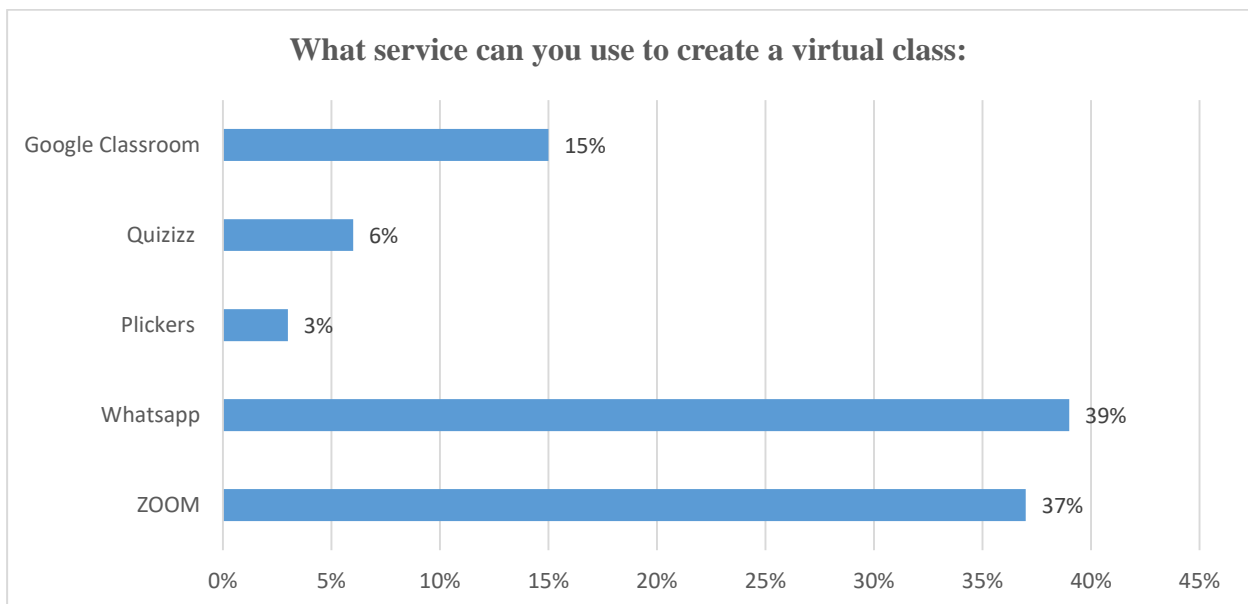


Figure 49– The result of the fifteenth question

Figure 50 shows the general results of the online test «Smart-future teacher».

After analyzing the results of the online test, we were convinced that future teachers have low digital competencies:

1) «Readiness and ability of a person to reliably, effectively, critically and safely use information and communication technologies based on the acquisition of knowledge and skills in various spheres of life» respondents gave 86%(2476)

«incorrect answer» and the difference between «correct answer» and «wrong answer» is 72;

2) «The type of service for conducting online quizzes, online tests and surveys that can be effectively used for didactic purposes» 85%(2447) respondents gave «wrong answer» and the difference between «correct answer» and «wrong answer» is 70;

3) «What service (service) can be used to create a virtual class?» 85%(2447) respondents gave the «wrong answer» to question 15, and the difference between the «correct answer» and the «wrong answer» is 70.

After studying the results of the online test, we concluded that future teachers are poorly versed in the didactic possibilities of distance education.

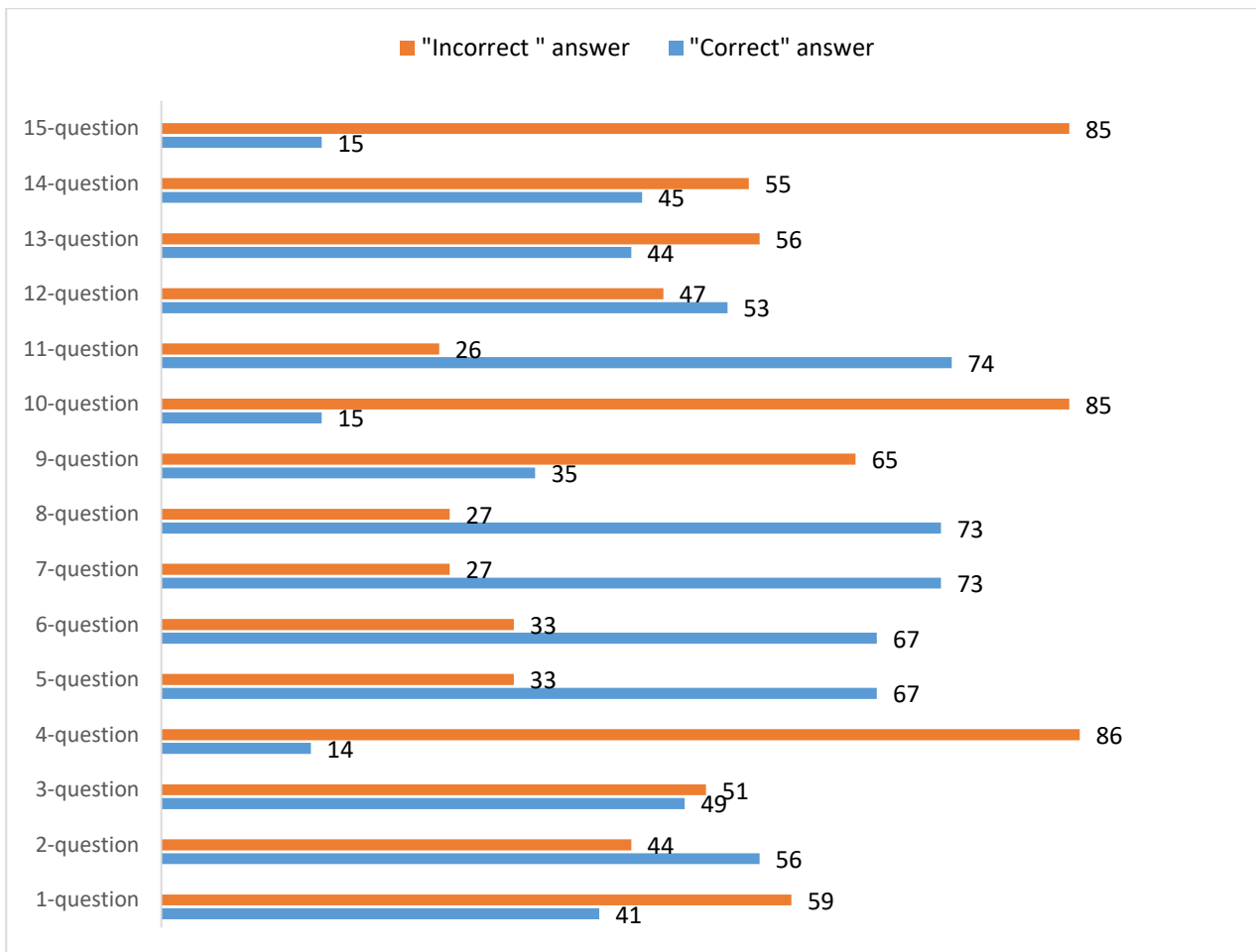


Figure 50– «Correct» and «incorrect» answers to the online test «Smart-future teacher»

However, future teachers are well versed in computer skills:

1) The vast majority of respondents to question 3 «the set of knowledge and skills that determine the effectiveness of Labor» 49%(1411) respondents gave «correct» and gave the «wrong answer», and the difference between «correct answer» and the «wrong answer» is 2;

2) «A software complex consisting of educational materials and tests in a particular subject», in question 12,53%(1526) respondents gave «correct answer», and the difference between «correct answer» and «incorrect answer » is 6;

3) To the question 14 «Learning using textbooks, personal computers and computer networks» 45% (1296) respondents gave a «correct answer», and the difference between the «correct answer» and the «wrong answer» is 10.

Future teachers will be able to form technological competencies by studying the experience of innovative scientists and innovative teachers: goes to pedagogical sites and portals, receives innovative knowledge from electronic textbooks;

1) creates an information bank fund and an electronic media library in their specialty and future subject;

2) conducts pedagogical diagnostics, monitoring and SWOT analysis of the digital learning platform and educational content, computer programs, multimedia devices used in distance learning.

3) participate in coaching, pedagogical training, forums, discussions on topical problems of distance learning in the pedagogical coworking, express their thoughts and acquire the necessary digital and creative competencies.

4) the future teacher learns to control himself: he makes pedagogical reflections on each of his actions.

One of the key competencies necessary for the intellectual development of any future teacher is to evaluate educational resources and select, sort, modify, modify, create a new version and share with others their project (version), be able to prove their idea, etc.

3 WAYS TO FORM DIGITAL AND CREATIVE COMPETENCIES OF FUTURE TEACHERS IN THE CONTEXT OF DISTANCE EDUCATION

3.1 Online course «Distance learning technologies» for future teachers

The online course «Distance learning technologies» for future teachers is held within the framework of the grant scientific project AR09259497 «Improving the system of pedagogical education in Kazakhstan in new conditions: technological and methodological aspects of formation of digital competencies of future teachers in the conditions of distance education in the Republic of Kazakhstan» funded by the Ministry of Education and Science Republic of Kazakhstan (Agreement №190/36-21-23, 15.04.2021 G., decision of the NCS: Protocol No.3, 02/18/2021)

Students of pedagogical educational programs of Kazakh and Russian universities took part in the online course.

The number of respondents who took the online course is 50-100.

The purpose of the online course is to increase the digital competencies of future teachers studying in pedagogical educational programs, develop the creative competencies of future teachers, and improve the quality of teaching staff training.

Objectives of the online course:

- to disclose the content of the development and formation of personality in the context of digital pedagogy;
- to identify the role of the teacher and student in the digital environment and to reveal the competencies of the smart teacher in the digital society;
- to familiarize future teachers with the digital educational environment, trends in the development of digital education, patterns, principles and features of distance learning technologies;
- to form the digital and technological competencies of future teachers in the context of distance learning so that they can work effectively on digital educational platforms [120].

The content of the online course «Distance learning technologies» for future teachers with a volume of 72 hours is presented in Table 9.

1-module. Digital transformation of education in the XXI century

Theme 1. Factors of formation and development of the digital educational process

Factors influencing the formation of the digital educational process in the field of professional education and training. New requirements for professional personnel in the digital economy. New digital technologies that form the digital environment and develop in that environment. The emergence of a new generation of students with a special socio-psychological character – the digital generation.

Types of digital technologies: artificial intelligence; virtual reality technologies; chatbot technology; digital footprint and Big Data; augmented reality technology; electronic identification and authentication technology blockchain technology; digital technologies for specialized educational purposes - edtech (educational technologies).

Factors affecting the informatization of education: internal factors, external factors; political factors; economic factors; technological factors; socio-cultural factors.

Prerequisites that informatization of education will help reduce inequality in obtaining quality education.

Table 9 – The content of the online course «Distance learning technologies»

№	Content	Number of hours
1	1 module. Digital transformation of education in the XXI century	16
1.1	Factors of formation and development of the digital educational process	4
1.2	Trends, patterns and principles of digital education development	4
1.3	Digital Didactics and Cyberpedagogy	8
	2 module.Distance learning: development and prospects of Digital Pedagogy	20
2.1	Digital society and teacher personality	4
2.2	SMART education in the information society	4
2.3	Digital transformational education: features of distance learning	4
2.4	Mobile learning: advantages and disadvantages	4
2.5	Steam - education	4
	3 module.Distance learning technologies: digital educational platforms and tools	36
3.1	Digital educational platforms	16
3.2	Cloud services for education	2
3.3	Realization of assessment of educational achievements	2
3.4	Creating and editing visual content	6
3.5	Massive open online courses	4
3.6	Electronic textbook: features and possibilities	2
3.7	Portfolio-a tool for assessing students' academic achievements	4
	Total number of hours	72

Contradictions affecting the factors of development of digital didactics.

Recommended literature

1. Palfrey J.Children of digital age. - M.: Eksmo, 2011. - 368 p.

2. Voinova O.I., Pleshakov V.A. Cyberontological training in education: The monograph /Ed. V. A. Pleshakova. - Norilsk: NII, 2012 - 244 p.
3. Ivanko A.F., Ivanko M.A., Vorontsova S.S. New educational technologies//Young Scientist. –2017. –№49. –p. 364-368 .-URL <https://moluch.ru/archive/183/46993/>.
4. Nicolas Negroponte. Media Lab MIT «One Laptop per Child», 2002
5. The Role of Education Quality in Economic. Growth». –Policy Research Working Paper 4122 . – Hanushek, Wößmann, 2007.

Theme 2. Trends, patterns and principles of the development of digital learning

Laws of digital learning (didactic): increasing the role of the learning principle and the independence of the student's learning; the results of digitalization of the basic process depend on its effectiveness; increasing the role of active and interactive forms of learning in the conditions of digitalization of the educational principle; transformation of the educational principle in the process of digitalization; the fact that technologies and methods of teaching on the principle of digital education are selected depending on the content of learning; visual-figurative and visual-logical thinking of the global process in digitalization; the digitalization of vocational education and training contributes to the reduction of the duration of training courses.

Characteristics of the formation of a digital society: the digital economy and new requirements for personnel that form it; new digital technologies that create and develop a digital environment; digital generation (a new generation of students with special socio-psychological characteristics).

Digital «advanced», «smart», «SMART» technologies.

Didactic characteristics of digital technologies: autonomy; interactivity; global; hypertext; subculturalism; multimedia (multimodal).

Digital technologies used in the education system: telecommunication technologies; digital footprint; artificial intelligence (machine intelligence, AI); electronic identification; authentication; cloud technologies; blockchain; digital technologies.

Principles of digital education: the principle of personalization; the principle of dominance of the learning principle associated with continuity with the didactic principles of education and development; principles of purposefulness; principles of flexibility and adaptation; the principle of success in learning; principles of learning in cooperation and interaction (principles of interactivity); the relationship of learning with life.

Features of the continuity of teaching with the traditional didactic principles of the relationship with life.

Recommended literature:

1. Bakhtiyarova G. R. The ways of using interactive methods in creating educational design in the digital age of Kazakhstan // "Pedagogical series" Bulletin of the Abai Kazakh National Pedagogical University . –2020. –№1(65). –65-71 P.
2. Slinkin S. V. Didactics of modern higher professional education: a teaching post for institutes and faculties to improve the qualification/Slinkin S.V. –Tobolsk: tgspa im. D.I.Mendeleeva, 2014. -315 p.
3. Khutorskoy A.V. Modern didactics. 2-edition, reworked /A.V. Khutorskoy. - M.: Higher School, 2007. – 639 p.
4. Petrova E. V. Digital didactics: projecting the process of education and its maintenance // Modern pedagogical education. -2018. - № 4. - pp. 87-91.

Theme 3. Didactic digest of technologies and methods of cyberpedagogy: Digital didactics and Cyberpedagogy

Digital didactics is a branch of pedagogy, a scientific discipline on the organization of the educational process in a digital society.

Digital didactics is a branch, scientific direction of pedagogy, the subject of which is the mechanism of the educational process in the context of digital transformation of the educational process, the transition to a digital economy and a network society.

The essence of the concept of «Digital didactics». The subject of digital didactics is the organization of the student's activities in a digital educational environment.

The basic concepts of digital didactics are digital educational technologies and digital educational products, resources and services (EdTech), etc.

The goal of transforming the educational process is to create a flexible and adaptable education system that meets the demands of the digital economy, the interests of all participants in educational relations and ensures the most complete use of the didactic potential of digital technologies.

Digital pedagogical technologies and teaching methods: distance learning; mobile learning; virtual excursion; multimedia-essay; multimedia lesson; online testing; network (telecommunications) training project; micro-training or «training in microdoses».

Purpose of transformation of digital technologies – adaptation of the set pedagogical tasks for the most effective solution of them.

Specificity of the digital educational process: convergence or complete integration of pedagogical and digital technologies.

Didactic principles of the digital educational process: the principle of dominance; the principle of individualization; the principle of expediency; the principle of increasing complexity; the principle of practice orientation; the principle of learning in cooperation and mutual cooperation; the principle of embedded assessment; the principle of flexibility and adaptation; the principle of saturation of the educational environment; the principle of polymodal (multimedia).

The emergence of cyberpedagogy. The founders of the cyberontological concept were: V.A.Pleshakov, N.A.Obydenkov, N.A. Slyadnev, E.S.Larin, V.S.Ovchinsky, J.Palfrey et al.

The essence of the concepts of «Cyberspace», «Cybervirtual space», «digital environment», «digital educational environment», «digital educational space».

Directions of cyberpedagogy technologies: network and virtual learning; self-education; organization of the processes of design, formation and assimilation of education.

Personalized educational process. Pedagogical requirements for the individualization of learning: the creation of individual educational routes; the creation of an educational environment for independent work, self-education and self-development of students; the use of distributed forms of the educational process in the educational network; the use of adapted learning technologies.

Pedagogical technologies necessary to create a digital educational process of education and training: technology of remote (online) learning, including the use of adapted learning systems; technology «Blended learning», including «flipped learning»; technology for organizing project activities of students, including telecommunication projects.

Leading functions of a teacher in the context of digitalization.

Poster (in German – «plakat») – an eye-catching picture, a type of graphics on a large sheet with a short explanatory text, performed for propaganda, advertising, informational or educational purposes.

An interactive poster is a tool for presenting information that can actively and in different ways respond to user actions. Elements of an interactive poster.

Interactive table-several multilevel information blocks located one after the other on a slide, combined thematically.

Interactive reference notes. Multi-level didactic games. Interactive infographics. Interactive wall (I-wall). Interactive channel.

Recommended literature

1. Pleshakov V.A. Prospects of cyberontological training in modern education //Bulletin of the Moscow City Pedagogical University. Series: pedagogy and psychology. –2014. –№ 3(29). – pp.1-18.

2. Pleshakov V.A. Personality of virtual computer socialization// Problems of pedagogical education. SB. nauch. St.: VIP. 25; Ed. by V.A. Slastenin, E. A. Levanova. - M.: MPGUMOSPI, 2006. - pp. 23-33.

3. Larina E. S. Russia and the digital environment: working tetr/ E.S. Larina, V.S.Ovchinsky [electronic resource]. -Access mode: URL: <https://russiancouncil.ru/common/upload/WP15Cybersecurity-Ru>.

4. Ivanko A.F., Ivanko M.A., Vorontsova S.S. New educational technologies//Young Scientist. -2017. -№49. - p.364-368. -URL [ttps:// moluch. ru/archive/183/46993/](https://moluch.ru/archive/183/46993/).

Module 2. Development and prospects of digital pedagogy

Theme 1. Digital society and teacher personality. Development and formation of personality in the context of digital pedagogy

Priority directions of the state program «Digital Kazakhstan», approved by the resolution of the Government of the Republic of Kazakhstan dated December 12, 2017 No.827.

The concepts of digital education in the development of personality: V.I.Blinov, I.S.Sergeev, e. yu.

The essence of the concepts of «digital literacy», «digital competence».

Directions of the digital education system: digitalization of the educational process; digital educational content; digitalization of educational management.

Digital literacy skills of the teacher. Hardware Skills are «hard» skills associated with hardware or digital devices. Software Skills – «soft» skills of interaction with software for working with information. Metaskills – meta-skills for the successful use of «soft» and «hard» skills.

Digitalization of education management. The essence of phrases and concepts «Generation Z», «digital generation», «network generation», «digital aboriginal» («digitalnatives»).

A representative of the digital generation is a person who is in demand in a digital society, has socially and professionally important competencies.

The didactic nature of digital technologies (interactivity, multimedia, hypertext, personality, subculture, etc.).

Advantages of the educational process in a digital educational environment: increasing the choice of means, forms and pace of studying educational areas; providing access to various information; increasing students' interest in the subjects taught through a visual, interactive form of presentation of educational material; increasing motivation for independent learning, developing critical thinking; developing students' learning initiative, abilities and interests, etc.

Principles of pedagogy of cooperation in education: democracy (freedom of choice, equality); openness (freedom of criticism); alternativeness (multiplicity of methods of activity); dialogue; reflexivity (knowledge of goals, content, methods of activity).

Roles of participants: transition from an explanatory-illustrative method of learning to an action-based method; transformation of the student into an active subject of motivated conscious educational activity. Organizational and coordinating functions of the teacher in educational activities. Features of the digital generation.

Recommended literature

1. Khutorskoy A.V. Modern didactics. 2-development, reworked /A.V. Khutorskoy. - M.: Higher School, 2007. - 639 p.
2. Petrova E. V. Digital didactics: projecting the process of education and its maintenance //Modern pedagogical education. –2018. –№ 4.

3. Helen Beatam, Ron Sharp. Re-study pedagogy in the digital age. Training design in the XXI century. -Almaty: public fund «National Translation Bureau», 2019. -328 p.

4. Karaulbayev S. K., Artyukhina M., Zhumabaeva A.M., Muratova G.I. The borders of internet pedagogy development //Pedagogy and psychology. Bulletin of the Abai Kazakh National Pedagogical University. – 2020. - №3. -p. 2-10.

Theme 2. SMART education in the information society

Education is a strategic resource, the intellectual capital of the state, achieved and self-developing.

Smart education is self-directed, motivated, flexible, technological learning based on self-management, evidence-based, flexible, resource-enriched, and technological teaching methods.

Smart education is a creative educational environment that combines the efforts of professionals.

Smart-training the meaning of the abbreviation smart – is: «self – directed»– self – directed; «motivated» – motivated; «adapted» – adapted; «resource enriched» - enriched with resources; «technology-embedded» - integrated into technology.

The three main elements of smart-learning: smart-environment; smart pedagogy; smart is a student.

Four stages of smart modeling: substitution; augmentation; modification (Modificat); reconstruction (Redefinition).

Information competence is an integral characteristic associated with the experience of activities in information reality, ways of interacting with techniques and technologies for the implementation of general and professional information needs of the individual.

The essence of the concepts of «information competence of an individual», «digital competence». Scientists who specifically studied the formation of information competence of the individual: G.U. Soldatova, E.Yu.Zotova, M.Lebeshev, V.Shlyapnikov, T.A.Nestik, E.I.Rasskazova, O.V.Kalimullina, I.V.Trotsenko, G.A.Afanasyeva, A.A.Zyabkov and others.

Types of digital competence: information and media competence; communicative competence; technical competence; consumer competence.

Smart-competence in pedagogical science is an unstable and little – studied phenomenon. Smart-competence-the ability of a smart person to master smart-technologies for searching, analyzing information and creating innovations that interact in professional online communities.

A component of the smart competence of a teacher is digital competence.

Principles of introducing smart learning into the teacher training system: compatibility; intelligence; economy; periodicity; creativity.

Communication is the ability to communicate directly, the speed of presenting information, remote control of the state of the process.

Smart-prerequisites for training: a clear strategy; stable professional development (teacher, students, etc.); smart-pedagogy and didactics; solving the problem of competence for the knowledge society; generation of educated people; management of the education system; established technical environment.

Creating, disseminating, managing and creating a unified platform for educational content.

Smart learning is a differentiated approach and to promote market expansion through a learning platform that meets the framework of existing teaching methods and the needs of students to personalize, integrate, connect and exchange knowledge.

Smart-learning is self-oriented, motivated, personality-oriented learning with free access to resources using modern technologies.

Recommended literature

1. Matasova O. STEAM-education is being implemented by a rural school in Akmola region, November 18, 2018 [Online]. Available: https://www.inform.kz/ru/steam-obrazovanie-vnedryaet-sel-skaya-shkola-v-akmolinskoy-oblasti_a3459352 [Accessed 11 February 2019].

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Theme 3. Digital transformational education: features of distance learning

XXI-information age the digital education system meets the requirements of the time and the new conditions of human life. Distance learning is a new, progressive form of learning that arose at the end of the last century on the basis of the idea of «open learning» of new information and technological opportunities that arose as a result of the information revolution.

The genesis of the term «distance learning»: «correspondent learning», «independent learning», «homeschooling», «part-time learning», etc.

Distance learning – a set of educational services for the general public using a specialized information educational environment, including the methodology of activity education, methods of intensive education, means of remote exchange of educational information (paper version and electronic media, satellite, television, radio, computer network, etc.)

Features of distance learning. Principles of training in universities: compliance of the content of education in a university with modern and projected trends in the development of Science (Technology) and production (technologies); optimal coordination of General, Group and individual forms of organization of the educational process in universities; orientation of higher education to the development of the personality of a future specialist; compliance of the results of training specialists with the requirements in a specific field of their professional activity, ensuring their competitiveness; rational use of modern methods and means of training at different stages of training specialists.

The principles of distance learning according to the scientist D. M. Jusubalieva: humanization; the principle of primary education; interactivity; the

principle of identification; the principle of individualization; the principle of systematic learning; the principle of openness and flexibility.

Information technologies in the distance learning system: information presentation technologies; information transfer technologies; information storage and processing technologies.

Educational information is knowledge that must be passed on to the student so that he can perform a certain activity in a qualified way. Educational technologies are a set of didactic methods that are used to transmit educational information from its source to the consumer and depend on the form of its presentation.

Information technology is hardware and software based on the use of computer technology that provides storage and processing of educational information, its delivery to the student, interactive communication of the student with the teacher or pedagogical software, as well as testing students' knowledge.

Two types of communication technologies: on-line and off-line.

The main advantage of offline technologies is that they are less demanding on computer resources and the bandwidth of communication networks. Advantages of offline technology.

When considering options for the delivery of educational information, three main technologies of distance learning are considered: case technology, telecommunications technology, network technology.

Case technology is a distance education technology based on the provision of information educational resources to students in the form of a specialized set of educational and methodological complexes for independent study using various types of information carriers.

Network or internet technology is a distance education technology based on the use of global and local computer networks to ensure students' access to information educational resources and to form a set of methodological, organizational, technical and software tools for the implementation and management of the educational process, regardless of the location of its subjects.

Telecommunication (information – satellite) technology-distance education technology based on the priority use of space-satellite means of data transmission and television broadcasting, as well as global and local networks to ensure students' access to information educational resources presented in the form of digital libraries, video lectures and other teaching aids.

General principles of distance learning: openness; modularity; competence; flexibility; adaptability; integration; scalability; expansion; asynchronous; parallelism; sociability; individuality of learning; quality of learning; profitability.

Distance learning methods: method of teaching (self-learning) through the interaction of a student, consultant or tutor with educational resources with the minimum participation of teachers, tutors, consultants, scientific and technical managers; individualized teaching method; method based on the teacher's presentation of educational material (in this case, students do not play an active role in communication); method characterized by active interaction; research method of teaching.

Distance learning is a type of training based on the educational interaction of teachers and students located at a distance from each other, carried out with the help of telecommunications technologies and internet resources. Distance learning is characterized by all components of the training system inherent in the educational process: goals, content, organizational forms, teaching tools, a system for monitoring and evaluating results.

Features of distance learning: a new role of a teacher; flexibility; modularity; economic efficiency; specialized control of the quality of education.

With distance learning, the basis of the educational process is independent work in a convenient place, pace and time. Distance learning tools. Advantages of distance learning

Web classes are remote classes, conferences, seminars, business games, laboratory work, workshops and other forms of training sessions conducted using telecommunications tools and other capabilities of the internet.

Teleconference-carried out on the basis of mailing lists using e-mail.

Interactive communication is the interaction of students with other participants of the webinar through software.

Difficulties in adapting to the online format: low computer literacy; technical problems; ignorance of the basics of time management; weak self-motivation; lack of social interaction

Recommended literature

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Theme 4. Mobile learning: advantages and disadvantages

Mobile learning, also known as M-learning, is a new way to access learning content through mobile devices.

M-learning in corporate education. Mobile learning in corporate education. Interaction during the lesson.

Mobile learning structure: mobile learning applications; infrastructure for mobile users; mobile protocol; mobile network infrastructure.

Features of mobile technologies. Features of mobile learning. Mobile learning technologies: MPEG, Wi-fi, LTE, HTML, Socratic, Kahoot, Quizizz, Zoom, Skype, Microsoft Teams, Google Meet, WizIQ, Google Classroom, Nearpod, Learning Apps, Wizer.me, EdApp educational platform, Daryn.Online, Edus system, Bilimland, Diary.

Socrative is an online service for conducting in-class testing in educational institutions.

Kahoot is a learning platform in the form of a game, which is used by schools and special secondary, higher educational technology.

Quizizz is a platform for learning in a playful way. Features of the Quizizz platform.

Advantages and disadvantages of mobile technologies. Tools used in mobile learning.

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Theme 5. Steam-education

What is STEAM-education? STEAM is an educational subject that aims to instill in children from an early age an interest in art and science and a lifelong love.

Without creativity, it is impossible to generate new scientific ideas and discoveries. Steam – the concept of Arts (Art) in education-creativity.

STEAM is a new way to develop the skills necessary for the XXI century.

Steam is the importance of education.

XXI ғасыр дағдылары немесе 4К дағдылары: коммуникация; кооперация; креативтілік; сыни ойлау.

XXI century skills or 4C skills: communication; cooperation; creativity; critical thinking.

STEAM is a new educational technology that includes several subject areas as a means of developing critical thinking, research competencies and teamwork skills.

The abbreviation STEAM is pronounced as follows: **S**-science, **T**-technology, **E**-engineering, **A**-art and **M**-mathematics (natural sciences, technology, engineering arts, creativity, mathematics).

Benefits of STEAM education. Activities aimed at the development of conceptual, methodological and methodological support for the steam approach in education. Initial professional orientation.

Within the framework of the STEAM – education concept, a importance of additional education.

Advantages and disadvantages of STEAM-education. The following advantages of steam education: critical thinking; creativity; collaboration.

Recommended literature

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2. STEM education in the world and Kazakhstan. <http://otbasym.kz/category/obrazovanie>
3. Practical study of STEM education in Kazakhstan: the current state and prospects for development. <https://courses.caravanofknowledge.com/course/view.php?id=446>

Module 3. Learning technologies in a digital environment: digital educational platforms and tools

Theme 1. Digital educational platforms

Digital educational platforms are the main one-component part of the e-learning system.

The most popular digital educational tools are: Edmodo; Socratic (Socratic); project (Projeqt); thinglink; TED-Ed; CK-12; ClassDojo; EduClipper; story bird(Storybird); Animoto (Animoto); Kahoot, Zoom.

Zoom is a platform for holding video conferences, webinars and other similar online events. Zoom features.

The division into session halls is the separation of students in the same way as in offline lessons and the assignment of individual tasks. Adding virtual backgrounds to create a good atmosphere in an online lesson.

Skype is software for communicating with the world.

Microsoft Teams is a corporate platform that integrates chat, meetings, notes and applications in the workspace developed by Microsoft. Create a Microsoft account.

Microsoft Team features. Teams features. Google Meet (formerly Hangouts Meet) is a business – oriented version of the Google Hangouts platform that fits into a company of any size and allows you to conduct video conferencing, remote conversations, webinars, virtual trainings, remote interviews.

Google Meet features: unlimited number of meetings; messaging during; management tool for meeting organizers;

preview screen and customization of video and sound; screen display to participants; compatibility with different devices; integration with Google and Microsoft Office applications; full control.

Wiziq is a platform where the state-of-the-art WizIQ virtual laboratory, specially designed for the educational field, offers all the functions and tools necessary to simulate face-to-face classes in a group.

Google Classroom is a platform that allows you to completely transfer learning online: compose lessons on topics, add materials, give and check homework.

Advantages of Google Classroom: simple customization (configuration); saves time and paper; convenience; effective communication; integration with popular services; accessibility and security.

Nearpod is a platform that allows teachers to create presentations for classes and show them to students right during the lesson.

Learning Apps is an application designed to support the learning process through interactive modules (applications, exercises).

Functional features of Learning Apps models: selection; distribution; consistency; filling; online games; competition-training with students.

Kahoot is a free platform for learning in the form of a game suitable for any academic subject and any age.

Quizizz is an internet tool for evaluating students, very similar to Kahoot.

Wizer.me free, easy-to-use, with tasks and exercises, including a quick tool designed based on a video, designed to quickly create interactive worksheets.

Edapp educational platform. The EdApp educational platform is the leading LMS system used by large and small organizations around the world. EdApp is an educational platform available free of charge to all users, both private and corporate.

Platform «diary». The diary is a single electronic educational environment for teachers.

Platform «Bilimland». Bilimland is a digital education platform based on the advanced achievements of world leaders in e-learning.

BilimLand is a digital education platform created on the basis of the advanced achievements of world leaders in e-learning.

Online Mektep platform. Online Mektep is a platform for students of general education schools in the country, which includes digital educational content in all subjects for grades 1-11 in accordance with standard curricula.

The main idea of the platform is to develop theoretical material for each lesson in the form of summaries, diagrams, intellectual maps, and the practical part of the lesson is given in the form of level tasks, these tasks are a systematic and consistent development of skills necessary for the formation of functional literacy of students.

Online Mektep-contains digital content developed in accordance with standard curricula for students of general secondary schools of the country www.bilimland.kz new module of the educational portal.

«Daryn.online» platform. Daryn.Online is a platform for distance education that allows you to study from highly qualified teachers anywhere, anytime.

EDUS system-e-school-educational platform for schools.

Methodology for using digital educational platforms. Classification of digital educational technologies. Digital literacy. Digital competence. The structure of teacher-student interaction through digital educational tools.

Information and educational portal Kundelik.kz

Kundelik.kz the system is a system of education management in terms of academic performance in secondary education in Kazakhstan. Possibilities of the Kundelik education management system.

Bilimland electronic educational portal. Bilimland is a cypher education system based on the best practices of e-learning leaders around the world.

Educational platform edus.kz. Web.ok.edus.kz -a platform for viewing educational materials and completing homework in distance learning.

Moodle e-learning and testing system. Moodle is a free, open source LMS written in PHP and distributed under the GNU standard Public License. Moodle e-learning and testing system.

EdApp mobile learning management system. EdApp mobile LMS is the new standard for corporate e-learning LMS. Advantages of the EdApp knowledge management system: up-to-date information; quick feedback; request for help.

Edapp course interface. Setting up the EdApp System course.

Pedagogical education portal www.smart-pedagog.kz.

Pedagogical education portal www.smart-pedagog.kz - is an intelligent innovative virtual educational platform that provides access to all educational resources to provide distance learning and advanced training.

Some of the advantages of the portal are: promoting a comprehensive understanding of the subject through interactive teaching methods such as video, audio, etc.; allowing learning everywhere; economical, as the portal offers free learning content; constantly updating content.

www.smart-pedagog.kz 6 blocks of the pedagogical educational portal: «Home page»; «News»; «About Us»; «About the Project»; «Media»; «Online Department».

Digital pedagogical campus. SMART-online pedagogical workshop (pedagogical center). SMART-online pedagogical studio. SMART-online methodical basket. SMART-Online Coaching. SMART-online coworking center. SMART -online virtual laboratory. SMART-online digital content.

Recommended literature

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Theme 2. Cloud services for education

The essence of the concept of «cloud». Google Apps tools: email; calendar; documents; tables; presentations; surveys; disk.

Google Drive is a personal secure data store with access from any device at any time. Advantages of using cloud storage in the educational process. Google Drive interface.

Types of tasks: task; test task; question and answer; material; reuse; topic.

Evaluation criteria. Google tables, Google documents, Google presentations. The main features of Google presentation. Edit slides in their presentations. Google presentation interface.

Google Sites sites.google.com) - a Google service that provides its users with the service of creating sites for free and placing them on the Internet. The process of designing an educational resource. Google Sites installation window.

Differences in digital learning.

ActivInspire is the basis of any training in the XXI century. ActivInspire is a platform designed for classroom use that allows teachers to conduct classes on an interactive whiteboard. Benefits of ActivInspire.

ActivInspire program window. Replaceable ActivPen Pen / Pen. A wireless battery-free pen that provides natural and dynamic interaction with ActivBoards and ActivSlate.

Activtablet is a kind of small A5 format board that connects directly to your computer.

Zoom-platform for online classes. ZOOM is a cloud platform for holding video conferences, webinars and other similar online events.

The main page of the platform. ZOOM application interface for PC. Security settings.

The functionality of the ZOOM application for PC. Features of the ZOOM application: «screen display»; action to split; creating a session hall; conducting a survey; adjusting security settings; conference recording.

Google Meet in distance learning. Google Meet is a video conferencing service that supports desktop display for conference users and participants.

Google Meet service interface. The main advantages of the Google Meet service. Appointment controls.

Webinar is a platform for webinars and online conferences.

Webinar is an IT company specializing in the development and delivery of web and video conferencing services founded in 2008.

Webinar.ru room interface. Appointment controls. Webinar platform online Board.

Cisco Webex Classrooms. Program interface. Cisco Webex Classrooms is a platform that provides intuitive online learning for learners, teachers, and parents.

New features of Webex Meetings: closing the virtual classroom door; formation of groups and subgroups for maximum assimilation of the material.

Setting up group work in Cisco Webex Classrooms. Customize groups.

Advantages of Cisco Webex Classrooms: discipline in the classroom; fill the classroom with energy; learn in your own rhythm; communicate with classmates; communicate with teachers online; control homework, simplicity and security; work with many tools.

Skype web tool for communication. Skype is a free web communication tool that allows people to conduct video conferencing, make calls, and instant messaging.

The main page of the program: «chat», «calls», «contacts», «notifications».

Skype interface. Types of Skype chat. Add contacts to the group.

Functions and features of the program: calls; notification; free video calls; screen display; group conversations; files.

Microsoft teams corporate platform. Microsoft Teams is a unified communication and collaboration platform that performs regular conversations, video meetings, file storage, and application integration in the workplace.

Microsoft Teams main page. Microsoft Teams conference window. Microsoft Teams new meeting installation window. Calendar of Microsoft Teams meetings.

WizIQ Virtual Classroom. The virtual classroom is a tool for online conferences designed specifically for conducting online classes.

WizIQ Virtual Classroom is a full-fledged collaborative software for agencies and startups.

Benefits for teachers: using a whiteboard to write and draw; using advanced mathematical, text, and graphic tools; sharing a variety of content during sessions, including text documents, spreadsheets, PDFs, slides, and YouTube videos.

WizIQ virtual class Media player. Create a WizIQ survey.

Recommended literature

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Theme 3. Implementation of assessment of educational achievements

Assessment of the student's work. Formative assessment. Interactive tests. Online whiteboard. Testing. Multimedia materials. Selection of software tools.

Nearpod. Nearpod is a digital tool based on a website and applications, a platform that allows teachers to create interactive slide learning resources that students can interact with and learn.

The main page of the service. Advantages of Nearpod: training; visibility.

Features of Nearpod: slides; quiz; open questions; collaborative work panel; 3D modeling.

Content creation window: match; entering web links in PhET Simulations.

Online Test Builder Onlinetestpad.com. Onlinetestpad.com - a multifunctional constructor, with the help of which you can create tests, questionnaires, crosswords, dialogue simulators, etc.

Onlinetestpad.com types of questions. Types of answers in a crossword puzzle: single choice; multiple choice; filling in spaces; setting a match.

Onlinetestpad.com constructor.

Quizizz.com online tool for quizzes. Quizizz is primarily an online quiz tool that works on the principle of entertainment.

Quizizz.com. The quiz code entry window. Quiz differences.

LearningApps. LearningApps.org -a free online service created in Germany in 2012 that allows you to perform interactive exercises for testing knowledge.

LearningApps.org types of tasks. Methods for working with LearningApps. LearningApps training editor interface, «Aquarium» training. A set of ready-made exercises. Window for sending a link to the material. In the «Tools» section, additional functions of the service: voting; chat; calendar; notepad; bulletin board.

Jamboard - interactive online board from Google. Google Jamboard is a service in the form of an interactive whiteboard, a platform that helps you easily communicate your ideas by displaying them on jamboard and working on a simple whiteboard and completing interesting creative solutions together and in real time.

Jamboard project.Jamboard toolbar.

Platform for creating Padlet online boards

Padlet is a platform for creating boards for posting content. Padlet platform models. The window for inviting new participants.

Padlet features: create interactive whiteboards; collaborate and edit; brand boards; add media files, links and documents; access control; ready-made templates.

Wizer.me: interactive worksheets. Wizer.me -this is a community of teachers who create innovative educational resources for classes in an open information educational environment.

Wizer.me the home page. Wizer.me types of Service questions.

Recommended literature

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Theme 4. Creating and editing visual content

«Inverted class». Video lessons. Video length. Video Volume.

PowerPoint. Interactive videos. Export a presentation in the form of a video in PowerPoint. Creating a video from a Power Point presentation.

Videos created in PowerPoint are a combination of video sequences that show slides.

YouTube and voice recording representing the sound path. The «Animation» tab. Power Point «Animation» tab.

Screencasting-Camtasia Studio. Video editing. Camtasia Studio is a screencasting program with post-production editing. Add materials window. Add materials to the project. Placement of materials on the tracks for installation. Additional video editing options.

Adobe Premiere Pro. Premiere Pro is the leading professional video editing software. Adobe Premiere Pro workspace.

Features and benefits. Adobe Premiere Pro equalizer.

Color change in Adobe Premiere Pro. Autoplay media studio. AutoPlay Media Studio is a platform for creating multimedia projects. Ready-made templates in AutoPlay Media Studio. AutoPlay Media Studio features.

Recommended literature

1. Helen Beatam, Ron Sharp. Re-study pedagogy in the digital age. Training design in the XXI century. - Almaty: public fund «National Translation Bureau», 2019. – 328 p.

2. Petrova E. V. Digital didactics: projecting the process of education and its maintenance // modern pedagogical education. – 2018. – № 4. – p. 37–42.

3. Nurbekov B. Zh. Theoretical and methodological foundations of the formation of professional competence of teachers in distance learning. Diss prepared to obtain the degree of Doctor of Pedagogical Sciences. Abstract. – Almaty, 2010. – 51 p.

4. Jusubalieva D. M. Formation of the bases of information culture of students in the conditions of distance learning. – Almaty: Science. – 199. –222 p.

5. Buzaubakova K.D., Nurmanalieva U.T. Technological and methodological aspects of the formation of digital-creative competencies of future teachers in the context of distance education of the Republic of Kazakhstan// Bulletin of the Al-Farabi Kazakh National University. Series «Pedagogical Sciences».– №3(68). – 2021. –pp.71-82.

6. Aimaletdinov T. A., Baymuratova L. R., Zaitseva O. A., Imaeva G. R., Spiridonova L. V. Digital Diploma of Russian teachers. Readiness to use digital technologies in the educational process. – M.: Izdatelstvo Nafi, 2019. – 84 p.

7. The Digital Competence Framework [electronic resource].-2008. date update:13.12.2018.URL: https://ec.europa.eu/jrc/en/digcomp/digital_competence-framework (Date image: 03.01.2023).

Theme 5. Massive open online courses

A massive open online course is an online course that an unlimited number of participants can take. MOOC is a means of communication between students and teachers, which includes both traditional materials and theoretical text materials, such as video lectures, providing interactive forms of presentation and consolidation of the material.

The development of educational technologies. The concept of «massive open online course».

Coursera. Coursera is an online learning platform founded by two computer science professors at Stanford University.

Course catalog window on the Coursera platform. Structure of courses on the Coursera platform.

EdX is a provider of massively open online courses. EdX is an American mass online course provider developed by Harvard and the Massachusetts Institute of technology. EdX platform. National Open education platform moocs.kz. Moocs.kz - National Open education platform of Kazakhstan (KABBUP).

Moocs.kz catalog of courses on the platform. Open University of Kazakhstan openu.kz. Open University of Kazakhstan is an educational platform that offers free of charge the best textbooks from the world's leading universities on History,

Philosophy, Sociology, Psychology, Anthropology, cultural studies, religious studies, linguistics, Innovation, Media, Economics, Management and business.

Open University of Kazakhstan openu.kz. [Openu.kz](http://openu.kz) course interface on the site.

Dulaty University moocs.dulaty.kz platform. Taraz regional university named after M.Kh.Dulaty moocs.dulaty.kz the platform is a platform for creating and conducting mass open online courses for teachers and staff of Dulati University.

[Moocs.dulaty.kz](http://moocs.dulaty.kz) the «drop-down list» question type on the platform. «Export»page for online courses. Comparative characteristics of popular mooc.

Recommended literature

1. Helen Beatam, Ron Sharp. Re-study pedagogy in the digital age. Training design in the XXI century. –Almaty: public fund «National Translation Bureau», 2019. – 328 P.

2. Petrova E.V. Digital didactics: projecting the process of education and its maintenance // modern pedagogical education. – 2018. – № 4. – p. 37– 42.

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7. The Digital Competence Framework [electronic resource]. –2008. date update:13.12.2018.URL: https://ec.europa.eu/jrc/en/digcomp/digital_competence-framework (date image: 03.01.2023).

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1. Helen Beatam, Ron Sharp. Re-study pedagogy in the digital age. Training design in the XXI century. –Almaty: public fund «National Translation Bureau», 2019. – 328 p.

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to obtain the degree of Doctor of Pedagogical Sciences. abstract. –Almaty, 2010. –51 p.

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6. Aimaletdinov T. A., Baymuratova L. R., Zaitseva O. A., Imaeva G. R., Spiridonova L.V. Digital Diploma of Russian teachers. Readiness to use digital technologies in the educational process. –M.: Izdatelstvo Nafi, 2019. – 84 p.

7. The Digital Competence Framework [electronic resource].-2008. date update:13.12.2018.URL: https://ec.europa.eu/jrc/en/digcomp/digital_competence-framework (Date image: 03.01.2023).

Theme 6. Electronic textbook: features and possibilities

The preparatory stage of using an electronic textbook in the educational process. The main stage of using an electronic textbook. The final stage of using an electronic textbook in the educational process.

The professional competence of the future teacher is the unity of his theoretical and practical training, which achieves high results for the implementation of pedagogical activity.

The main feature of the electronic textbook of the scientist K.D. Buzaubakova «Pedagogy» for students of a Pedagogical University.

Advantages of the formation of digital competencies of future teachers when using the electronic textbook «Pedagogy» by K. D. Buzaubakova.

Service features of the electronic textbook. Main technical characteristics. Main menu of the electronic textbook: «Theory»; «Bilgen marzhan»; «Ulygan ulagat»; «Glossary»; «Photo Gallery»; «Literature».

Block «Theory» of the electronic textbook. «Topic» part of the block «Theory» of the electronic textbook.

Block «Test» of the electronic textbook. Blog of the electronic textbook «Blitz tour». Blog of the electronic textbook «Blitz tour». Block «Video Lesson» of the electronic textbook. Block of the electronic textbook «pedagogical situation». Block of the electronic textbook «pedagogical crossword puzzle».

Block of the electronic textbook «creative task». Blog of the electronic textbook «Bilgen marzhan».

Recommended literature

1. Helen Beatam, Ron Sharp. Re-study pedagogy in the digital age. Training design in the XXI century. –Almaty: public fund «National Translation Bureau», 2019. – 328 p.

2. Petrova E.V. Digital didactics: projecting the process of education and its maintenance //Modern pedagogical education. – 2018. –№ 4. – p. 37–42.
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4. Jusubalieva D. M. Formation of the bases of information culture of students in the conditions of distance learning. –Almaty: Science. –199. –222 p.
5. Buzaubakova K.D. Pedagogy. Electronic textbook. –Taraz: IP «Beisenbekova A.Zh.»,2022. <https://cloud.mail.ru/public/yNJ3/UmAWNQXXU>
6. Buzaubakova K D. Features of the use of the electronic textbook «pedagogical skills» in the formation of information competencies of future teachers//science and life of Kazakhstan. –№7. –2020. – 90– 94p.
7. Buzaubakova K. D. Effective use of the electronic textbook «Innovative technologies in education» in the formation of creative competencies of the future teacher. Bulletin of The Academy of Pedagogical Sciences of Kazakhstan. – № 4. – 2017 (78). – 58-65 p.
8. Buzaubakova K. D. Electronic textbook «Pedagogy» //Dulaty international collection of pedagogical readings «Pedagogical education – the basis of prosperity and stability of the country: new opportunities and modern trends». – Taraz: TarSU, 2022. –461–463 p.
9. The Digital Competence Framework [electronic resource].-2008. date update:13.12.2018.URL: https://ec.europa.eu/jrc/en/digcomp/digital_competence-framework (Date image: 03.01.2023).

Theme 7. Portfolio-a tool for assessing students' academic achievements

The portfolio method (from Italian: portfolio – «portfolio», from English – a folder for documents) is a modern educational technology based on the method of realistic assessment of the results of educational and professional activities.

Purpose of the portfolio. Features of the portfolio.Types of portfolios.

Portfolio use technology. General requirements for portfolio design. The main elements of the portfolio. Portfolio structure.

Eportfolio-electronic portfolio. In education, an electronic portfolio (EP) is a set of students' work that can promote learning by allowing them to organize, archive, and display their work.

The electronic portfolio is a tool for the formation of information and communication competencies of students.

An EP is a collection of professional work samples organized in a certain way. The main components of EP. Features of the EP.

Eportfolio.kz registration window on the portal. Types of electronic portfolios: developing electronic portfolio; evaluation portfolio; showcase portfolio.

The main functions of an electronic portfolio in education. Requirements for the structure of an electronic portfolio. Required documents in the compilation of

electronic portfolio: portfolio of documents; portfolio of independent work; portfolio of reviews.

AutoPlay Media Studio is a program that creates an automatic disk boot. Toolbars of AutoPlay Media Studio. Requirements for installing AutoPlay Media Studio on a computer.

AutoPlay Media Studio program window. Working with the AutoPlay program. Application installation action. Open the program. File menu. Save the project. Open the program. Creating a new project. Toolbar. Creating an electronic portfolio in the AutoPlay program. Select the create a New project action. Select the button Shop program. Opening an electronic portfolio.

Recommended literature

1. <http://edunews.kz/lentnews/1093-azastanda-bilimland-platformasyny-cifrlly-blm-beru-resurstary-tegn-olzhetmd-boldy.html>

2. Meirambek A., Tokpanov E. A., Bilibayeva Zh. T., Mukhitdinova R. A. Methods of using modern electronic educational resources for the control of the results of knowledge, received students on the educational and scientific basis in the conditions of distance learning //Materials of the Republican conference the 1150th anniversary of the birth of the great thinker «Second teacher of the World», Abu nasyra Al-Farabi. - Almaty, 2020. - P. 117-122.

3. Tanabayeva A.M., Zheksembayeva R. Zh. The role of technology: creation of electronic educational courses with the help of an open platform Moodle for remote forms of training and as support for basic forms of training in computer science and other disciplines//Materials of the Republican scientific and practical conference «youth and science in the new world», April 7-8, Part 2. – Taldykorgan, 2016. – pp.314– 317.

4. Platforms for creating digital educational resources. <https://melimde.com/cifrlly-bilim-resurstarin-jasau-platformalari.html>

5. Theoretical justification of the electronic portfolio <https://melimde.com/elektrondi-portfolioni-teoriyali-negizdemesi-elektrondi-portfo.html> <https://bilimdiler.kz/ustaz/161-malm-portfoliosyny-rylymy.html>

6. Software for creating an electronic portfolio. <http://vkmonline.com/blogs/post/984559>

7. Creating an electronic portfolio in the Google Sites application. <https://212.154.226.147/uploads/850814400612/f616a5954792530.pdf>

Table 10 provides the content of the tasks of the online course.

Course electronic materials or a multimedia package of the discipline, a list of technologies used, interactive methods, innovative practices:

1) YouTube channel Klara Buzaubakova;

2) https://www.youtube.com/channel/UC0LuWN6UZBY2wQ4_KljT60g.

For the formation of digital competencies of future teachers in Kazakhstan in the new conditions, a digital pedagogical hub (pedagogical campus) should be created as an innovative virtual educational platform that provides access to all digital educational resources in pedagogical universities.

The competence of teachers in the use of digital technologies is manifested not only in their ability to use technology in the educational process, but also in their approach to cooperation and communication with colleagues, teachers, the scientific community and other stakeholders: the ability to integrate innovation into their practice; the ability to professionally improve and develop themselves [120;200].

The digital competence of future teachers is a set of skills in the use of information and communication technologies and digital media in the process of setting and solving tasks related to the processing and functioning of this information, training, socialization and obtaining the necessary knowledge to expand available opportunities.

Table 10 – Content of tasks of the online course

№	Task	Form
1	Make a comparative SWOT analysis of the intensive impact of the digital educational process on the innovative and industrial development of the economy of the Republic of Kazakhstan	Making a SWOT analysis
2	Develop a poster on the topic «The digital technologies used in education»	Preparing a poster
3	Preparation and protection of an interactive poster on the topic «Technologies used in the digital educational process»	Preparing an interactive poster
4	Create an interactive poster or write an essay on the topic «Digital generation»/»Creative educator in a digital world».	Interactive poster/essay
5	Create a «SMART teacher in a digital environment» model.	Scientific project, presentation
6	Study the most important problems of distance learning and solutions	Online-discussion
7	Make a SWOT analysis on the topic mobile learning technologies: advantages and disadvantages	Making a SWOT analysis
8	STEAM education: prepare an interactive poster on the topic «Advantages and disadvantages».	Preparing an interactive poster
9	Digital educational platforms: 1) Zoom possibilities 2) Skype possibilities 3) Microsoft Team possibilities 4) Google Meet possibilities 5) Google Classroom features 6) Kahoot possibilities 7) Benefits of the EdApp educational platform 8) Features of the online Mektep platform 9) «Daryn.advantages of the "online" platform 10) Kundelik.kz features of the information educational portal 11) Features of the electronic educational portal Bilimland 12) Edus.kz advantages of the educational platform 13) The essence of the Moodle e-learning and testing system 14) Advantages of the pedagogical education portal www.smart - pedagog.kz	Presentation
10	Cloud technologies: 1) Advantages of the ZOOM platform. 2) Advantages of the Google Meet platform.	Presentation

	3) Advantages of the Webinar platform. 4) Cisco Webex Classrooms platform features. 5) Features of the Skype platform. 6) Advantages of the Microsoft teams platform.	
11	1) Nearpod features. 2) Onlinetestpad.com features of the online test builder. 3) Quizizz.com features of the online tool for quizzes. 4) Quizizz.com the value of the compiler. 5) Jamboard interactive online board features. 6) Padlet.com features of the platform for creating online boards.	Presentation
12	Features of creating a video from a Power Point presentation. Camtasia Studio features	Cross - discussion
13	1) Features of the Coursera platform. 2) EdX platform features. 3) Moocs.kz opportunities of the National Open education platform. 4) Openu.kz features of the Open University of Kazakhstan. 5) 5. Dulaty University moocs.dulaty.kz the essence of the platform.	Presentation
14	Features of the electronic textbook. Features and advantages of the electronic textbook «Pedagogy» by the scientist K. D. Buzaubakova.	Presentation
15	Digital educational platforms: features and opportunities	Online-discussion

World experience shows that even in the course of distance learning, there is a full opportunity to receive innovative knowledge and improve professional skills. Distance learning – training carried out using information and communication technologies, telecommunication means in the case of indirect (remote) or incomplete indirect mutual educational work activities of a student and a teacher.

Digital technologies make it possible to develop existing methods for monitoring and assessing the level of knowledge of future teachers and create new, more advanced modern methods. In addition, by analyzing a lot of information about students and their activity in the digital environment, the university teacher will be able to provide him with sufficient assistance, and the future teacher will be able to work independently in the digital environment.

In the context of distance learning, there is an opportunity to additionally develop and determine the digital competencies of future teachers, namely:

- 1) teaching students and colleagues the possibilities of digital communication;
- 2) development of skills in creating and exchanging materials with teachers in a digital environment;
- 3) use of digital content to create educational material and adapt existing ones;
- 4) deepening knowledge about ways to protect information;
- 5) assessment of the reliability of information and identification of false or biased information;
- 6) safe and responsible use of digital technologies;
- 7) creative use of digital technologies to solve educational problems;

8) use of digital technologies in the educational process and monitoring of students' online activity;

9) learning to use digital tools and their additional application to assess and monitor the level of academic performance and intellectual growth of students [120; 202].

Table 11 provided a link to the video lesson of the online course.

The online course was organized into 3 groups on digital platforms used to activate the largest groups: new knowledge, new goals, obtaining questionnaires, interaction, cooperation, the process of critical thinking, teamwork, common reflection.

Table 11 – Video Lesson links

№	The topic of videolesson	Links
1- topic	Factors of formation and development of digital education	https://youtu.be/lgi7yBrtgiA
2 - topic	Trends, patterns and principles of the development of digital education	https://youtu.be/wQe4Z55oEHo
3 - topic	Digital pedagogy and cyberpedagogy	https://youtu.be/eZ6Sk0QiWDc
4 - topic	Digital society and teacher personality	https://youtu.be/k3McVw8awq8
5 - topic	SMART education in the information society	https://youtu.be/O7fDphFxdE
6 - topic	Digital transformational education features of distance learning	https://youtu.be/JFO8tqxR0Iw
7 - topic	Mobile learning: advantages and disadvantages	https://youtu.be/katKgl4udEY
8 - topic	Steam - education	https://youtu.be/6MNT-7Vg_ys
9 - topic	Digital educational platforms	https://youtu.be/8KQzev-TOOs
10 - topic	Cloud services for education	https://youtu.be/3CGPyq7P5aQ
11 - topic	Implementation of assessment of educational achievements	https://youtu.be/ogN26QWPK6Q
12 - topic	Creating and editing visual content	https://youtu.be/pu4KE4n0DZs
13 - topic	Massive open online courses	https://youtu.be/5jVuZddlR3Y
14 - topic	Electronic textbook: features and possibilities	https://youtu.be/TjddBmBMQ9Q
15 - topic	Portfolio-a tool for assessing students' academic achievements	https://youtu.be/Hs7zqdnLi2I

Figure 51 gave the digital platforms used to activate large groups.

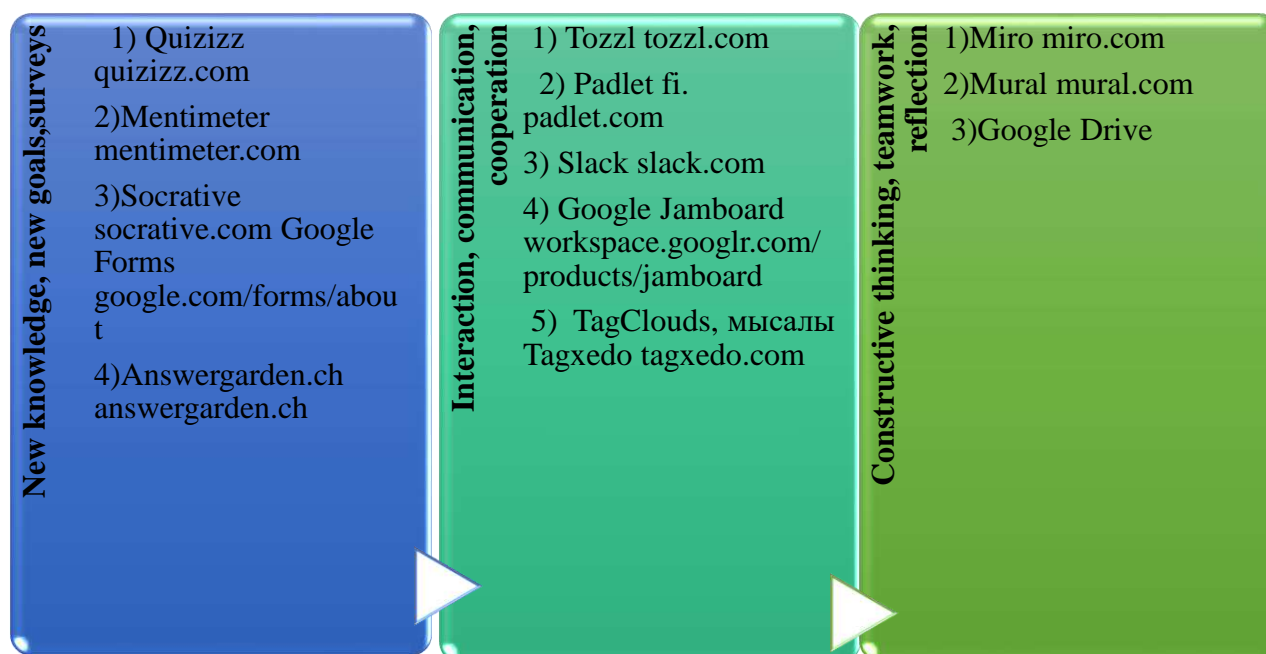


Figure 51 – Digital platforms used to activate large groups

In the 72-hour online course «Distance learning technologies» for future teachers, the essence of digital platforms was revealed and characteristics were given: Nearpod, Kahoot!, Explain Everything, Buncee, Go Noodle, Book Creator, Padlet, Canva, Nearpod, Google Classroom, Bilimland, Zoom, Skype, Onlinetestpad.com (table 12).

Table 12 - Description of platforms

№	Platform description
1	Nearpod is a platform that allows teachers to import lessons from any type of file and add interactive elements, web links or video clips to them, and is designed by subject experts for all educational organization levels and disciplines to use pre-prepared, fully interactive lessons, to further expand interactive lessons, allowing teachers to synchronize their lessons with gadgets, create custom assignments, and monitor progress
2	Kahoot! – learning games creation platform that makes it easy to create, Find, play and share fun learning games in minutes for any subject, any language, any device, people of all ages, and allows teachers to quickly create fun learning games based on multiple choices
3	Explain Everything – this is a service that allows you to use animation, sound, comments, a collaborative interactive online board with an easy-to-use design for real-time collaboration
4	Buncee – a presentation tool that proposes to be used for extracurricular activities such as creating digital posters, microfilms or simple games that develop critical thinking, communication skills, collaboration and creativity in order to create, present and share Multimedia Lessons.
5	Padlet – the easiest way to work together. Padlet is like a white sheet on the screen. Starting with a blank sheet, then you can place the desired one on it.

6	Canva – design for non-designers. Canva makes it incredibly easy to create professional quality graphics. The online platform brings together simple tools and a library of more than a million photos, graphics and fonts.
7	Nearpod – a platform that allows teachers to make presentations for classes and show them to students right during the lesson
8	Google Classroom – a platform that allows you to completely transfer learning online: compose lessons on topics, add materials, give and check homework.
9	Bilimland – it is a digital education platform based on the advanced achievements of global e-learning leaders
10	Zoom – it is a platform for holding video conferences, webinars and other similar online events
11	Skype – software for communicating with the world
12	Onlinetestpad.com – a multifunctional constructor, with the help of which you can create tests, questionnaires, crosswords, dialogue simulators, etc.

Digital content has been prepared in advance for the online course «Distance learning technologies» for future teachers:

- 1) resource No.1 – theoretical material;
- 2) resource No.2 – presentation material;
- 3) resource No.3 – video material;
- 4) resource No. 4 – test tasks for control and verification of knowledge.

The digital content prepared for the online course «Distance learning technologies» for future teachers is fully uploaded to the blog «Pedagogical coaching» of the pedagogical educational portal www.smart-pedagog.kz.

Table 13 contains links to test tasks of the online course «Distance learning technologies» for future teachers.

Future teachers who took part in the online course performed 10 test tasks on each topic every day. The number of test tasks is 10. The test consisted of 5 answers and the number of correct answers was 1.

Table 13– Test links of the online course «Distance learning technologies» for future teachers

Topic	Link of the test
1- topic	https://docs.google.com/forms/d/e/1FAIpQLSdPoazfzSjAtId0fhiglG-Bo1D3qF_SisYtbPSVYRZI4cFO8w/viewform?usp=sf_link
2 - topic	https://docs.google.com/forms/d/e/1FAIpQLSeYlKQCQIRr3qaF5reLHirSjK7T57Z39p5hojLYCIqkzDgmVA/viewform?usp=sf_link
3 - topic	https://docs.google.com/forms/d/e/1FAIpQLSefYIEkeL5d-5WIYodZ31fIdr-zMygZT7GpG1XazOaZhcW2kw/viewform?usp=sf_link
4 - topic	https://docs.google.com/forms/d/e/1FAIpQLScej9Y8gCSc63txBv9tGffaHUPL8ocw5j0rB1EOic2_szhumw/viewform?usp=sf_link
5 - topic	https://docs.google.com/forms/d/e/1FAIpQLSe777iGNKMfK32_z9rqVorIXJzn-yUaCctC81NdwxebouXmTQ/viewform?usp=sf_link
6 - topic	https://docs.google.com/forms/d/e/1FAIpQLSeJID1UQa0ppY1CBdNqONUb5D

	cukSvkpnqUTj0T7UL_NfaF8A/viewform?usp=sf_link
7 - topic	https://docs.google.com/forms/d/e/1FAIpQLScXoTwPraRdVm6GmNXVD1x_NG8sDqBzOIgxFnxaRZ3AcWrFnQ/viewform?usp=sf_link
8 - topic	https://docs.google.com/forms/d/e/1FAIpQLScz1Memn0qdBdEzw9KVeBIQpgFBvn_S0SzT53OLFJ7NcoXpdw/viewform?usp=sf_link
9 - topic	https://docs.google.com/forms/d/e/1FAIpQLSdA5oLYOC1f1EQVoBQWoZJP11VXi_VsJdFHD8LifX3vn2RxnA/viewform?usp=sf_link
10 - topic	https://docs.google.com/forms/d/e/1FAIpQLSc-EX15IfLC8jtrN_4j-ZUHIWOy9HVgBx9FesCZuOhKd_FROA/viewform?usp=sf_link
11 - topic	https://docs.google.com/forms/d/e/1FAIpQLSfiQHSXrIpWfc8u_egMu3QCUohHVx7rkHk-UBbDTSntoiqHmg/viewform?usp=sf_link
12 - topic	https://docs.google.com/forms/d/e/1FAIpQLSceVwcvVEA5pMrlm9l6COZr9dHjeAQu36l2F3tKFiFAreJWQg/viewform?usp=sf_link
13 - topic	https://docs.google.com/forms/d/e/1FAIpQLSftaL6ZjTK_MdXxbd_E0l3k0VwXEJa-mFWtsHJOJLAYbDOheA/viewform?usp=sf_link
14 - topic	https://docs.google.com/forms/d/e/1FAIpQLSecybDdtacLHKxPfqL2TpitUalaAz_BpzmC4MKlj7Gm7W6PmA/viewform?usp=sf_link
15 - topic	https://docs.google.com/forms/d/e/1FAIpQLScIe7KaVg-K9EqeF8U54tYgXPMu1wQfFqkOI6ivhX4q3YZg/viewform?usp=sf_link
Final Test	https://docs.google.com/forms/d/e/1FAIpQLSdnSrgsWbBRbIIA4-gVIbGiV1xAmF9rmsfpVOLPwMjRA2WyaQ/viewform?usp=sf_link

In 10 days, future teachers who took part in the online course completed 150 test tasks.

The final test tasks were completed by 47 future teachers. The number of final test tasks is 25. The test consists of 5 answers and the number of correct answers is 1.

Table 14 presents the results of the test tasks.

Table 14– Final test result

The question number	«Correct» answer	«Wrong» answer	The question number	«Correct» answer	«Wrong» answer
1-question	45 (95,7%)	2 (4,3 %)	14-question	44 (93,6%)	3 (6,4 %)
2-question	44 (93,6%)	3 (6,4 %)	15-question	45 (95,7%)	2 (4,3 %)
3-question	45 (95,7%)	2 (4,3 %)	16-question	45 (95,7%)	2 (4,3 %)
4-question	45 (95,7%)	2 (4,3 %)	17-question	46 (97,9%)	1 (2,1 %)
5-question	44 (93,6%)	3 (6,4 %)	18-question	44 (93,6%)	3 (6,4 %)
6-question	45 (95,7%)	2 (4,3 %)	19-question	45 (95,7%)	2 (4,3 %)
7-question	45 (95,7%)	2 (4,3 %)	20-question	45 (95,7%)	2 (4,3 %)
8-question	45 (95,7%)	2 (4,3 %)	21-question	45 (95,7%)	2 (4,3 %)
9-question	45 (95,7%)	2 (4,3 %)	22-question	44 (93,6%)	3 (6,4 %)
10-question	44 (93,6%)	3 (6,4 %)	23-question	45 (95,7%)	2 (4,3 %)
11-question	45 (95,7%)	2 (4,3 %)	24-question	45 (95,7%)	2 (4,3 %)
12-question	45 (95,7%)	2 (4,3 %)	25-question	46 (97,9%)	1 (2,1 %)
13-question	45 (95,7%)	2 (4,3 %)			

«The level of professional training achieved in the field of education, the ability to effectively use digital technologies in their professional activities is»: 45(95,7%) of respondents who took the online course chose the correct answer «digital

competence», 1(2,1%) of future teachers considered the correct answer «technological competence» (figure 52).

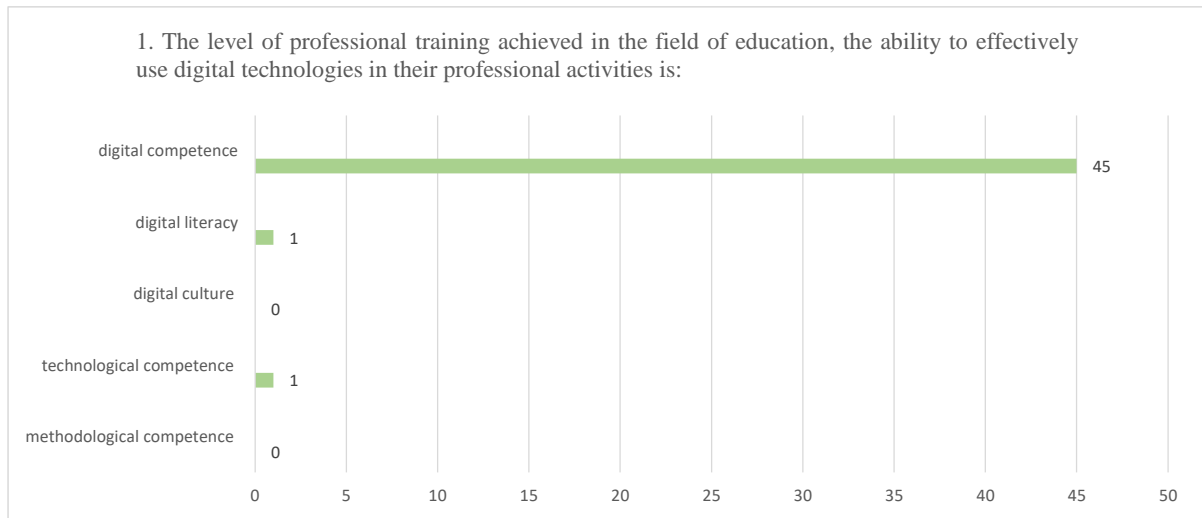


Figure 52–The result of Question 1 of the final Test

«Artificial intelligence (machine intelligence, AI) – this is» due to the fact that 44 (93,6%) of respondents who took the online course on the so-called «technology that allows you to learn from your own experience, adapt to the set parameters» chose the correct answer, 2(4,3%) of future teachers considered the wrong answer «providing remote access to data processing or storage», 1(2,1%) of respondents considered the correct answer «digital analogue of an independent notary, registration of certain events, preservation of authenticity» (figure 53).

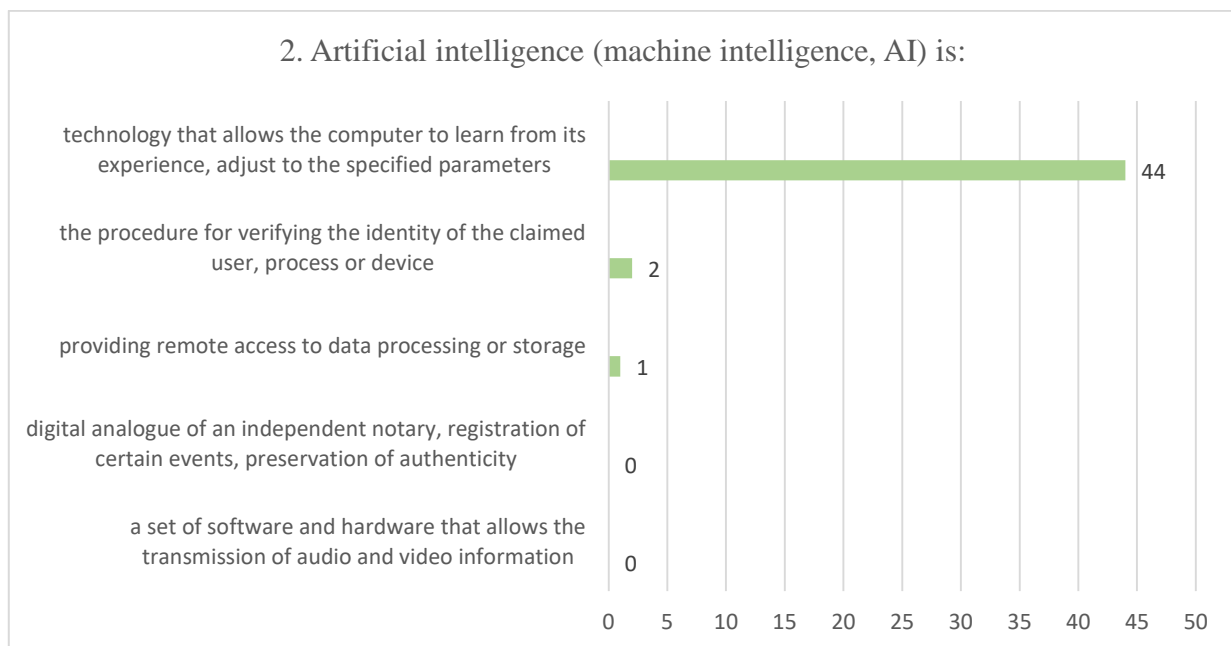


Figure 53– The result of Question 2 of the Final Test

«Soft» skills of interaction with software for working with information are: while 45 (95,7%) of respondents who attended an online course on question 3 called «Software Skills» chose the correct answer, 1(2,1%) of future teachers answered the question «providing remote access to processing or data storage» 1(2,1%) respondents, 1 (2,1%)- «Metaskills-meta» and 1 (2,1%) – «digital» response (Fig.54).

«The set of knowledge and skills necessary for the safe and effective use of digital technologies and internet resources is»: 45(95,7%) respondents who took part in the online course chose the wrong answer «digital literacy», and 2(4,3%) future teachers received the wrong answer «information literacy» (figure 55).

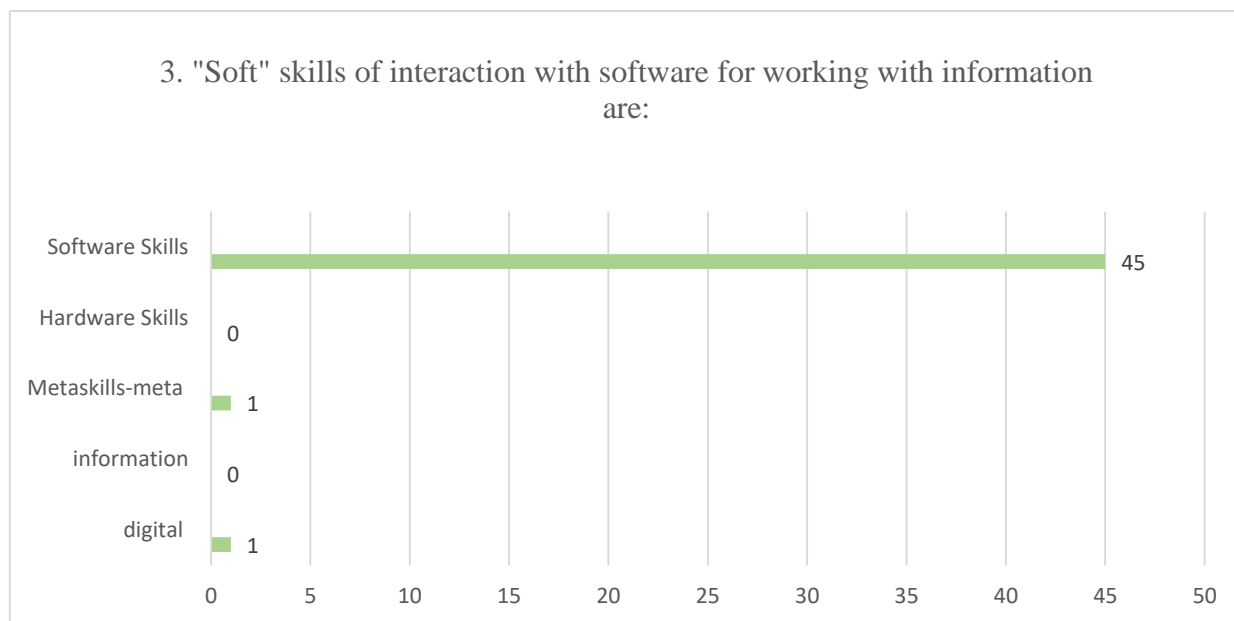


Figure 54–The result of Question 3 of the Final Test

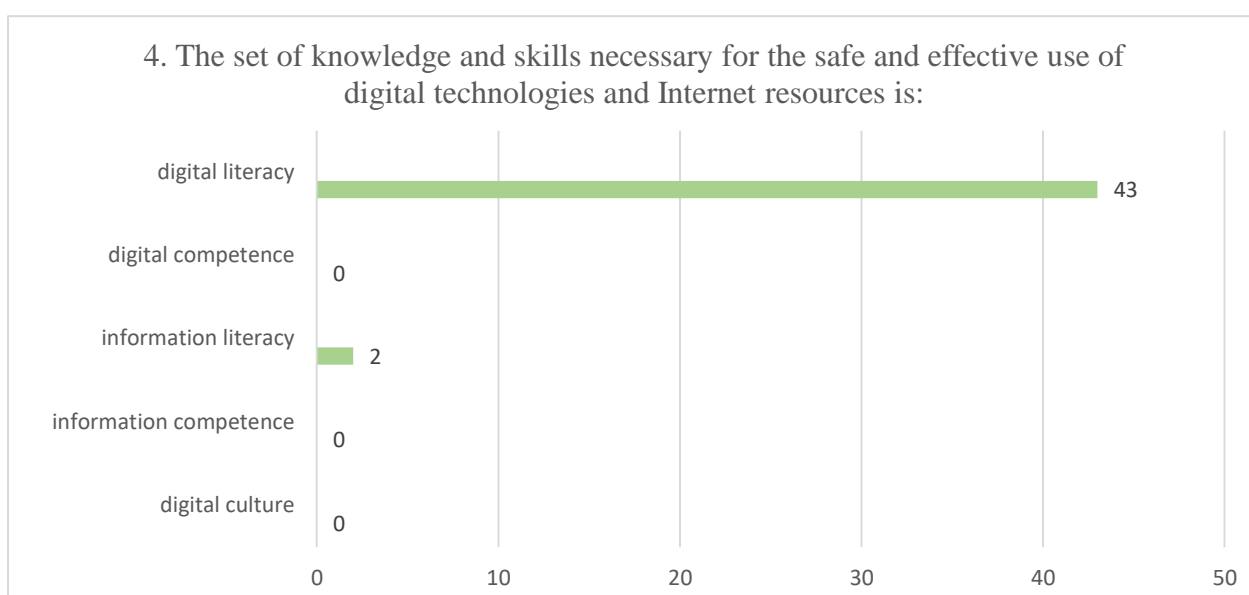


Figure 55–The result of Question 4 of the Final Test

«Self-oriented, motivated, personality – oriented learning with free access to resources using modern technologies is»: 44(93,6%) respondents who took part in the online course chose the wrong answer «Smart-Learning», 2(4,3%) respondents considered the correct answer «Stem-learning» (figure 56).

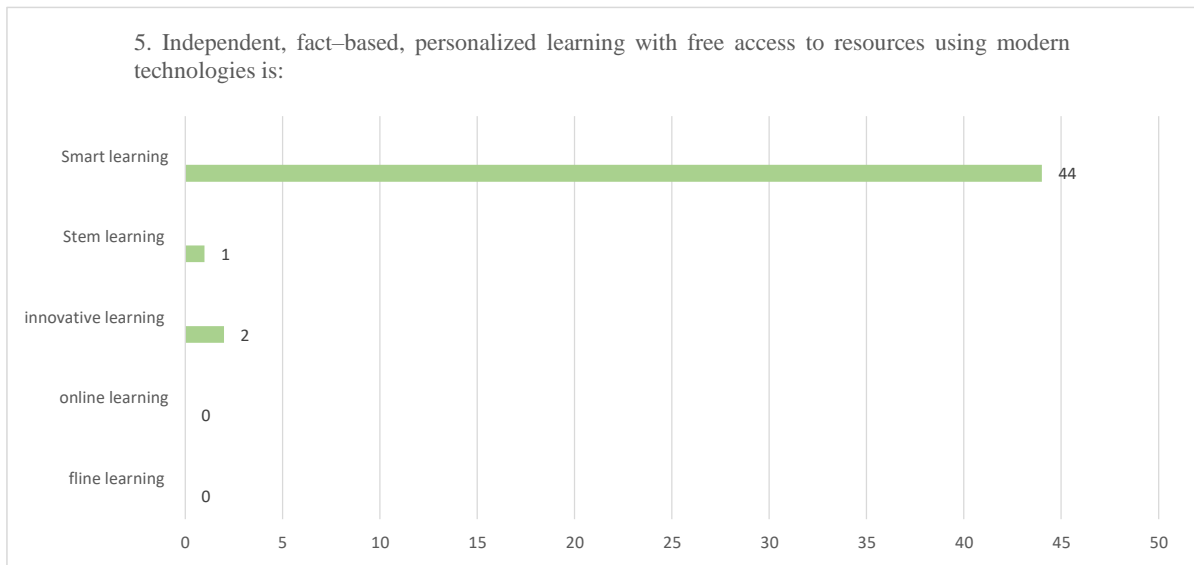


Figure 56–The result of the question 5 of the Final Test

«The educational process using modern ICT tools of the highest level, which involves the active exchange of information between students and the teacher, between the students themselves:» 45 (95,7%) respondents who took the online course chose the correct answer, 1(2,15%) future teacher received the wrong answer «Stem-Learning», 1(2,15%) respondents answered the question «e-learning» correctly (figure 57).

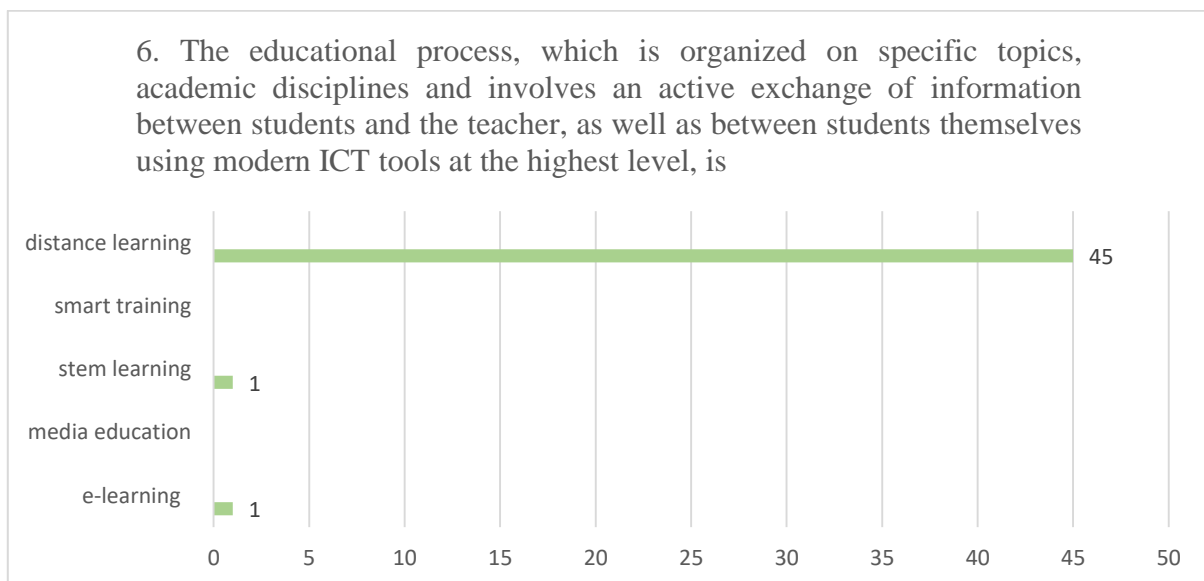


Figure 57 – The result of Question 6 of the final Test

The platform for conducting video conferences, webinars and other similar online events is: 45(95,7%) respondents who took part in the online course chose the wrong answer «Zoom», 1(2,1%) of future teachers considered the correct answer «Quizizz» (figure 58).

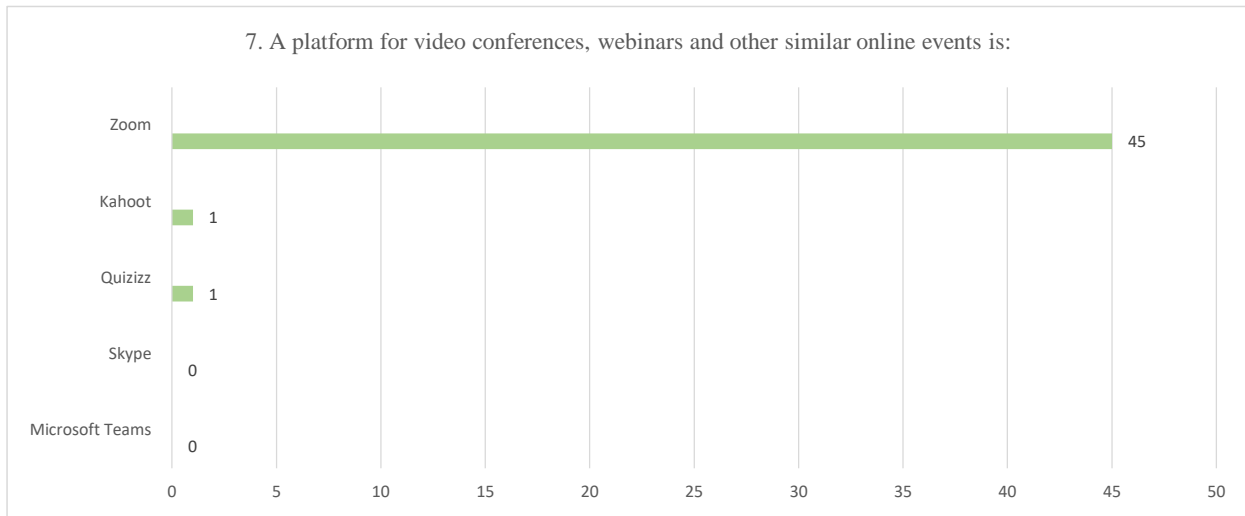
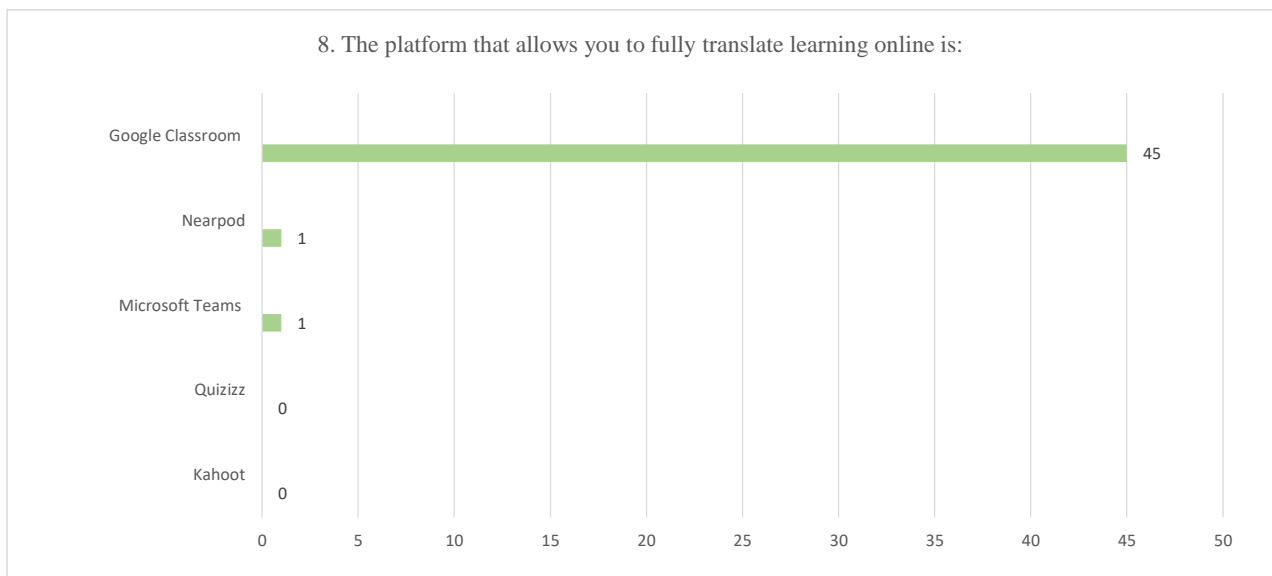


Figure 58– The result of Question 7 of the Final Test

The platform that allows you to fully transfer training online is: 45(95,7%) respondents who took the online course chose the wrong answer «Google Classroom», 1(2,1%) respondents considered the correct answer «Microsoft Teams»



(figure 59).

Figure 59– The result of Question 8 of the Final Test

«A platform for learning in the form of a game, suitable for any academic subject and person of any age, is:» 45(95,7%) respondents who took the online course chose the correct answer «Quizizz», 2(4.3%) future teachers received the wrong answer «Microsoft Teams» (figure 60).

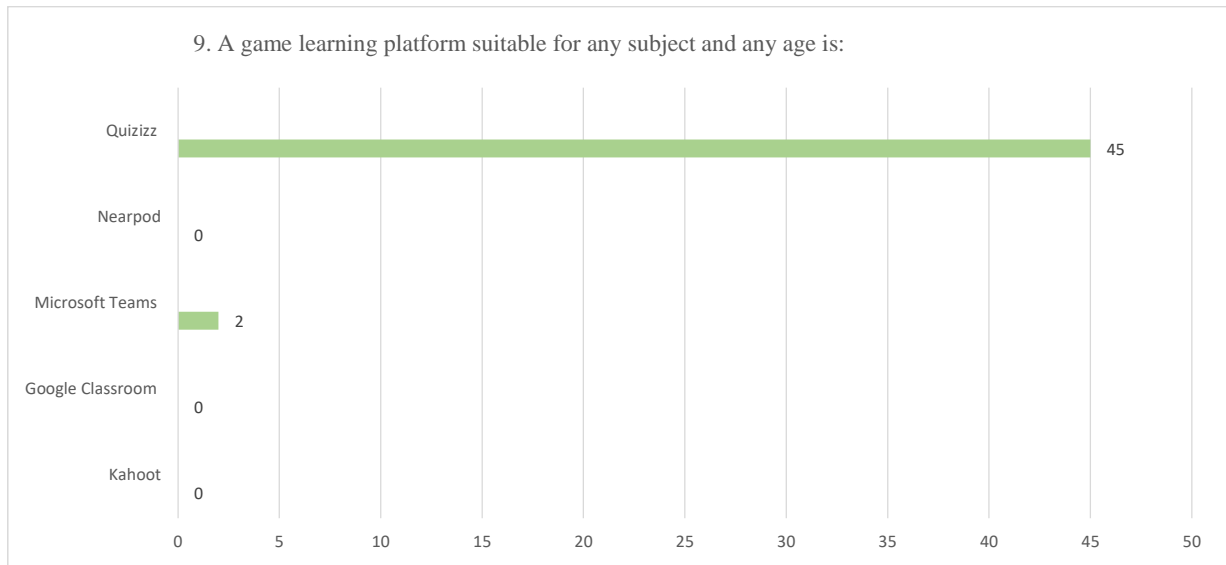


Figure 60–The result of Question 9 of the Final Test

The online service platform for conducting tests in educational institutions is: 44 (93,6%) respondents who took part in the online course chose the wrong answer «Socratic», 2(4,3%) respondents considered the correct answer «Nearpod» (figure 61).

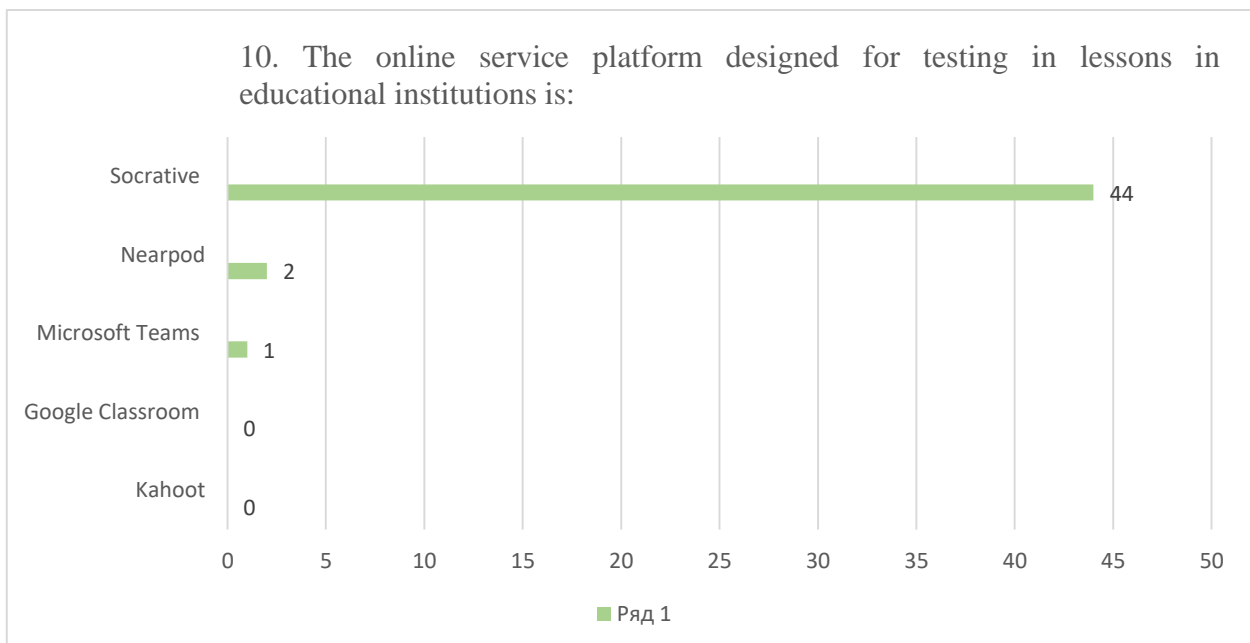


Figure 61–The result of Question 10 of the Final Test

«Free, easy-to-use, quick tool for quickly creating interactive worksheets with tasks and exercises, including those developed on the basis of a video: 45 (95,7%) of respondents who participated in the online course on Question 11 «Wizer.me if they chose the correct answer «Google Classroom», then 2 (4,3%) future teachers received the wrong answer «Google Classroom» (figure 62).

«The platform for distance education, which allows you to study from highly qualified teachers anywhere, at any time, is»: 45(95,7%) of respondents who participated in the online course on Question 12, called «Daryn.If the correct answer «online» was chosen, then 1(2,1%) of future teachers received the wrong answer «Microsoft Teams», and 1(2,1%) of respondents considered the correct answer «Nearpod» (figure 63).

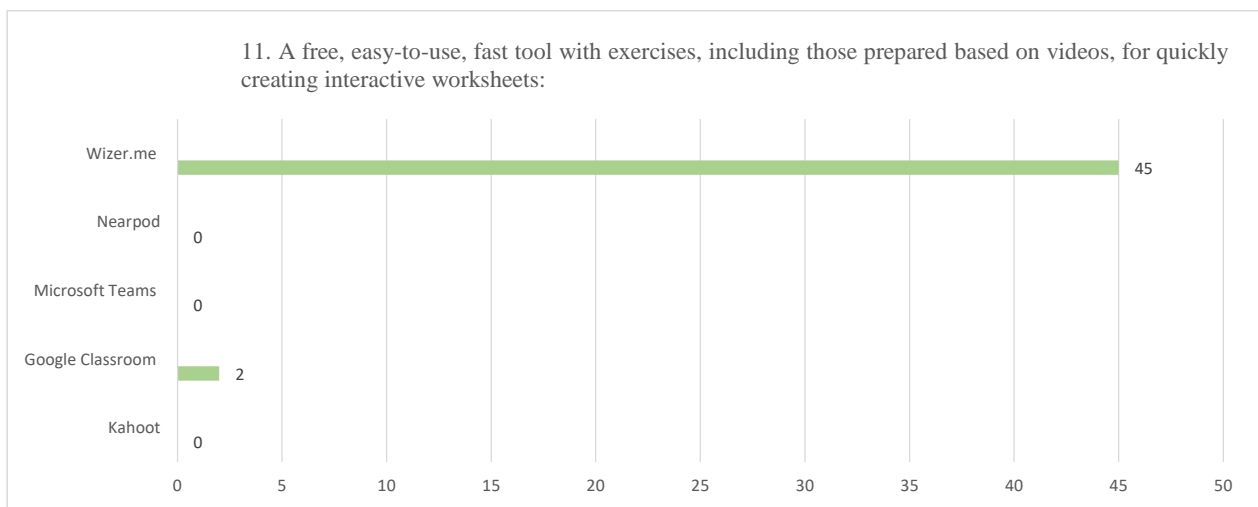


Figure 62–The result of question 11 of the Final Test

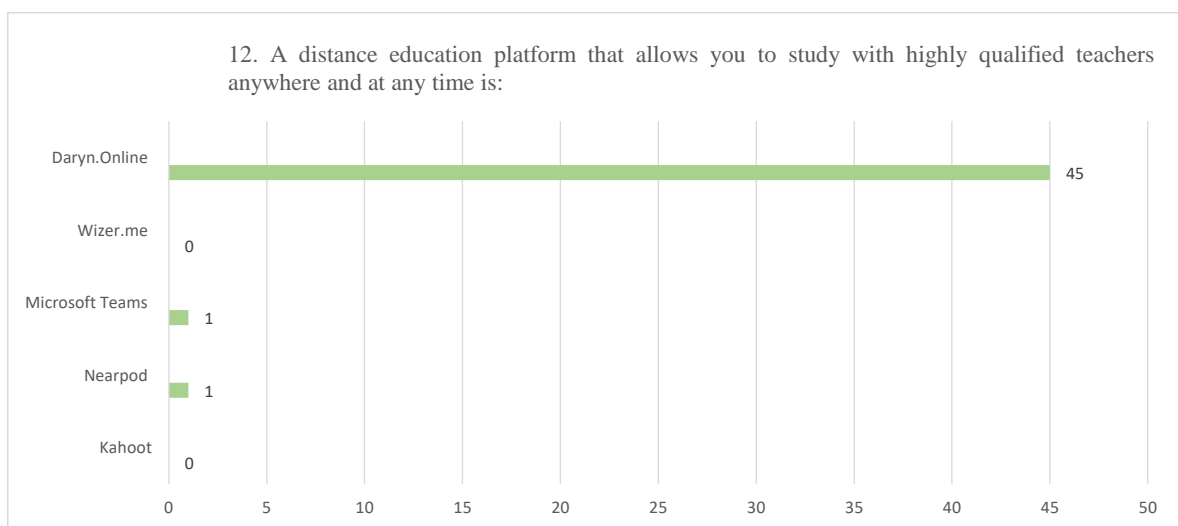


Figure 63– The result of Question 12 of the Final Test

A digital educational platform based on the achievements of world e – learning leaders is: 45 (95,7%) of respondents who took the online course chose the wrong answer «Bilimland», 1 (2,1%) of future teachers considered the correct answer «Kahoot» (figure 64).

«4C skills: communication; cooperation; creativity and » 44 (93,6%) of the respondents who participated in the online course chose the correct answer «critical thinking», 2(4,3%) of the future teachers accepted the wrong answer «leadership», and 1 (2,1%) considered the correct answer «scientific» (figure 65).

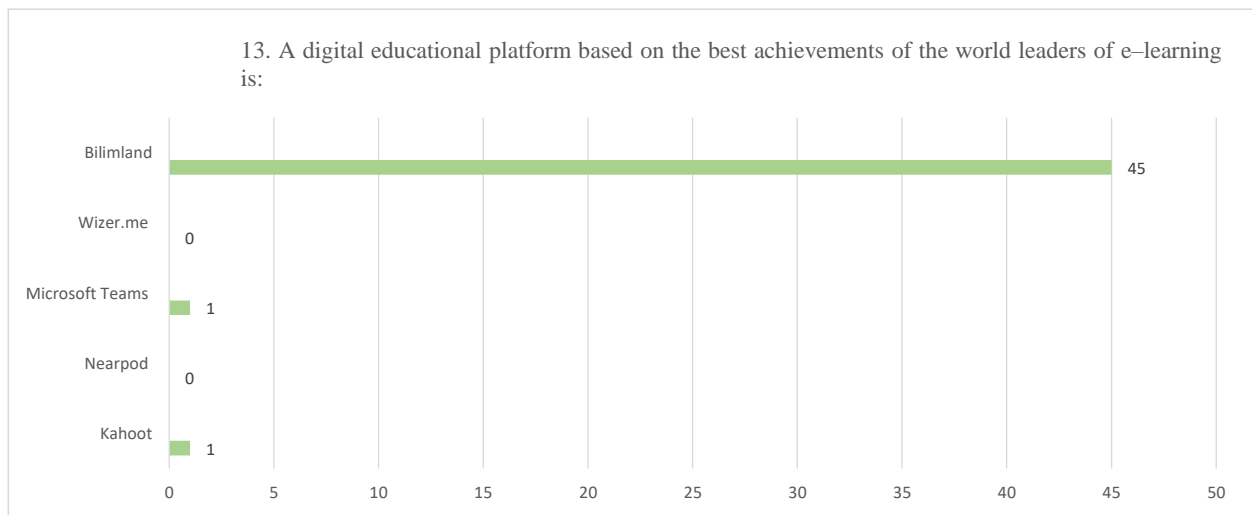


Figure 64–The result of Question 13 of the Final Test

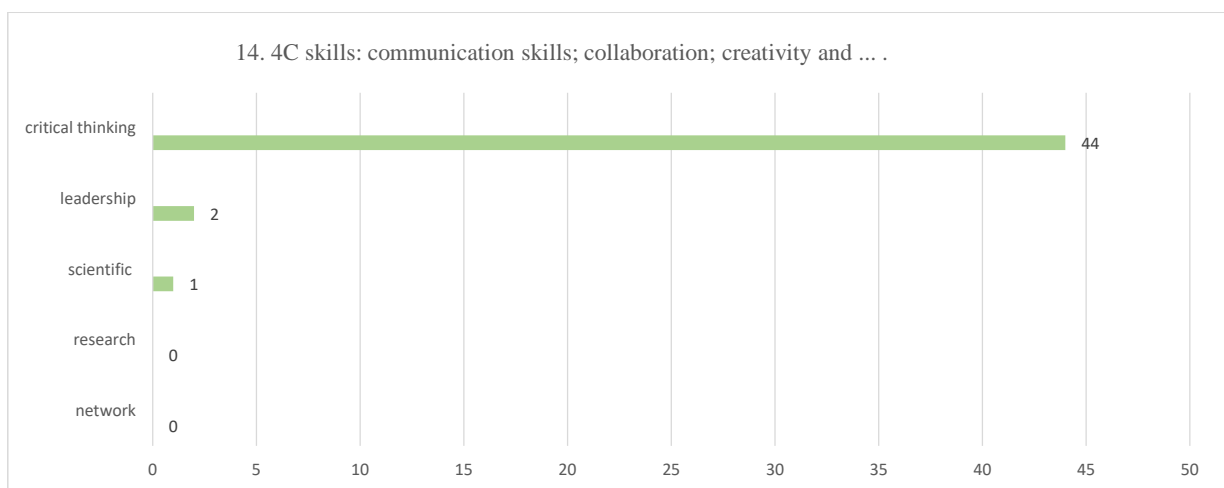


Figure 65–The result of Question 14 of the Final Test

«The new educational technology, which includes several disciplines as a means of developing critical thinking, research competencies and working skills in a group, is:» 45 (95,7%) of respondents who participated in the online course chose the wrong answer «steam – technology», 1 (2,1%) of future teachers considered the wrong answer «Information Technology» (figure 66).

«A free platform for learning in the form of a game suitable for any academic subject and any age is:» 45(95,7%) of respondents who took the online course chose the wrong answer «Kahoot», 1 (2,1%) of future teachers considered the correct answer «learning Apps» (figure 67).

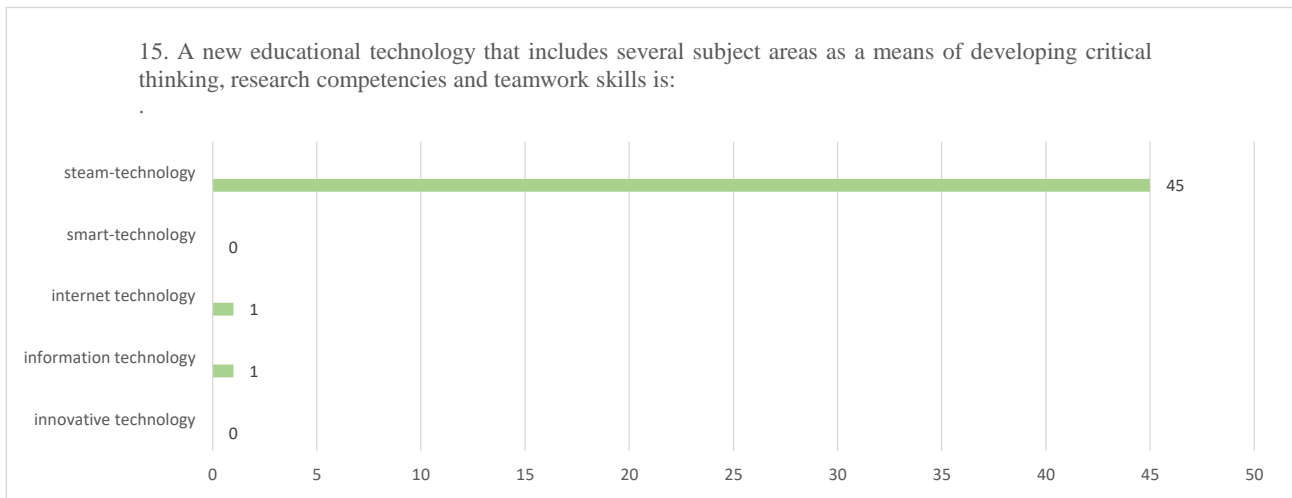


Figure 66– The result of Question 15 of the Final Test

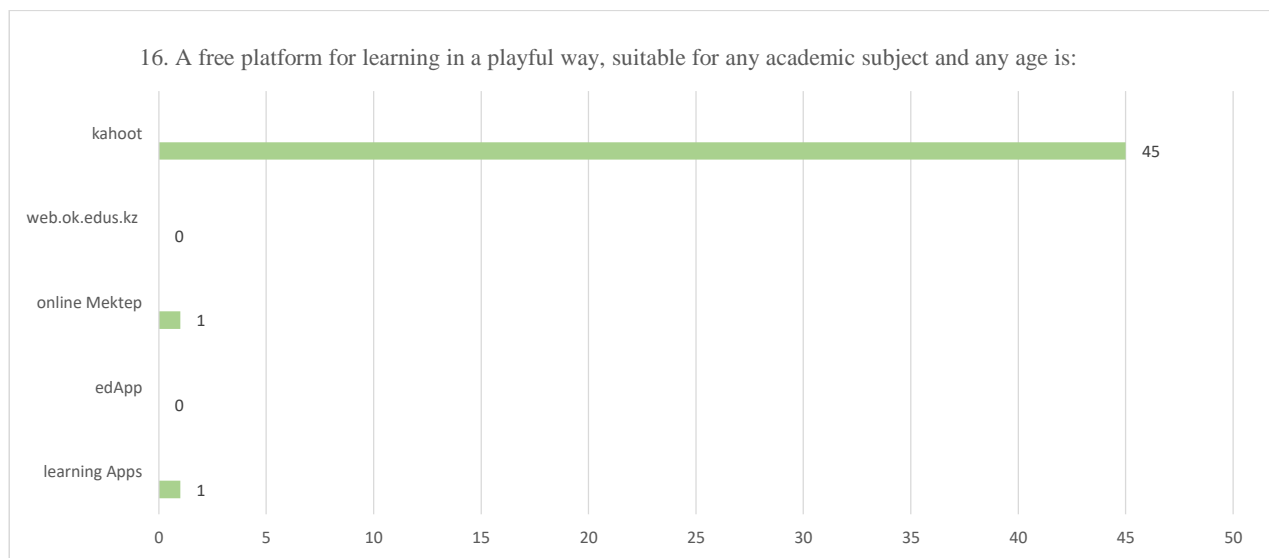


Figure 67–The result of Question 16 of the Final Test

«A video conference service that supports desktop display for users and participants of the conference is called:» 46(97,9%) respondents who participated in the online course chose the correct answer «Google meet», and 1(2,1%) future teachers considered the correct answer «ZOOM» (figure 68).

«A free web communication tool that allows people to conduct videoconferencing, make calls and Exchange instant messages is:» 44(93,6%) respondents who took the online course chose the correct answer «Skype», and 3 (6,4%) future teachers received the wrong answer «ZOOM» (figure 69).

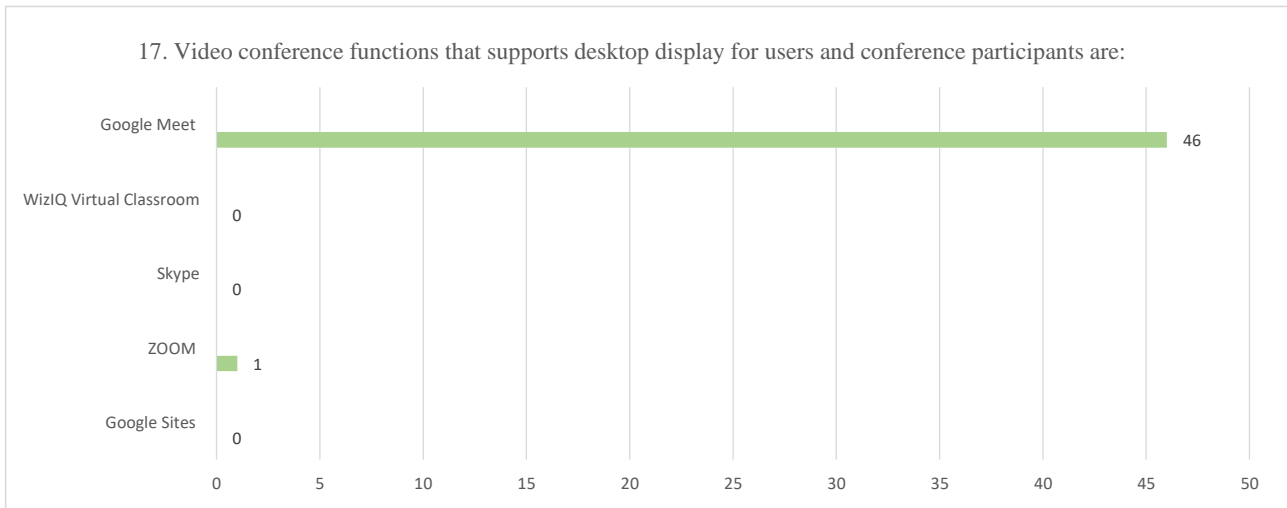


Figure 68–The result of Question 17 of the Final Test

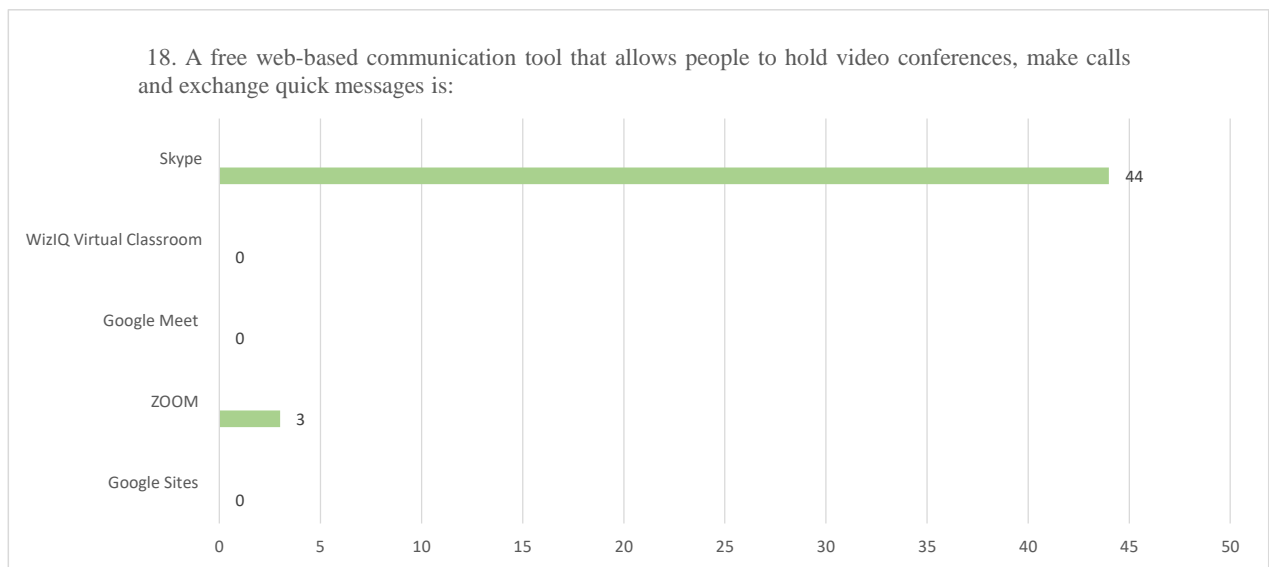


Figure 69 – The result of Question 18 of the Final Test

«A digital tool based on the website and applications allows teachers to create interactive slide learning resources that students can interact with and learn:» 45(95,7%) respondents who participated in the online course chose the correct answer «Nearpod», 1(2,1%) of future teachers received the wrong answer «Jamboard», 1(2,1%) of respondents give the correct answer «LearningApps.org» (figure 70).

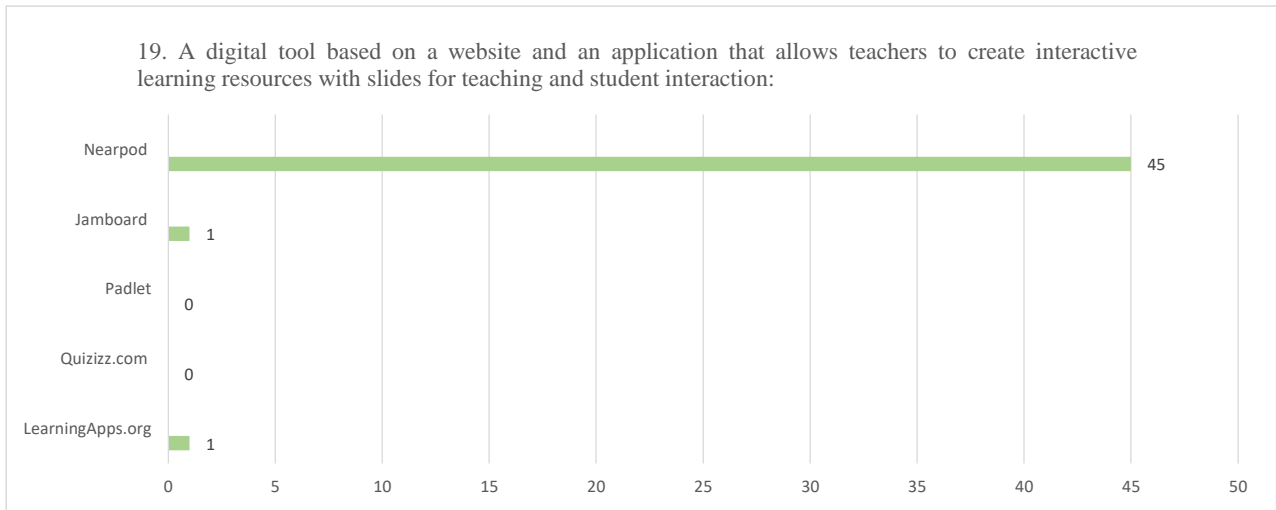


Figure 70 – The result of Question 19 of the Final Test

«A multifunctional constructor with which you can create tests, questionnaires, crosswords, dialogue simulators, etc.»: 45(95,7%) of the respondents who participated in the online course chose the correct answer «Onlinetestpad.com», 2(4,3 %) of future teachers gave the wrong answer «Nearpod» (figure 71).

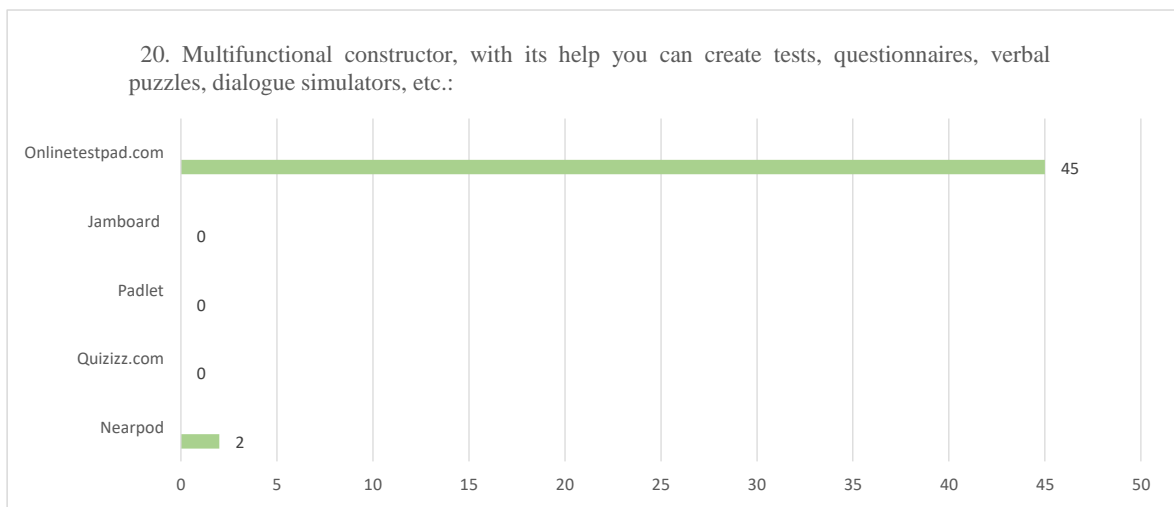


Figure 71 – The result of the Question 20 of the Final test

45 (95,7%) respondents who attended an online course on question 21 «The online quiz tool is:» answered: «Quizizz.com», 1(2,1%) future teachers chose the wrong answer «Padlet», 1(2,1%) calculated the correct answer «Nearpod» (fig.72).

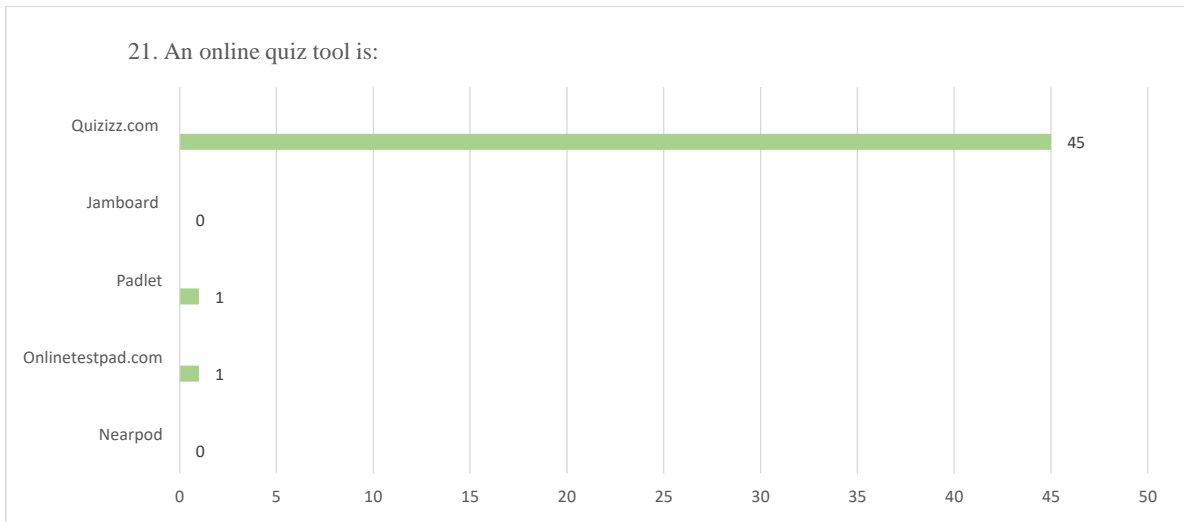


Figure 72– The result of Question 21 of the Final Test

44 (93,6%) of respondents who took part in the online course on question 22 «Google's interactive online Board is:» chose the correct answer «Jamboard», 1(2,1%) of future teachers received the wrong answer «Padlet», 2(4,3%) of respondents gave the answer «LearningApps.org» (figure 73).

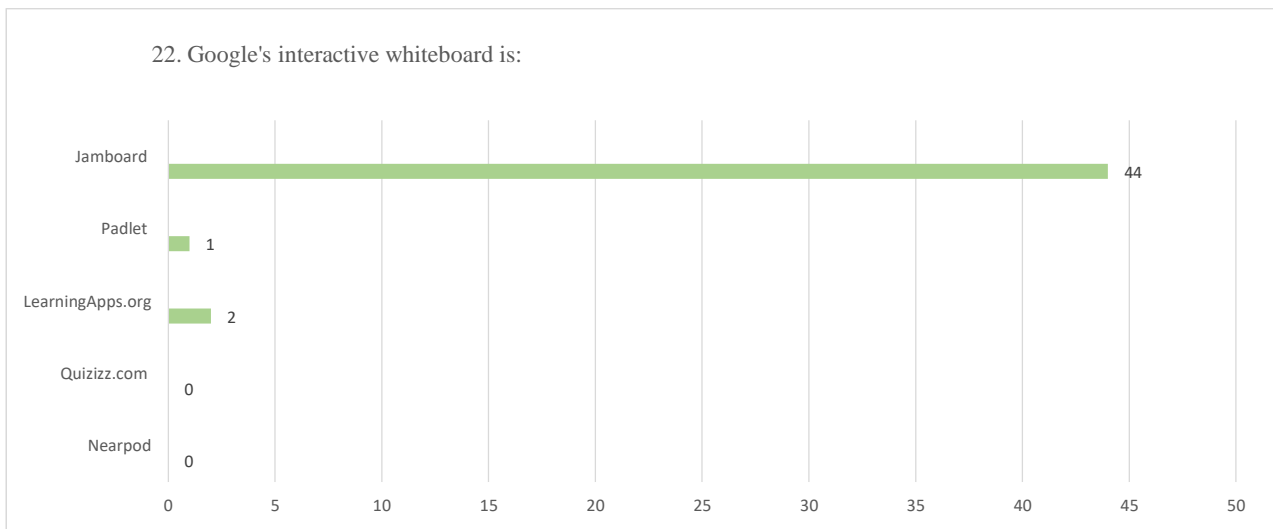


Figure 73–The result of Question 22 of the Final Test

45(95,7%) of respondents who participated in the online course on question 23 «The platform for creating boards for placing content is:» chose the correct answer «Padlet», 1(2,1%) of future teachers received the wrong answer «Jamboard», 1(2,1%) of respondents gave the answer «LearningApps.org» (figure 74).

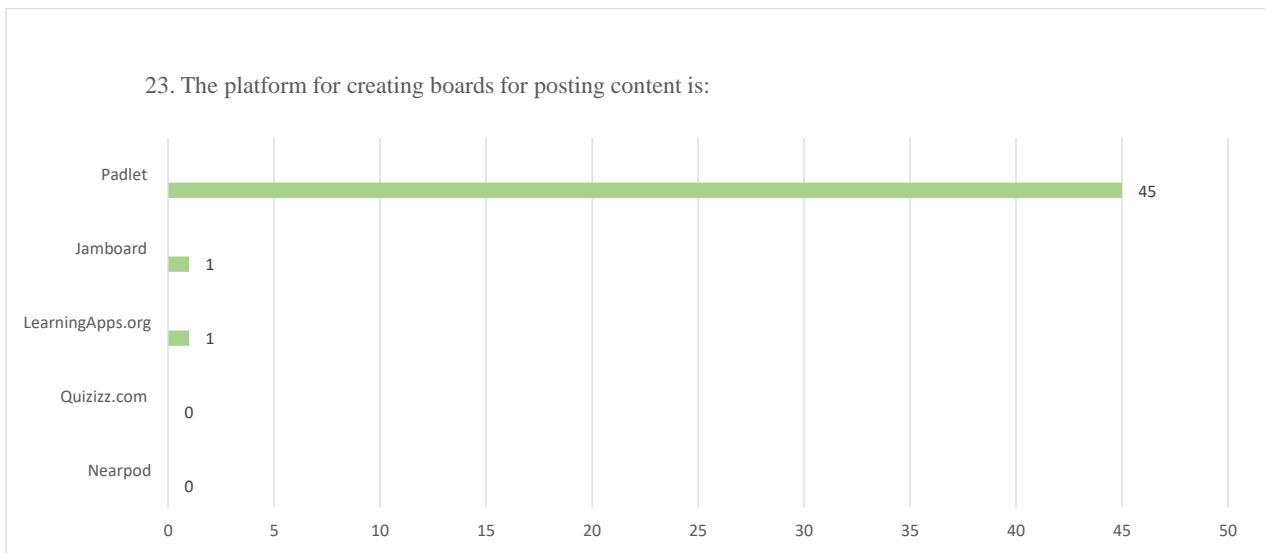


Figure 74– Tthe result of Question 23 of the Final Test

45(95,7%) respondents who took part in the online course on question 24 «Screencasting program with post-production processing:» chose the correct answer «Camtasia Studio», 1(2,1%) respondents gave the wrong answer «AutoPlay Media Studio» 1(2,1%) respondents gave the answer «Adobe Photoshop» (figure 75).

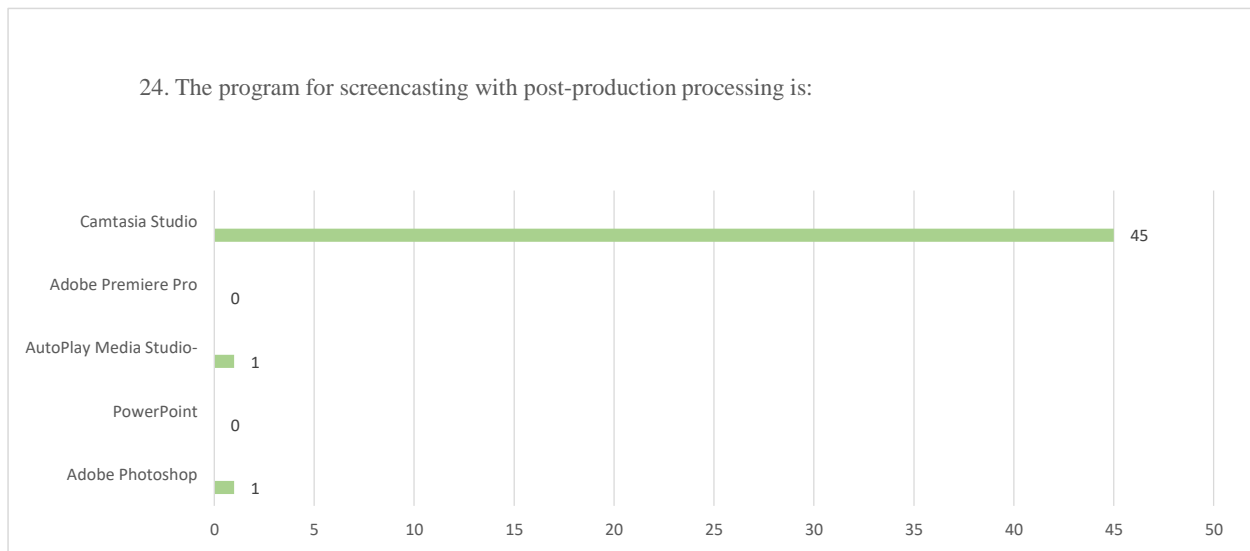


Figure 75–The result of Question 24 of the Final Test

It is possible to create electronic textbooks, CD/DVD covers, simple games, electronic photo albums, simple audio and video players: 46 (97,9%) respondents who took part in the online course chose the correct answer «AutoPlay media Studio», 1(2,1%) of future teachers received the wrong answer «Camtasia Studio»(figure 76).

If we study the results of the final test based on figures 52-76, then 44(93,6%) percent of future teachers who took part in the online test immediately

found the «correct» answer and proved that they have a high level of digital competence.

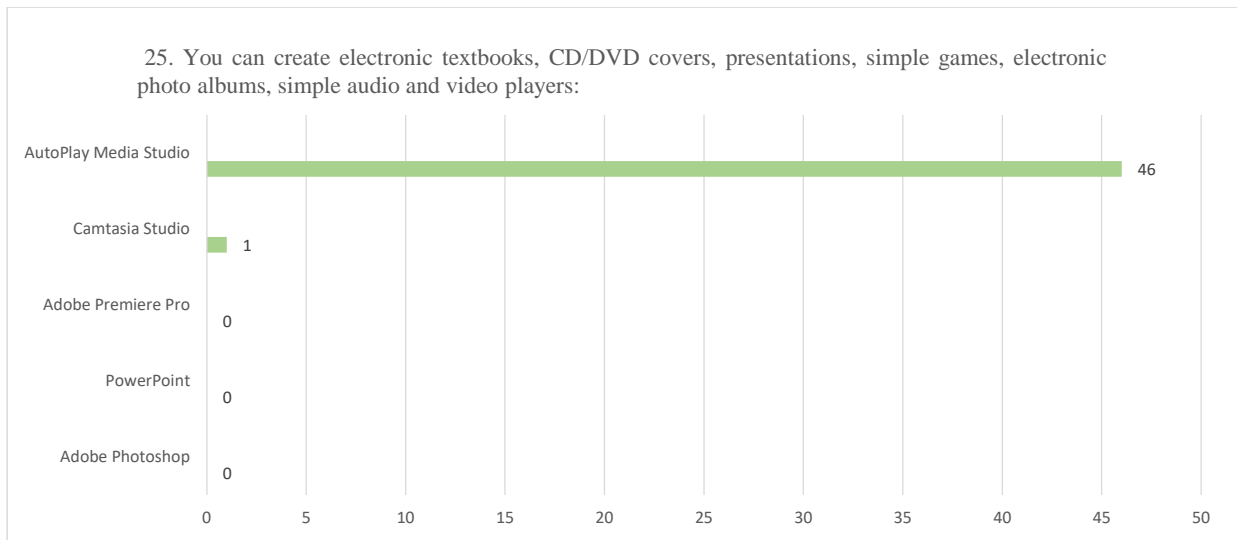


Figure 76–The result of Question 25 of the Final Test

On 01.02.23-15.02.23, an online course «Distance Learning Technologies» was held, a link to the online course was given in Table 15 and a video recording of the online course for 10 days in fully uploaded to the blog «pedagogical coaching» of the pedagogical educational portal www.smart-pedagog.kz.

Table 15 – The link to the online course «Distance learning technologies»

Day	Link
1 day	https://cloud.mail.ru/public/724n/LuQ4cuXAJ https://cloud.mail.ru/public/jtKe/XxtxDKWXY
2 day	https://cloud.mail.ru/public/mu1y/zwo7F8FQX
3 day	https://cloud.mail.ru/public/QhZm/UuSwvaSKX
4 day	https://cloud.mail.ru/public/7KQF/LfkaGyu4p
5 day	https://cloud.mail.ru/public/avZT/jU5ps6wjN https://cloud.mail.ru/public/mBGe/BpUFhB2pb
6 day	https://cloud.mail.ru/public/xeYx/aYvS1m89z
7 day	https://cloud.mail.ru/public/m5VJ/7zDVPbeXS
8 day	https://cloud.mail.ru/public/5W7E/78od8Rtgj
9 day	https://cloud.mail.ru/public/QP9D/zRdALeMS9
10 day	https://cloud.mail.ru/public/voDW/or2sfQHcE

One of the advantages of using digital technologies in training is the opportunity to actively involve all students in the educational process. Digital technologies can be used in order to adapt educational activities to the level of knowledge of each student, his interests and needs.

In addition, it is important to ensure that not all students have access to the internet and personal computer and flexibility in digital technologies, so as not to

aggravate the situation of existing inequality (for example, not all students have access to the internet and personal computer) and that the technology is available to all students.

3.2 Electronic textbooks «Pedagogy» and «Digital Pedagogy» - a tool for the formation of digital competencies of future teachers in the context of distance learning

In the conditions of the present fourth industrial revolution, the development of digital technologies is one of the key indicators that determine the global competitiveness and economic growth of any state, any country.

The state program «Digital Kazakhstan», approved by the resolution of the Government of the Republic of Kazakhstan dated December 12, 2017 No.827, defined the following strategic objectives:

1) digitalization of industry and electric power, transport and logistics, agriculture, internal activities of state bodies;

2) development of electronic commerce and financial technologies and non-cash payments;

3) state – to citizens, state-to business; «smart» cities; expansion of communication networks and ICT infrastructure;

4) ensuring information security in the field of ICT;

5) improving digital literacy in secondary, technical, professional, higher education;

6) improving the digital literacy of the population (training, retraining); supporting innovative development platforms;

7) development of technological entrepreneurship, startup culture and development of research;

8) attraction of «venture» financing, etc. [118; 3].

In solving the relevance of the formation of demand for innovation, the leading role is played by the personal development of a teacher in a digital society in ensuring the transition to a knowledge economy, which is carried out in connection with the development of human capital.

Since the XXI century is the century of digital technologies, a fast and information-filled world is changing a person. The duty of the teacher at this time is the skill of choosing this speed, the educational material that will be the most interesting and understandable to him. After all, children's psychology is different – someone tends to scientific research, someone to practical activities. Therefore, it is important that the teacher can choose the educational resources necessary for a particular student from the information resources that exist now and create a digital environment to interest them in self-education.

V.I. Blinov, I.S.Sergeev, E.Y.Yesenina, guided by the need for a digital educational environment in the implementation of the concept of digital education in personality development, put forward the definition: «a digital educational environment is a complex of conditions and opportunities for training, development,

socialization and education of a person» [121].

In the context of the educational process in a digital educational environment, such functions of the teacher as control, correction, training of typical skills can be carried out by ICT tools, which greatly facilitates his professional activity. The use of digital technologies increases the interest of all participants in educational relations.

At the same time, the process of teaching and learning, organized through digital and information technologies, creates the ability of students to think in a new way, pushes them to find systemic connections and patterns, and as a result – to form their professional potential.

In today's information society, students should learn how to use electronic platforms, use digital technologies in performing collective and group tasks, as well as search, accumulation, differentiation, processing of information and electronic resources that contribute to the assimilation of knowledge independently in a digital educational environment.

The use of digital technologies, electronic textbooks in the educational process of a higher educational institution helps the future teacher to improve his knowledge on his own, and also contributes to the formation of his creativity, allows him to fully and deeply master the material.

At the preparatory stage of using an electronic textbook in the educational process:

1) a system of diagnostics of the acquired knowledge, skills and abilities of the future teacher will be provided;

2) educational and informational data will be collected, an innovation and information bank will be created to help the future teacher fully reveal the meaning of the chosen topic.

At the main stage of using the electronic textbook:

- the teacher can record his material on the screen display;
- the teacher has the opportunity to provide feedback with students: give advice and control to the future teacher in accordance with the level of knowledge;
- in the lesson, the way to control the entire activity of the future teacher opens up; the student has the opportunity to control his knowledge himself.

At the final stage of using an electronic textbook in the educational process:

- timely identification and registration of gaps and shortcomings in the activities of the future teacher opens up opportunities;
- the way to reveal the cause of the shortcomings in the activities of the future teacher opens up, it is possible to analyze the educational activity as a whole;
- a full opportunity will be created to consider measures to prevent deficiencies in the educational activities of the future teacher [7;251].

The professional competence of the future teacher is characterized by his professional and individual qualities. The professional competence of the future teacher is the unity of his theoretical and practical training, achieving high results for the implementation of pedagogical activity.

In higher educational institutions that train teachers, electronic textbooks have a special function in the formation of information and communicative competencies of future teachers.

The electronic textbook «Pedagogy»

According to the research of the author of this textbook, scientist K. D. Buzaubakova, the electronic textbook introduces future teachers to the intricacies of the pedagogical process, forms a systematic approach to pedagogical activity and professionally important personal qualities of future teachers; the future teacher becomes familiar with the structure of pedagogical science, the object of research, the functions and teaching methods, the school management system; learns new knowledge; master the ways of implementing the pedagogical process and innovative pedagogical technologies [7;252].

The purpose of using digital technologies in teaching and learning is to arouse the interest of the future teacher; to increase the activity of the future teacher.

The most important thing is that when using an electronic textbook in teaching and learning, the teacher is not an interpreter of ready-made knowledge, an observer, an evaluator, but a conductor of collective actions that organize cognitive activity. Only such training opens the eyes of the intellect of the future teacher and develops creativity.

In the educational process of a higher educational institution, it is effective to use an electronic textbook, which opens the way for the future teacher to independently master new knowledge and creative search.

For example, the main feature of the electronic textbook «Pedagogy» for students of a Pedagogical University by scientist K.D. Buzaubakova is that the theoretical material is grouped in such a way as to form the creative competence of the future teacher.

When using the electronic textbook «Pedagogy», future teachers master the collection of new information as a result of constructive thinking; critical analysis and evaluation of concrete arguments; guaranteed solutions and accumulated conclusions; making assumptions and rational proposals based on extensive experience.

Taking into account the given context, the future teacher develops skills such as collecting evidence and using appropriate criteria for decision-making through observation and listening.

When using the electronic textbook «Pedagogy» by K.D. Buzaubakova, the formation of digital competencies of future teachers has the following advantages:

- future teachers work independently: the future teacher is able to independently search and find the material he needs, new information in a timely manner in the considered materials;
- the cognitive activity of future teachers increases: in the process of cognition at different levels, the future teacher increases the activity of effectively solving problems that arise from his interests and needs.

- creative thinking of future teachers is formed: the future teacher opens the way to find answers to the most difficult questions, to make decisions, to think constructively; the future teacher learns to evaluate his own, someone else's point of view, thereby thinking critically; the future teacher learns to identify logical connections between past passed materials and new knowledge, comparing them;

- creative search of future teachers is formed: the ability to ask a problem, search for answers to questions, sort out the result, etc. research competence is formed; as a result of critical thinking, future teachers find the optimal solution to the problem and justify it with arguments; look for other ways to solve the problem; conduct a comprehensive in-depth study, observation, analysis of the pedagogical process; try to prove his own idea and conclusions, the main thing is that the future teacher independently assimilates knowledge; develops himself [7;253].

The use of electronic textbooks in higher education institutions is of particular importance, since the digital competencies of future teachers are formed only through their practical skills, such as critical thinking, search for new information, processing and sorting.

The peculiarity of the electronic textbook is that the drawing, tables inside the theoretical material are based on creative thinking, creative search of students.

In the use of digital technologies in teaching and learning, the computer as a working tool acts as a tool for preparing and memorizing text; text editor; drawing, table tool, graphic editor; counter machine; thumbnail tool.

The use of digital technologies in teaching and learning is a method used to understand, evaluate, analyze and synthesize information obtained as a result of observation, experience, reflection and reasoning.

The use of digital technologies in teaching and learning involves the collection of relevant information; critical analysis and evaluation of evidence; guaranteed solutions and accumulated conclusions; revision of forecasts and recommendations based on extensive experience.

The electronic textbook «Pedagogy» introduces future teachers to the intricacies of the entire pedagogical process and equips them with the theory of pedagogical activity; forms a systematic attitude of future teachers to their professional activities and professionally significant personal qualities; forms a systematic attitude of future teachers to their professional activities; forms the readiness of future teachers for creative research work, self-education; allows the future teacher to effectively apply innovative technologies in the educational process; provides an activity-oriented approach in teaching; helps to increase the cognitive activity of students; helps to use interactive teaching methods; develops digital and creative competencies of future teachers.

When using the electronic textbook «Pedagogy» in the educational process, future teachers comprehensively improve their knowledge through the use of a variety of information and video materials, develop constructive thinking, develop interest in the subject, form creative search, open the opportunity to review and study the topic over and over again.

The electronic textbook is intended for students of higher pedagogical educational institutions studying in the pedagogical specialty.

Service features of the electronic textbook «Pedagogy»:

- the electronic textbook introduces future teachers to the intricacies of the pedagogical process, forms a systematic approach to pedagogical activity and professionally important personal qualities of future teachers;

- the future teacher will be familiar with the structure of pedagogical science, the object of research, the functions and methods of teaching, the system of school management; master the theoretical and methodological foundations of pedagogy, the theory and methodology of education, the theory and methodology of teaching, new knowledge on the system of pedagogical management;

- master the ways of implementing the pedagogical process and innovative pedagogical technologies.

The main menu of the electronic textbook consists of 6 blocks: «Theory»; «It's good to know»; «From the great to the great»; «Glossary»; «Photo gallery»; «Literature». (figure 77).



Figure 77– Main menu of the Electronic textbook

The purpose of the electronic textbook is to form a systematic approach of future teachers to their professional activities; to improve the readiness of future teachers for self - education; to teach the future teacher the effective use of digital

technologies in the educational process; to form cognitive activity and information, creative competencies, digital-creative competencies of future teachers.

Towards the end of the main menu of the electronic textbook, in the middle there is a click «Exit» and on the right – «instruction» and «copyright»

The block «theory» of the electronic textbook consists of 12 cells – 12 topics, that is, 12 lectures:

- 1) «The priority role of education in modern conditions».
- 2) «General characteristics of the pedagogical profession and activities».
- 3) «Pedagogy in the system of human science. Methodological foundations and methods of pedagogical research».
- 4) «The individual as an object, subject of education and a factor in its development and formation».
- 5) «The essence and structure of the holistic pedagogical process (TPP)».
- 6) «Scientific worldview – the basis of the intellectual development of the student».
- 7) «The essence and content of education in a holistic pedagogical process, the basics of Family Education».
- 8) «Forms and means of Education».
- 9) «Importance of the learning process».
- 10) «Scientific foundations of the content of Modern School Education».
- 11) «Forms, methods and means of training as a driving mechanism of the holistic pedagogical process».
- 12) «Diagnostics and control in teaching, teaching technologies in the professional activities of a teacher» (figure 78).



Figure 78–The «Theory» block of the electronic textbook

If you click on the «Topic 1» cell, the content of topic 1 will open (Fig.79).

In the upper left edge of heading 1 there are 2 small cells:

a home-shaped cell; a rectangular cell separated by 3 dashes arranged parallel to each other.

If you click on the cell of the home form, you will return to the Main Menu. And if you click on a rectangular cell divided by 3 dashes parallel to each other, the main menu of theme 1 opens, in which the following cells are located: «Test»; «Blitz tour»; «Video tutorial»; «Pedagogical crossword puzzle»; «Pedagogical situation»; «Creative task» [122].



Figure 79– The «Theme» part of the «Theory» blog of the electronic textbook

The «Test» blog of the electronic textbook contains 10 test tasks for monitoring and evaluating knowledge on each topic. If the answer is correct, a green sign, and if incorrect, a red one; at the end of the test, it is indicated how many questions were answered correctly and how much time it took (Fig.80).

You can improve the result by clicking the «again» button. This time, the sequence or number of times the test tasks arrive is reversed.

It is possible to click on a rectangular cell separated by 3 dashes located parallel to each other and go to the main menu of theme 1.

In the block of the electronic textbook «Blitz tour» there are 5 clicks indicated by numbers 1, 2, 3, 4, 5. Who is faster, who is smarter in the «Blitz Tour» cell? The game will feature questions from the blitz tour. 5 questions of the blitz tour are given in each topic (Fig.81).

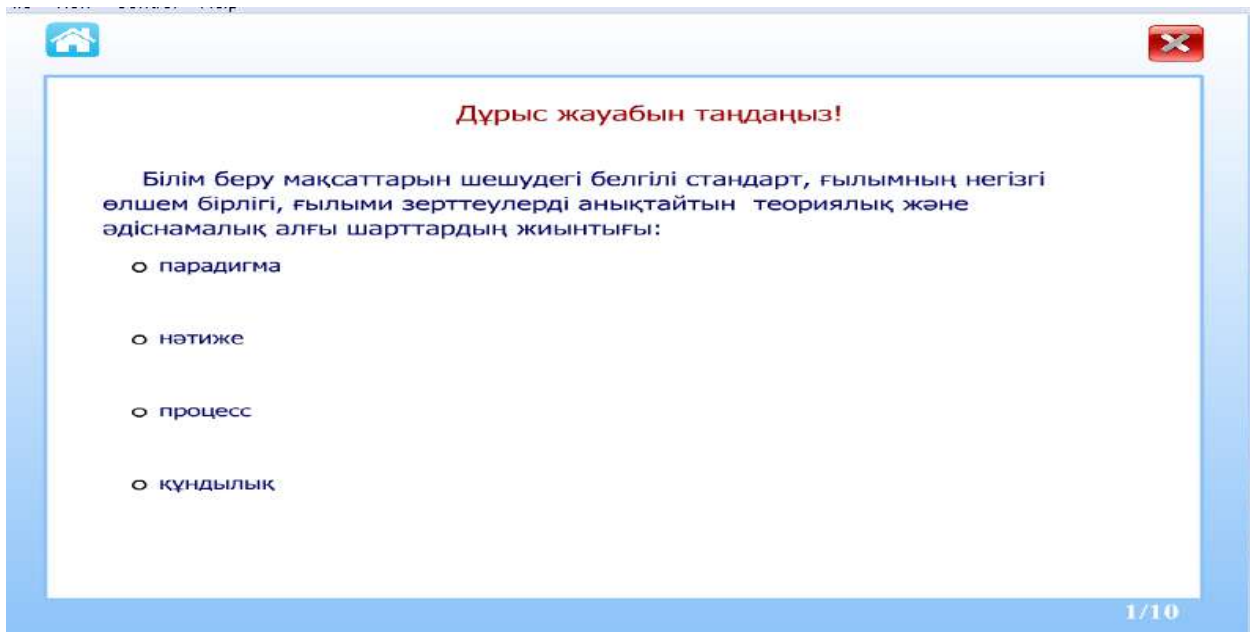


Figure 80–The «Test» blog of the electronic textbook

When opening the selected cell, the text of the question, the set time is 20 seconds, after 20 seconds the correct answer opens.



Figure 81– The «Blitz tour» blog of the electronic textbook

By clicking on the «Video tutorial» button of the electronic textbook, you can view the author's video tutorial revealing the content of the topic 1. Each video tutorial is selected in such a way as to reveal the content of the topic (Fig.82).

You can go to the Main menu of topic 1 by clicking on the «Home page» button in the upper right corner of the «video tutorial» menu.

By clicking on the «Pedagogical situation» button of the electronic textbook, it is proposed to get acquainted with 5 pedagogical situations that reveal the content of topic 1 and solve it.

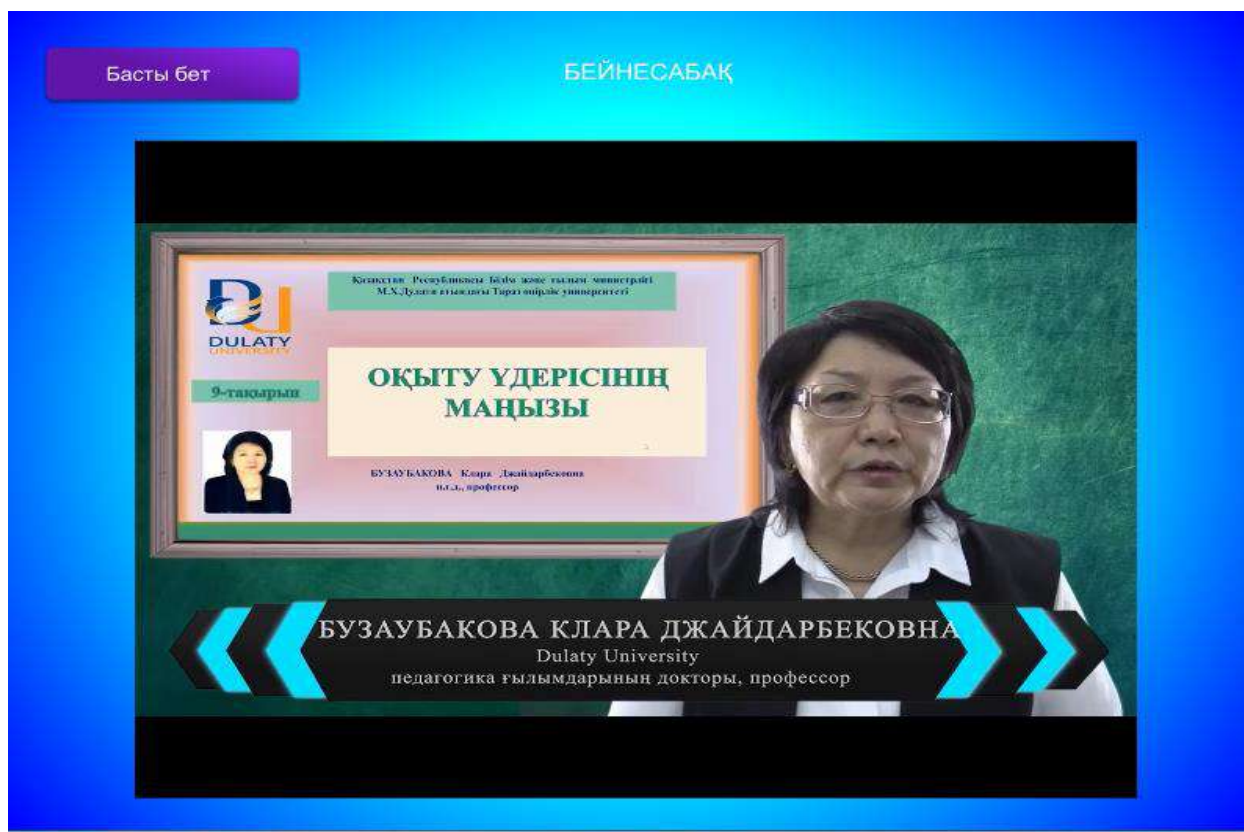


Figure 82– The «Video tutorial» blog of the electronic textbook

In the upper right corner of the «pedagogical situation» menu, by clicking on the button «Home», you can go back to the Main Menu of topic 1.

It is proposed to solve a pedagogical crossword that reveals the content of each topic by clicking the «Pedagogical crossword» button of the electronic textbook (Fig.83).

In the upper right corner of the «pedagogical crossword» menu, by clicking on the button «Home», you can again go to the Main menu of topic 1.

You can get acquainted with the creative task by clicking on the «creative task» button of the electronic textbook to reveal the content of topic 1 (Fig.84).

You can go back to the Main Menu of topic 1 by clicking on the «Home page» tab in the upper right corner of the «creative task» menu.

You can go back to the main menu of Theme 1 by clicking on the «Home Page» button at the top right edge of the «creative task» menu.

II. The electronic reading block «Bilgenge marzhan» contains didactic materials that form the cognitive and creative activity of future teachers.

You can go back to the main menu of Theme 1 by clicking on the «Home Page» button at the top right of the «Bilgenge marzhan» menu.



Figure 83– The «Pedagogical crossword puzzle» blog of the electronic textbook

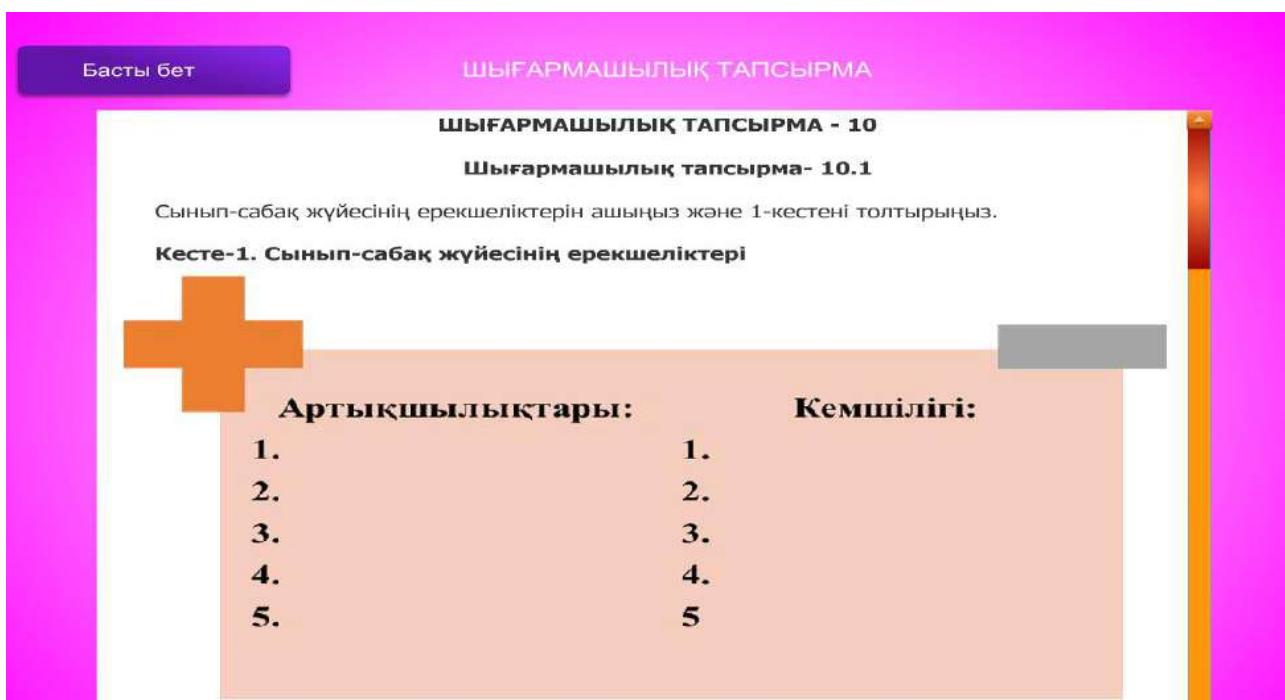


Figure 84 – «Creative task» blog of the electronic textbook

Table 16 provides links to the innovation and information bank fund in the discipline «Pedagogy».

Table 16 – Links to the innovation and information bank fund in the discipline «Pedagogy»

№	Video lecture and textbook, electronic textbook	Link, bar code
1	Video lecture № 1	https://youtu.be/1ZQtnfa8bvk
2	Video lecture № 2	https://youtu.be/KNZeV1qeIEQ
3	Video lecture № 3	https://youtu.be/6KyZyVglB4k
4	Video lecture № 4	https://youtu.be/HDuJaE4v3F8
5	Video lecture № 5	https://youtu.be/hNAzo48XdPc
6	Video lecture № 6	https://youtu.be/g2XpxP3OvIk
7	Video lecture № 7	https://youtu.be/QFLGkksFS-4
8	Video lecture № 8	https://youtu.be/B71g0yFBCZ0
9	Video lecture № 9	https://youtu.be/mt6ZzsHDNiY
10	Video lecture № 10	https://youtu.be/9m9Y1XstsWI
11	Video lecture № 11	https://youtu.be/odi1SlGxpUk
12	Video lecture № 12	https://youtu.be/H8BUrH3BhEg
13	Playlist	https://youtube.com/playlist?list=PLU8tanfFhA7y5w9PYPM5DtdD1aOnR854B
14	Electronic textbook «Pedagogy»	https://cloud.mail.ru/public/yNJ3/UmAWNQXXU

Electronic textbook «Digital pedagogy»

The electronic textbook «Digital pedagogy» is intended for future teachers studying in all specialties of a Pedagogical University, including future teachers studying in the educational program 6B01301 – Pedagogy and methods of primary education.

Purpose of the electronic textbook «Digital pedagogy» – formation of a systematic approach of future teachers to their professional activities; improving the readiness of future teachers for self-education; mastering the skills of future teachers to effectively use digital technologies in the educational process; development of cognitive activity and creative competencies of future teachers; formation of digital and creative competencies of future teachers.

The main technical characteristics of the electronic textbook «Digital pedagogy» are shown in Figure 85.

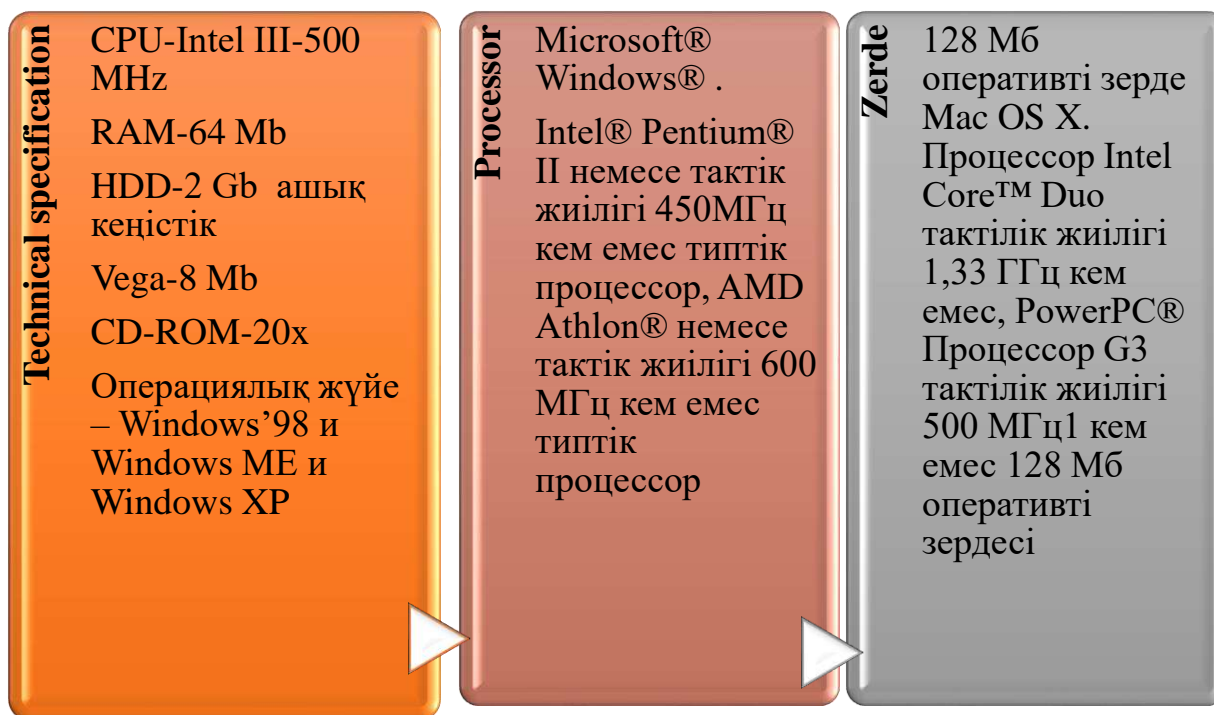


Figure 85– Main technical characteristics of the electronic textbook «Digital Pedagogy»

Functional capabilities of the electronic textbook «Digital pedagogy»:

- the electronic textbook introduces future teachers to the intricacies of the digital environment, forms a systematic approach of future teachers to their professional activities and professionally important personal qualities, digital competencies;

- the future teacher will be familiar with the structure, object of research, functions and trends, patterns, principles of development of digital education; acquire new knowledge on the methods and methods of using educational platforms and tools in a digital environment;

- get acquainted with the pedagogical requirements for the personality of students and teachers in a digital society and improve their digital competencies.

The programming language of the electronic textbook «Digital pedagogy» is Action Script 2.0.

Main menu of the electronic textbook

The main menu of the electronic textbook consists of 4 blocks located horizontally:

- 1) Theory;
- 2) Glossary;
- 3) Photo Gallery;
- 4) Literature (figure 86).

In the center of the main menu of the electronic textbook, under the «Exit» button on the left, there is the «Author» button, and in the lower right corner there is the «Instruction» button, which provides methodological instructions for using the electronic textbook [123].

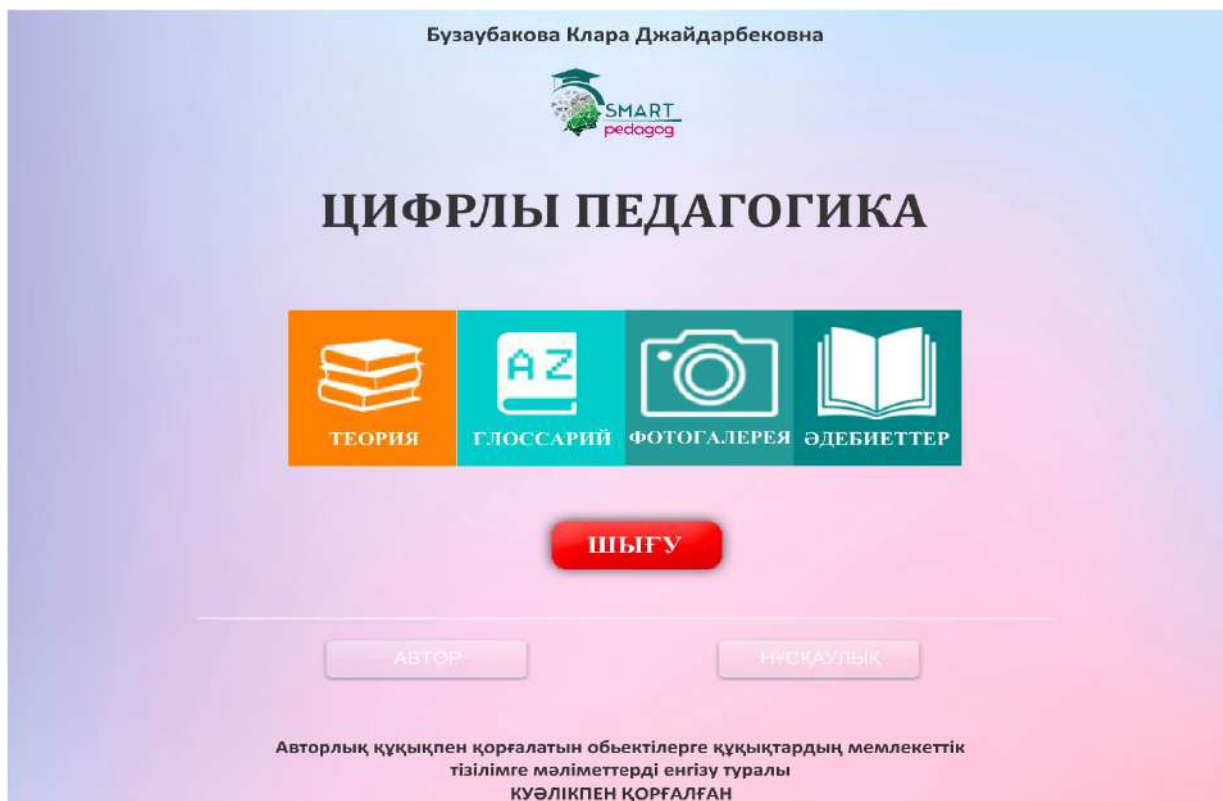


Figure 86–Main menu of the electronic textbook «Digital Pedagogy»

Clicking on the «Theory» block of the electronic textbook will display 12 cells:

- 1) Topic 1;
- 2) Topic 3;
- 3) Topic 3;
- 4) Topic 4;
- 5) Topic 5;
- ...
- 12) Topic 12 (fig. 87)



Figure 87– Block «Theory» of the electronic textbook «Digital Pedagogy»

Clicking on the «Topic 1» cell will open the content of Topic 1.

On the upper left edge of Title 1, there are 3 small cells: «Test»; «Blitz tour»; «Video lesson» (figure 88).

In the «test» cell of the electronic textbook, 10 test tasks are given for monitoring and evaluating knowledge on each topic. If the answer is correct, a green mark is given, and if it is not correct, a red mark is given; at the end of the test, it shows how many questions were answered correctly and how long it took (figure 89).

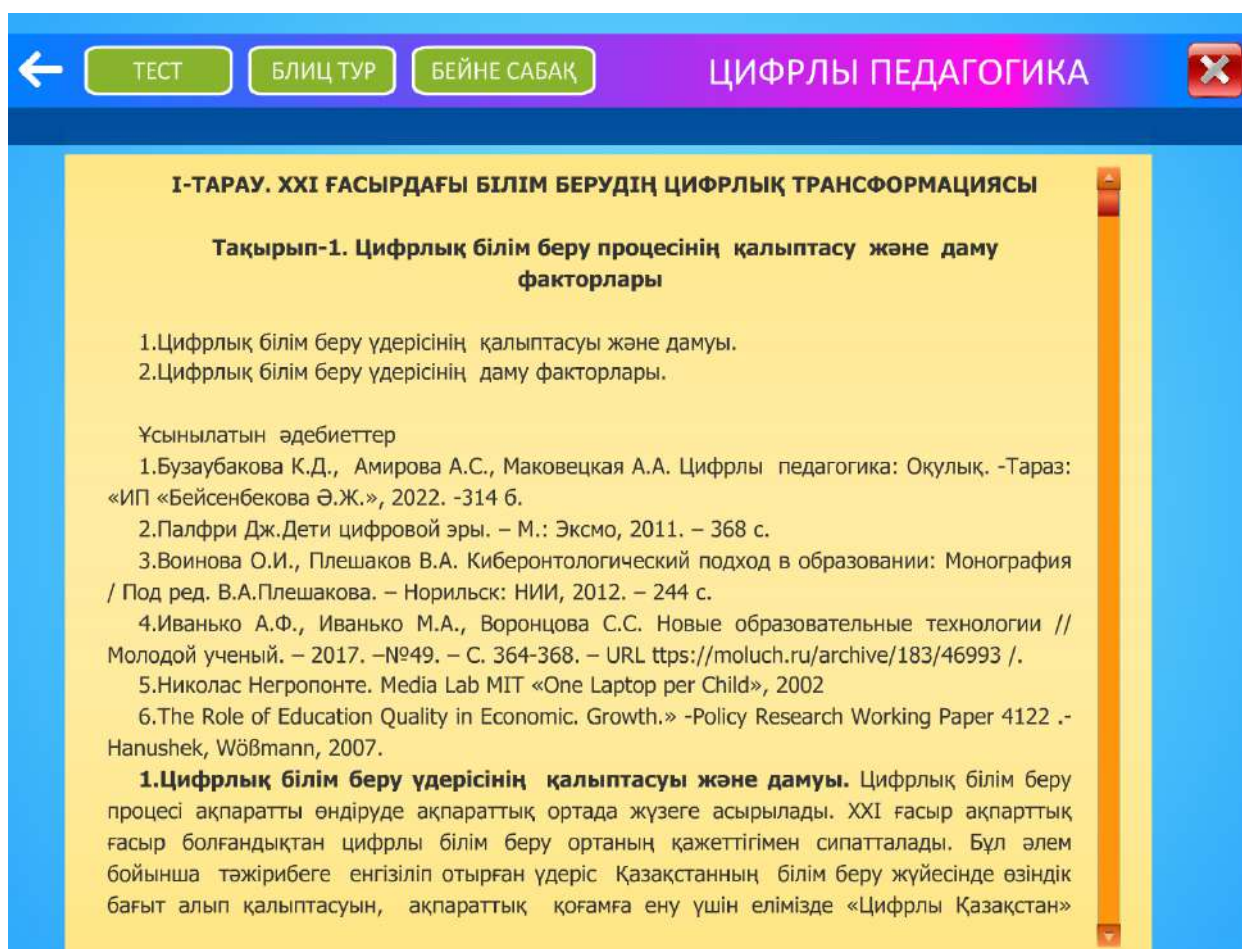


Figure 88– Block «Topic 1» of the electronic textbook «Digital Pedagogy»

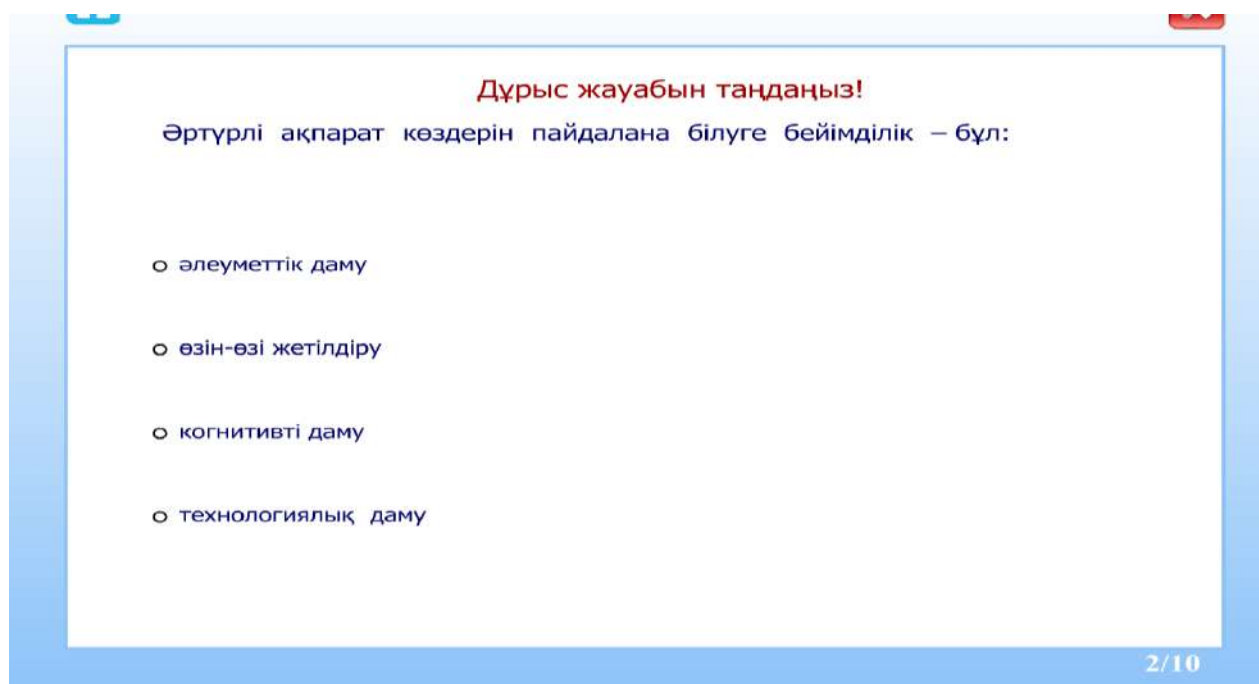


Figure 89– Block «Test» of the electronic textbook «Digital Pedagogy»

You can improve the result by clicking on the «Again» button. This time, the order of «back» button or number of times the test tasks are shifted.

By clicking on the cell in the shape of a rectangle, separated by 3 dashes located parallel to each other, you will get to the main menu of Title 1.

In the «Blitz tour» cell of the electronic textbook there are 5 clicks marked with the numbers 1,2,3,4,5. In the «blitz tour» slot, «who is fast and who is smart?» as a game, blitz tour questions are given. 5 blitz round questions are given on each topic.

When you open the selected box, the text of the question, the given time – 20 seconds, after 20 seconds, the correct answer is opened (figure 90).

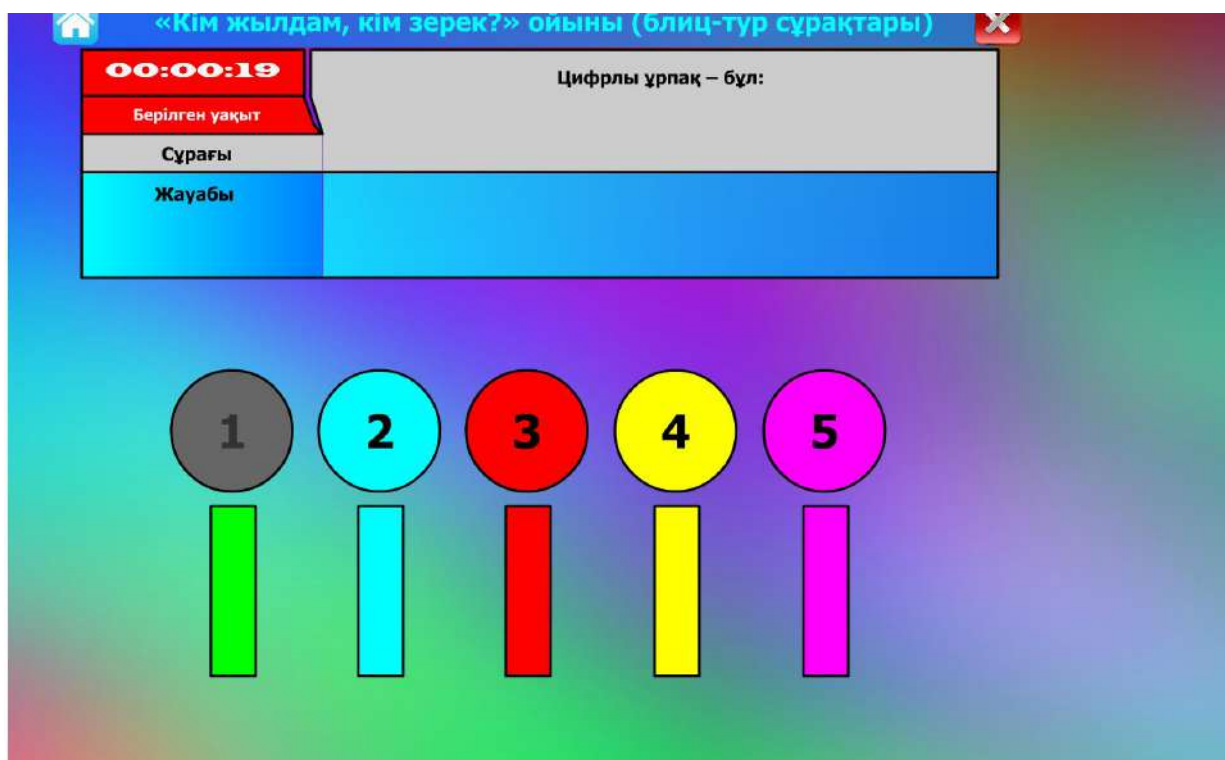


Figure 90– Block «Blitz tour» of the electronic textbook «Digital Pedagogy»

By clicking on the «Video lesson» of the electronic textbook, you can see the author's video lesson, which reveals the content of Topic 1. Each video lesson is selected in such a way as to reveal the content of the topic (figure 91).

You can go to the main menu of Title 1 by clicking on the «Home Page» button at the top right of the «Video lesson» menu.

You can go back to the main menu of Theme 1 by clicking the « ← » at the top left of the «Video lesson» menu.

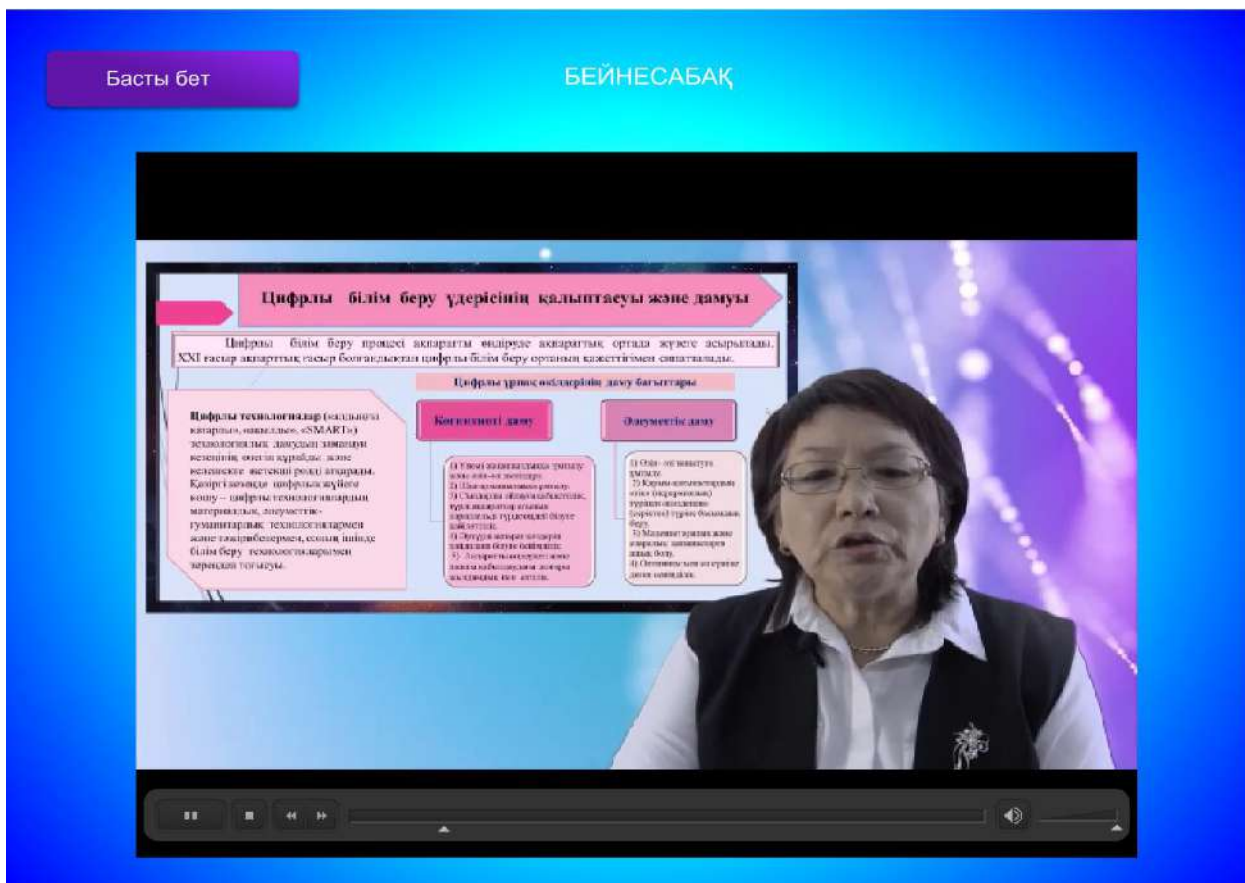


Figure 91– Blog «Video Lesson» of the electronic textbook «Digital Pedagogy»

In the «Glossary» block of the electronic textbook, the basic concepts and terms related to the discipline «Digital pedagogy» are presented in alphabetical order. You can go back or forward again using the «>», «<» clicks located in the middle left and right corner of the «glossary» menu (figure 92).

You can go back to the main menu of Title 1 by clicking the «Home Page» button at the top right of the «Glossary» menu.

In the «Photo gallery» blog of the electronic textbook, photos taken in the lesson of the discipline «Digital pedagogy» are grouped. Whatever picture you want to see, if you bring the word «smart-pedagog» written in English next to this picture and click on it, it will enlarge and appear on the monitor. You can again go to the main menu of the photo gallery by clicking the «back» button in the lower left part of the photo. In the main menu, you can view all the photos at once (figure 93).

In the «Literature» blog of the electronic textbook, literature on the subject «Digital pedagogy» is presented. Click «>», «<» in the middle left and right corner of the «Literature» menu, you can go back or forward again (scroll), search for the necessary literature (figure 94).

You can go back to the main menu of Title 1 by clicking on the «Home Page» button at the top right edge of the «Literature» menu.

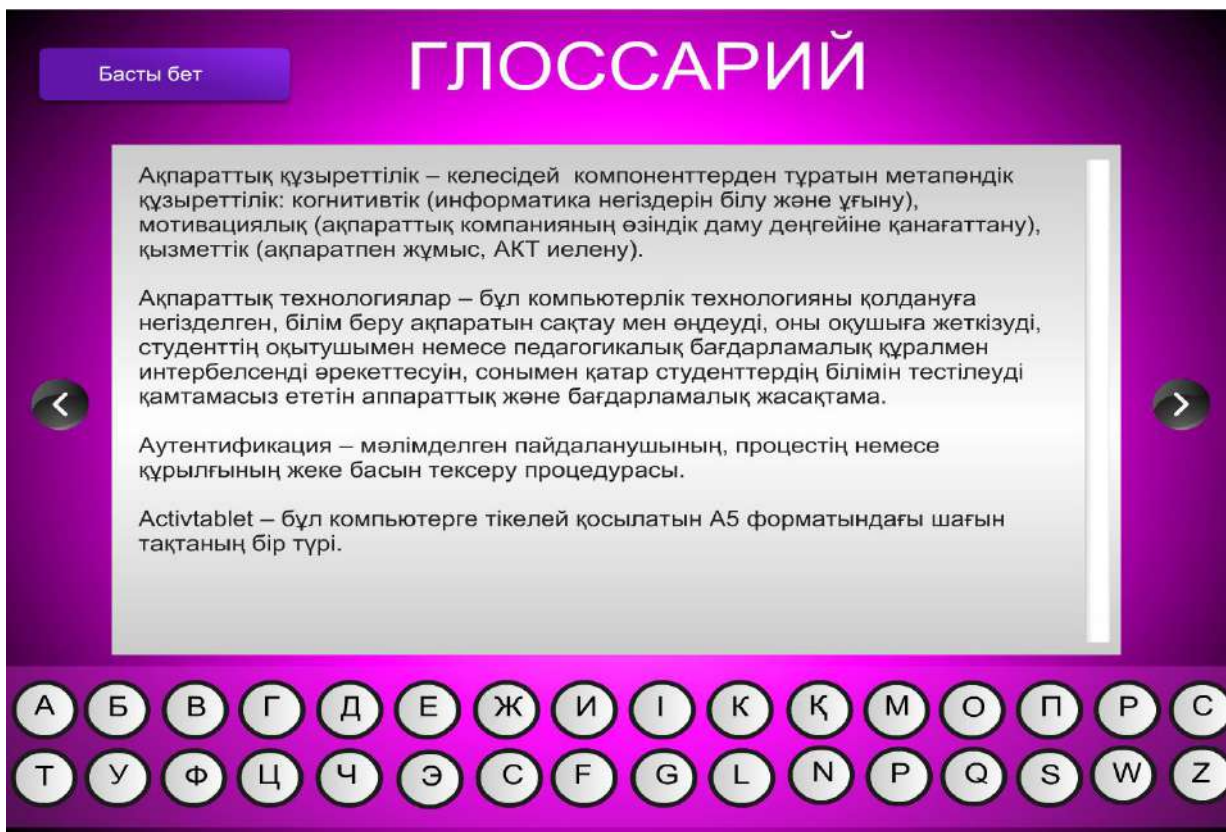


Figure 92– Blog «Glossary» of the electronic textbook «Digital Pedagogy»



Figure 93– Blog «Glossary» of the electronic textbook «Digital Pedagogy»



Figure 94– Blog «Glossary» of the electronic textbook «Digital Pedagogy»

You can close the electronic textbook by clicking on the «Exit» button in the main menu of the electronic textbook.

The main feature of the electronic textbook «Digital pedagogy» is that the theoretical material is grouped in such a way as to form the creative competence of the future teacher.

3.3 Portal of pedagogical education: www.smart-pedagog.kz

Digital educational platforms are the main one-component part of the e-learning system. These include photographs, artistic fragments, statistical and dynamic models, objects of virtual reality and interactive modeling, cartographic materials, sound recordings, character objects and business graphics, text documents and other educational materials necessary for organizing the educational process.

The main goal of digitalization is to increase competitiveness, improve the quality of life of the population, accelerate and simplify the educational process, reduce the burden on students and teachers. The main thing is to improve the quality of education. Our graduates must be internationally competitive in various fields, including artificial intelligence and large-scale data generation.

The types of digital educational platforms are diverse: Google Classroom, Nearpod, Learning Apps, Kahoot, Edapp educational platform, Diary platform, Bilimland platform, Online Mektep platform, pedagogical education portal www.smart-pedagog.kz (table 17).

Table 17 - Digital educational platforms

№	Digital educational platforms			
	Name	Features	Advantages	Features
1	Google Classroom	Google Classroom is a platform that allows you to completely transfer learning online: build lessons on topics, add materials, give and test homework	Combines useful Google services organized specifically for training: <ul style="list-style-type: none"> • Create your own group • Organization of enrollment of students in the course • Share the necessary educational material with students • Presentation of tasks for students • Evaluation of students ' tasks and monitoring their progress; • Organization of students ' communication 	<ul style="list-style-type: none"> • Simple customization (configuration) • Saves time and paper • Convenience • Productive communication • Integration with popular services • Accessibility and security
2	Nearpod	Nearpod is a platform that allows teachers to create presentations for classes and show them to students right during the lesson. Effectively designed for mobile phones.	Nearpod can participate in sessions independent of other applications from any device and from any platform (IOS, Android, Windows Phone).	<ul style="list-style-type: none"> • The free version of Nearpod allows you to create slides with images, text and audio tracks, as well as invite up to 30 students to participate in an online session • The paid version of Nearpod Gold offers much more features: creating slideshows, entering video files, creating quizzes, open questions, drawing tools, graphs and charts • Compiled presentations can be saved in PDF format and distributed for offline work.

3	Learning Apps	Learning Apps – an application designed to support the learning process through interactive modules (applications, exercises)	<ul style="list-style-type: none"> • Learning Apps templates are grouped by functional attributes: • Selection-exercises to choose the right answer • Distribution-tasks for determining compliance • Consistency-determining the correct consistency • Filling-exercises that require you to put the correct answer in the right places • Online games • Training competitions with students 	This online service allows you to create modules, store and use them, ensure free exchange between teachers, and organize the work of students
4	Kahoot	Kahoot is a free platform for learning in a playful way, suitable for any academic subject and any age.	<ul style="list-style-type: none"> • It can be used to create a test, survey, educational game or organize an educational marathon. • Great ability to repeat and edit tests to save time. 	<ul style="list-style-type: none"> • Tasks created in Kahoot allow you to add images and even video frames to them. • The pace of quizzes and tests is adjusted by entering a time limit for each question.
5	Edapp educational platform	The EdApp educational platform is the leading LMS system used by large and small organizations around the world. EdApp is an educational platform available free of charge to all users, both private and corporate	It offers design solutions and templates to make the creation and exchange of courses simple and effective	Edapp integrates with powerful Canva design tools.
6	Kundelik.kz	Kundelik.kz the system is an educational management system in terms of academic performance in	On Kundelik.kz they can see the exact schedule, prices, assignments and school attendance of the child at any time and anywhere.	Can automatically perform all the necessary educational processes and much more online

		secondary education in Kazakhstan (the so-called LMS-Learning management system)		
7	Bilimland	Bilimland is a digital education platform based on the advanced achievements of world leaders in e-learning.	This is a large digital library of modern educational content, a set of about 30 thousand electronic lessons, simulators, interactive exercises, videos for training, animated films covering all subjects in Kazakh, Russian and English	Interesting electronic lessons will help children prepare for school and stimulate the interest of primary school students in learning
8	Online Mektep	In 2020, the center, together with Bilim Media Group, an innovative company in the field of online learning, developed and launched the online mektep digital educational platform (www.bilimland.kz). The main goal is to provide students of general education schools with the opportunity to adapt online training	Online Mektep contains digital content developed in accordance with standard curricula for students of general secondary schools of the country www.bilimland.kz new module of the educational portal. This module consists of specially developed digital educational resources: video lessons, level tasks, interactive exercises that involve the systematic formation of skills aimed at developing functional literacy of students.	The main idea of the platform is to develop theoretical materials for each lesson in the form of summaries, diagrams, intellectual maps, and the practical part of the lesson is given in the form of level tasks, these tasks allow you to systematically and consistently develop the skills necessary for the formation of functional literacy of students.
9	www.smart-pedagog.kz	An intelligent innovative virtual educational platform that provides access to all educational resources to	<ul style="list-style-type: none"> • Promotes a comprehensive understanding of the subject through interactive learning methods such as video, audio, etc • Economical, as the portal offers free 	There is an opportunity to study everywhere

		provide distance learning and advanced training	educational content. • Content is constantly updated	
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Pedagogical education portal www.smart-pedagog.kz

Pedagogical education portal www.smart-pedagog.kz - it is an intelligent innovative virtual educational platform that provides access to all educational resources to provide distance learning and advanced training. AP09259497 within the framework of the international project «Improving the system of pedagogical education in Kazakhstan in new conditions: technological and methodological aspects of the formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan» (the project manager is the author of the monograph K.D.Buzaubakova) was created on the basis of innovative cooperation between Taraz regional university named after M.Kh. Dulaty and Shadrinsk state pedagogical university of Russia.

The benefits of the Smart-pedagog educational portal are not limited to students, but also apply to existing teachers. The interactive teaching and education methods used in the portal open up a new perspective for teachers, who can apply these methods in simple classrooms and thus help future educators to better understand the concepts.

Some of the advantages of the portal were revealed in Figure 95.

In order to make education the central link of a new model of economic growth in the XXI century, it is necessary to focus the training program on the development of critical thinking, independent search skills, and distance learning.

In Kazakhstan in the new conditions, there is a need to modernize the system of pedagogical education, the formation of digital and creative competencies of future teachers.

The pedagogical educational portal www.smart-pedagog.kz is provided to form the digital-creative competence of future teachers, which is reflected in the creative activities of the future teacher, such as creative thinking, methodological reflection, desire for novelty, creative use of innovative technologies, constant search for improvement of the educational process, systematic use of pedagogical innovations in their practice, the ability to independently search and find information; process, accumulate, sort the received information, etc. [124].

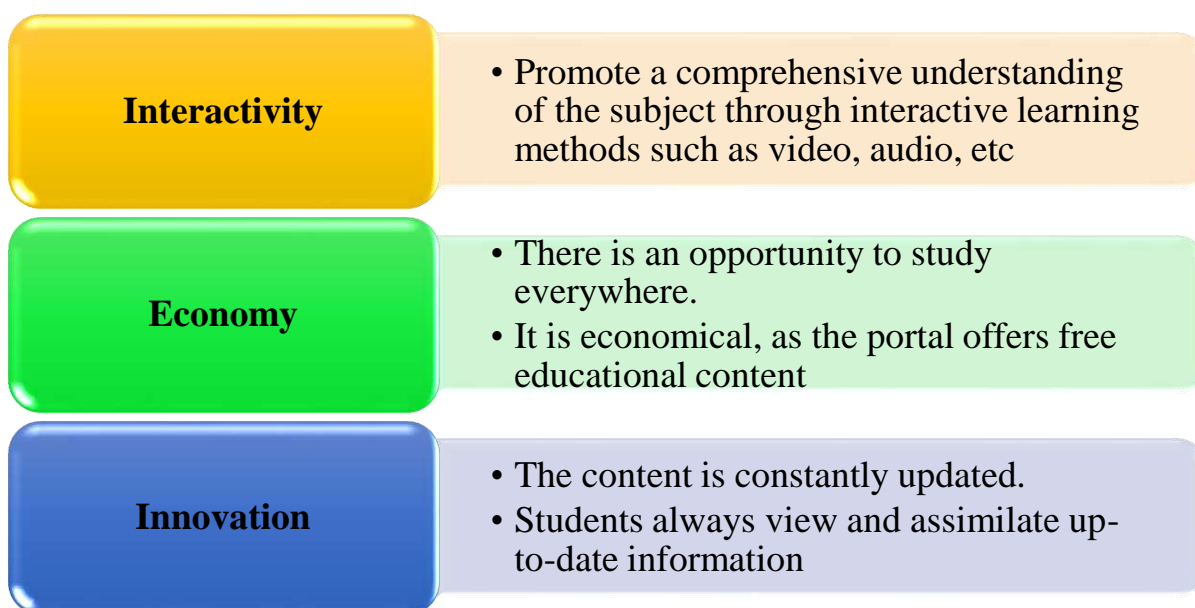


Figure 95– Advantages of the portal

In Figure 96 a special distinctive mark (logo) of the pedagogical educational portal www.smart-pedagog.kz was issued.



Figure 96 – a special distinctive mark (logo) of the pedagogical educational portal www.smart-pedagog.kz

The pedagogical educational portal www.smart-pedagog.kz operates in 3 languages: kazakh, russian and english (Figure 97).

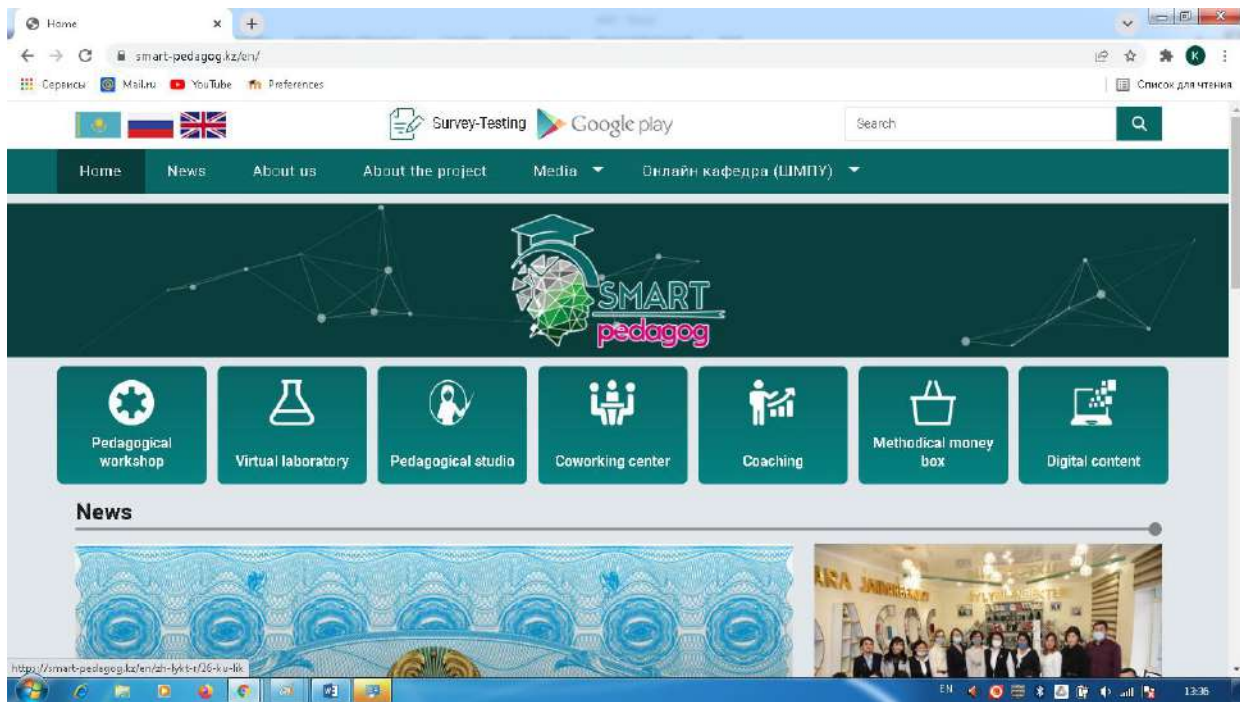


Figure 97–The main page of the pedagogical education portal www.smart-pedagog.kz

In the upper left corner of the main page there are flags of Kazakhstan, Russia and England.

In which language you want to get information, you can select the language by clicking on the flag of that country.

In the upper middle part there is a mobile application «Survey-Test» with the label «Google play».

The «Search» cell is located at the top left. You can find the necessary information by writing the reference words of the information you are looking for.

In the 2 bars of the Home Page, 6 blogs are grouped: «Home page»; «News»; «About Us»; «About The Project»; «Media»; «online Department (ShPU)».

Click «Home» - leads to the home page.

On the main page of the pedagogical educational portal www.smart-pedagog.kz there is a block «About us». The «About us» section of the pedagogical educational portal provides brief information on the project manager and project members.

On the main page of the pedagogical educational portal www.smart-pedagog.kz there is a block «About the project».

The «About the project» section of the pedagogical educational portal presents the project topic, the relevance of the project, the research methodology, the project goal, the project objectives, the expected results from the project (Fig.98).

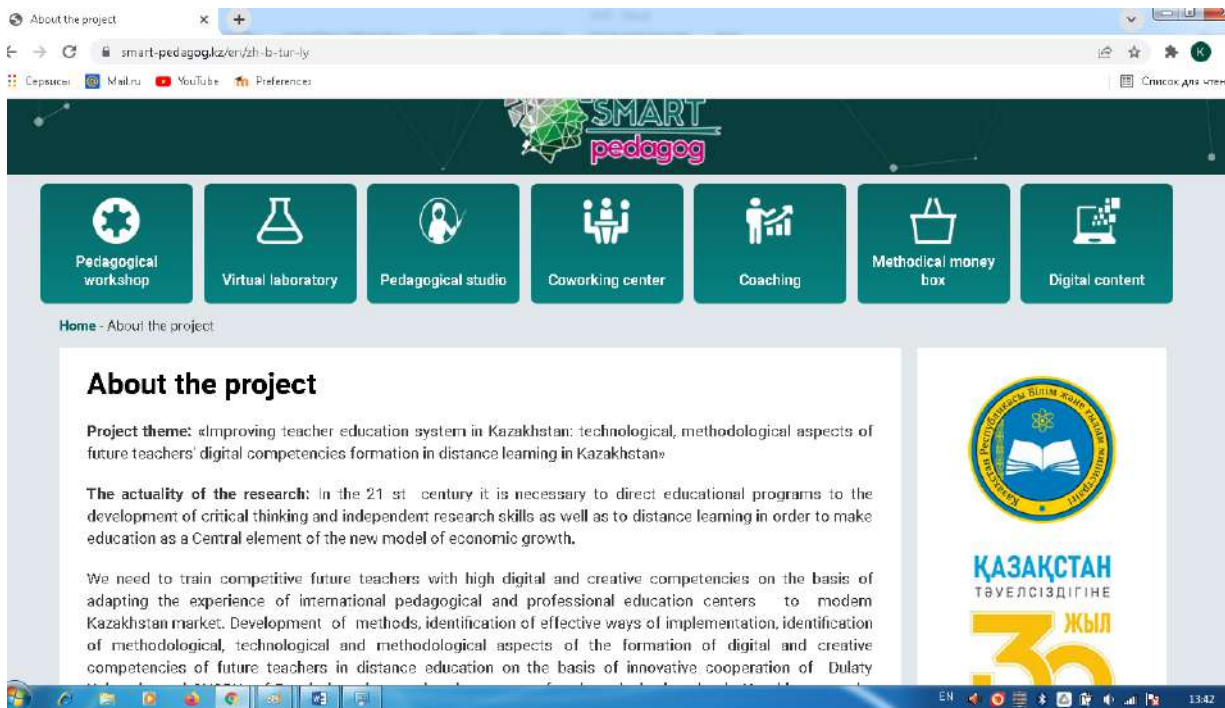


Figure 98 – The blog «About the project» of the pedagogical educational portal www.smart-pedagog.kz blog

On the main page of the pedagogical education portal www.smart-pedagog.kz there is a block «News». The «News» section is constantly updated with new information about the activities carried out on the project. So, on February 5, 2022, 2 materials were posted on the main page of the pedagogical educational portal in the «News» block:

1) certificate No. 23213 dated February 1, 2022 On Entering information into the state register of Rights to Copyrighted Objects issued for the electronic textbook «Pedagogy» by the author of the project – Doctor of Pedagogical Sciences Buzaubakova K.D.;

2) brief information on the conduct of collaborative research by Kazakh and Russian scientists (Fig. 99).

On the main page of the pedagogical educational portal www.smart-pedagog.kz there is a block «Media». The Media block of the pedagogical educational portal consists of 2 parts: a video gallery; a photo gallery.

In the «Video Gallery» section of the «Media» blog of the pedagogical education portal, 12 video tutorials on the subject «Pedagogy» by the author of the project Buzaubakova K.D. are presented (Fig. 100).

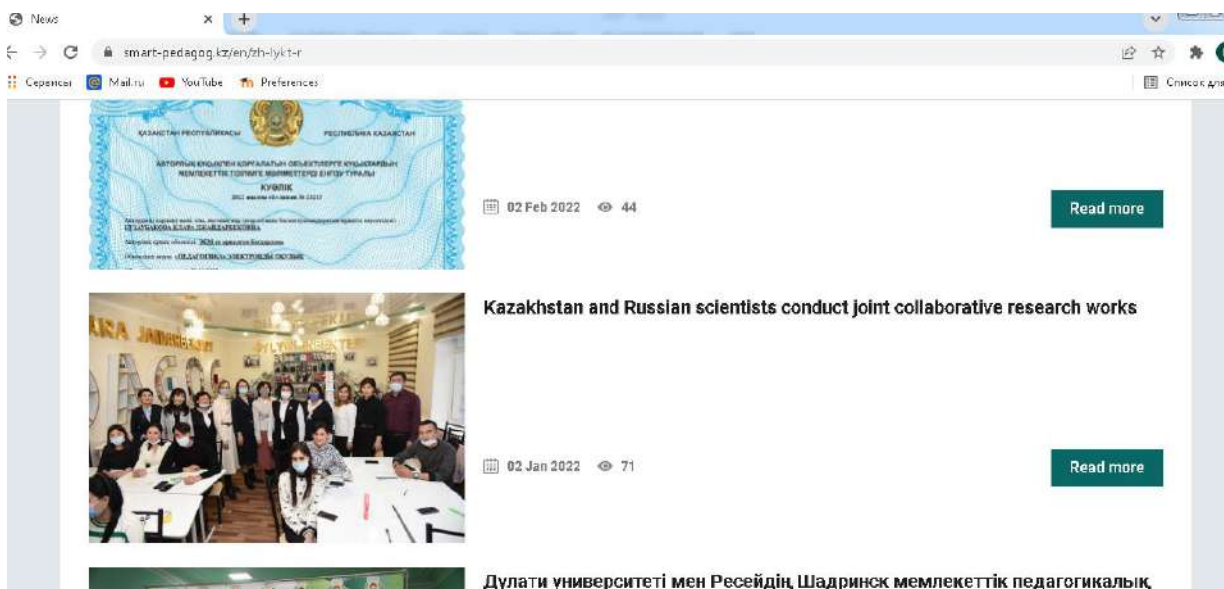


Figure 99– The blog «News» of the pedagogical educational portal www.smart-pedagog.kz blog

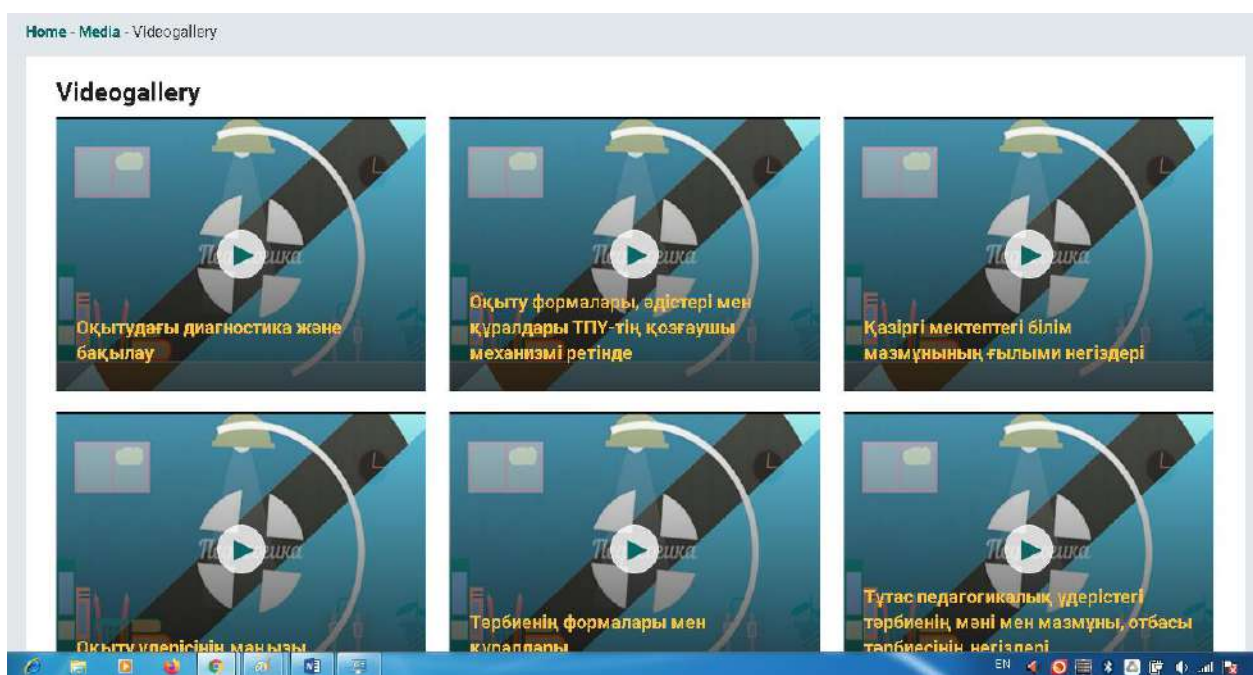


Figure 100– The «Video gallery» part of the «Media» blog of the pedagogical educational portal www.smart-pedagog.kz

In the «Photo Gallery» section of the «Media» blog of the pedagogical educational portal, photo-drawings are grouped, revealing the content of events held within the framework of the project (Fig.101).

In the «Online department» blog of the pedagogical educational portal, special documents prepared as part of the project to open an online department of the

Department of Pedagogy will be presented M.Kh.Dulaty Regional University, opened at Shadrinsk State Pedagogical University.

The advantage of the proposed pedagogical educational portal is that a digital pedagogical hub (pedagogical campus) of DULATY will be created in Kazakhstan under new conditions to train teaching staff and improve digital literacy and competence of future teachers.

The Digital Pedagogical Campus is an intelligent innovative virtual educational platform that provides access to all educational resources in teaching, distance learning and advanced training.

The digital pedagogical hub will be the smart-digital methodical office of the future teacher, in which the digital-creative competencies of the future teacher are formed [7; 179].

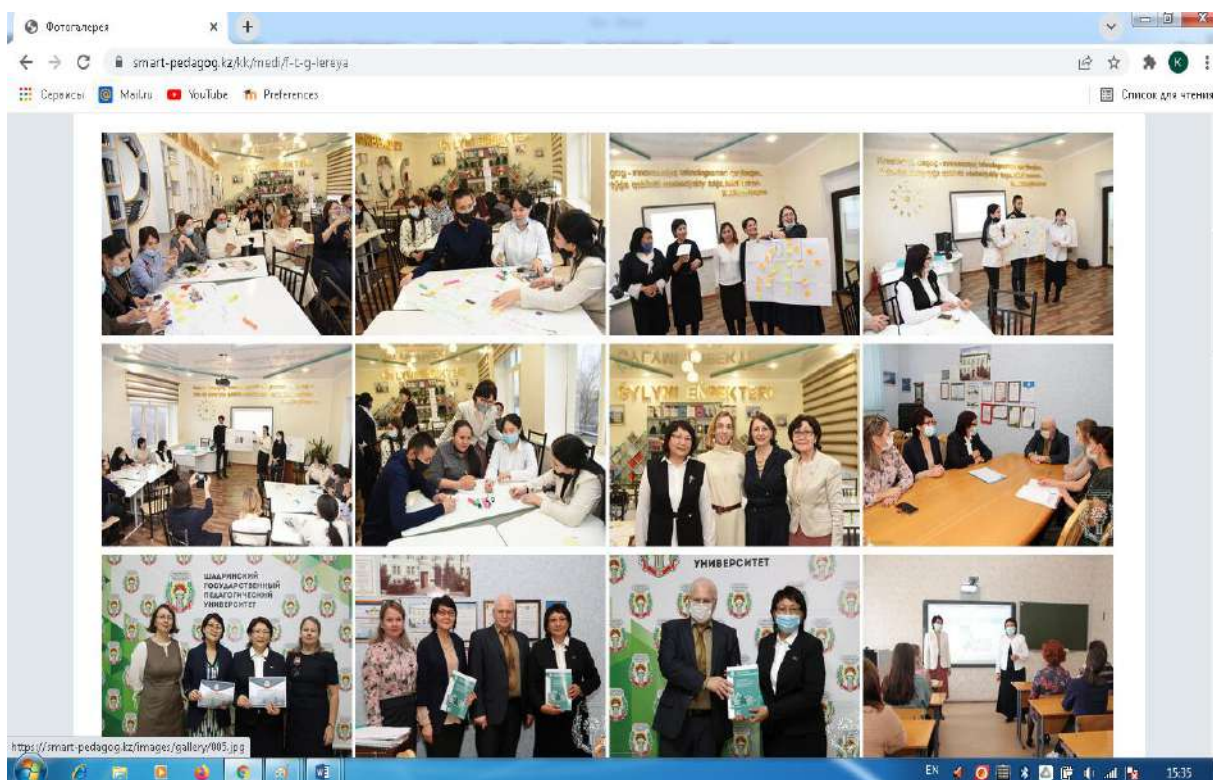


Figure 101– The «Photo Gallery» part of the «Media» blog of the pedagogical education portal www.smart-pedagog.kz

In order to train teaching staff in the Republic of Kazakhstan and improve the digital creative competence of future teachers www.smart-pedagog.kz. The portal of pedagogical educational works in the following direction and uses 7 online pedagogical resources (figure 102):

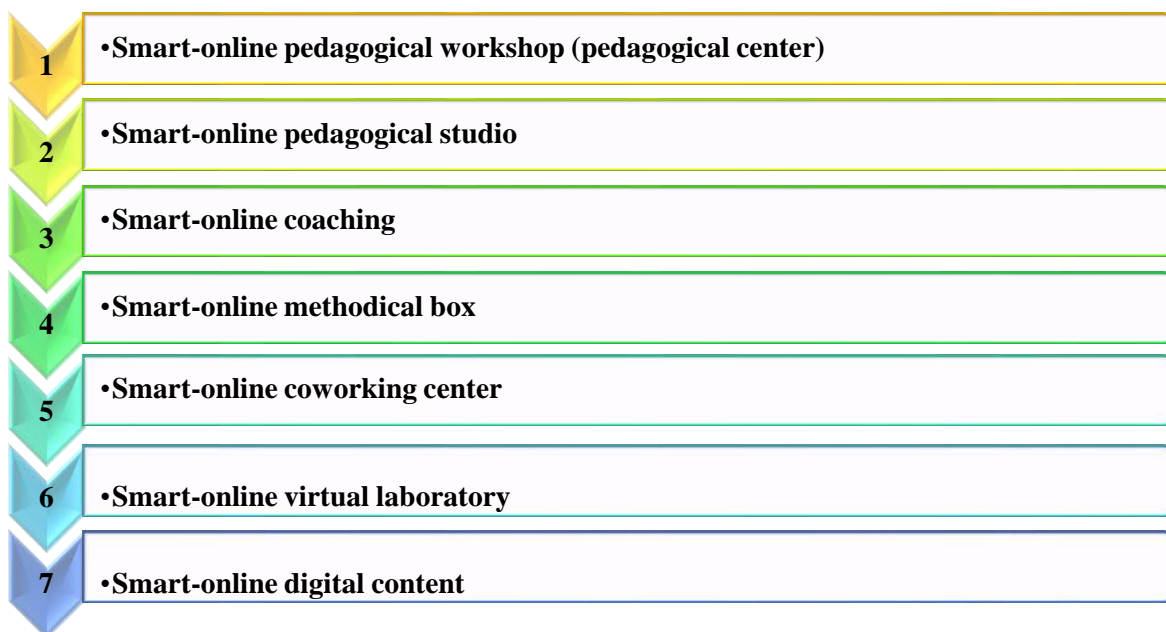


Figure 102– Resources of the pedagogical education portal

Smart-online pedagogical workshop (pedagogical center)-where future teachers get acquainted with the amazing secrets of the pedagogical profession as a result of watching, analyzing, testing at the stage of pedagogical practice video lessons of an innovative teacher from Kazakhstan, Russia and other leading foreign countries; develops lessons on distance learning, etc. (fig.103).

PPR materials available in the smart-online pedagogical workshop can be found at the following link: <https://smart-pedagog.kz/kk/pedagogikaly-sheberkhana> [125].



Figure 103– Smart-online pedagogical workshop

SMART-online pedagogical studio – where future teachers acquire the knowledge, skills and abilities necessary to record their first innovative online lessons on video; create and prepare their first video lessons (fig.104).

You can familiarize yourself with the materials presented in the Smart-Online pedagogical studio at the following link: [https://smart-pedagog.kz/kk /pedagogikaly-studiya](https://smart-pedagog.kz/kk/pedagogikaly-studiya) [126].

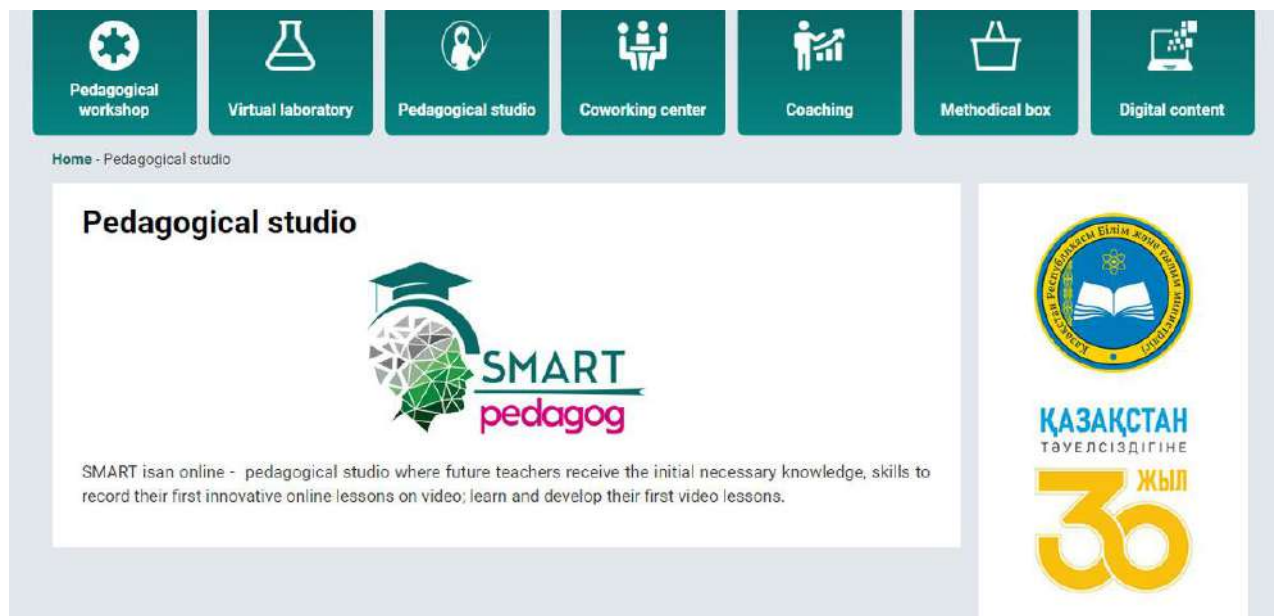


Figure 104– SMART-online pedagogical studio

In the blog «Pedagogical studio» on the pedagogical portal posted videos on the creation of video lessons:

- 1) Creating a video lesson on a computer- <https://youtu.be/k0suOPYwAXA>;
- 2) Creating a video lesson on a smartphone - <https://youtu.be/-8eQLt7adVI>;
- 3) Screencast (screen capture) - <https://youtu.be/i7UZFSyQ-PM>.

Smart- online methodological box - smart-future teacher will master the necessary IT competencies to learn, apply, disseminate the advanced innovative pedagogical experience of innovative teachers of Kazakhstan and Russia and other leading foreign countries (fig.105).

You can familiarize yourself with the materials presented in the SMART-online methodological box at the following link: <https://smart-pedagog.kz/kk/distemelik-orzhyn> [127].

The block «Smart-online methodological box» of the pedagogical educational portal contains the following materials:

- 1) Guide instruction;
- 2) Digital platforms and services that future teachers need;
- 3) Presentation of the Master's thesis (master's student Zhakyp Zh.);
- 4) Author's certificate: electronic textbook «Pedagogy»;
- 5) Author's certificate: «pedagogical education portal www.smart-pedagog.kz»;

- 6) Author's certificate: textbook «Digital Pedagogy»;
- 7) Regulations on the online contest;
- 8) Textbook «Digital Pedagogy»;
- 9) Electronic textbook on the discipline «Pedagogy».
- 10) Dulaty readings: pedagogical education portal «www.smart-pedagog.kz»;
- 11) Dulaty readings: Scientific Article-1 (K.D. Buzaubakova, Zh. Sh. Zhakyp);
- 12) Dulaty readings: Scientific Article-2 (K.D. Buzaubakova, Zh. Sh. Zhakyp);
- 13) Dulaty readings: Electronic textbook «Pedagogy».

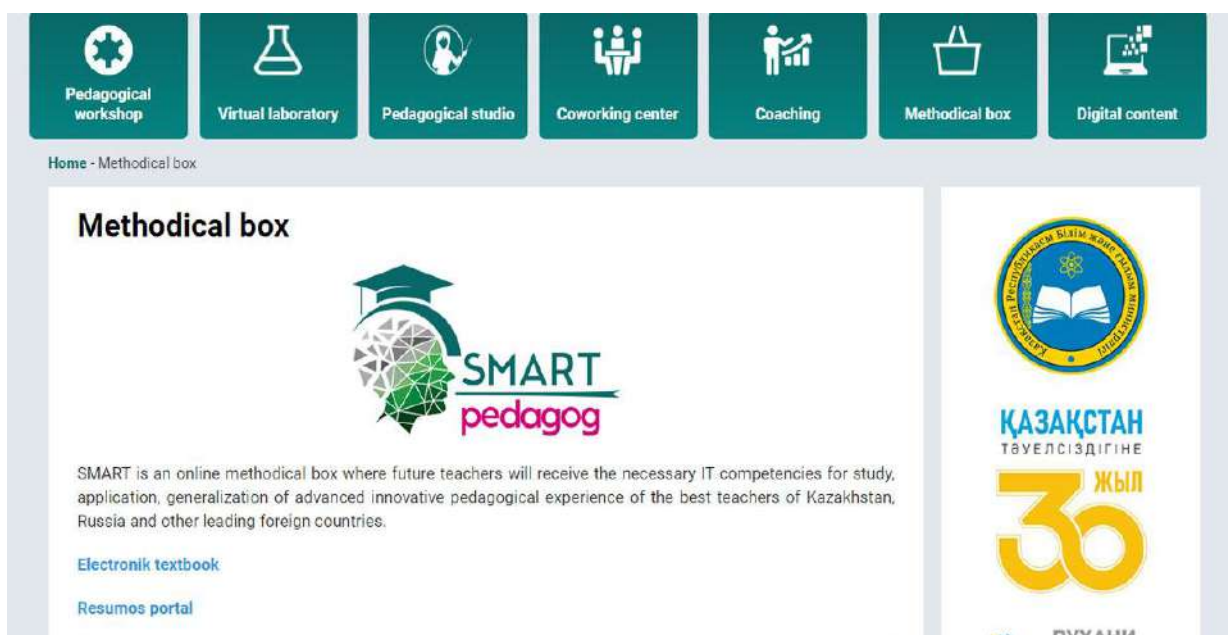


Figure 105– The blog of online methodological box of the pedagogical educational portal www.smart-pedagog.kz

Smart-online coaching - here future teachers will master the necessary competencies for conducting pedagogical coaching, trainings on topical issues of pedagogy, cyber pedagogy, media pedagogy, digital pedagogy (figure 106).

You can familiarize yourself with the materials presented in SMART-online coaching at the following link: <https://smart-pedagog.kz/kk/kouching> [128].

The blog «Smart-online coaching» of the pedagogical educational portal www.smart-pedagog.kz contains the following materials:

- 1) Poster of the webinar;
- 2) Resolution of the webinar;
- 3) Webinar program;
- 4) Video of the seminar-webinar.

Smart-online coworking center - an open platform for creative teachers and future teachers; a pedagogical hackathon that creates educational start-up projects, a simulation center for creative future teachers who share their experience and ideas; where smart-future teacher learns creative competencies related to conducting innovative research and research projects on current problems of pedagogy, cyberpedagogy, media pedagogy, digital pedagogy (fig.107).

The materials attached to the SMART-online coworking center can be found at the following link: <https://smart-pedagog.kz/kk/kovorking-ortaly> [129].

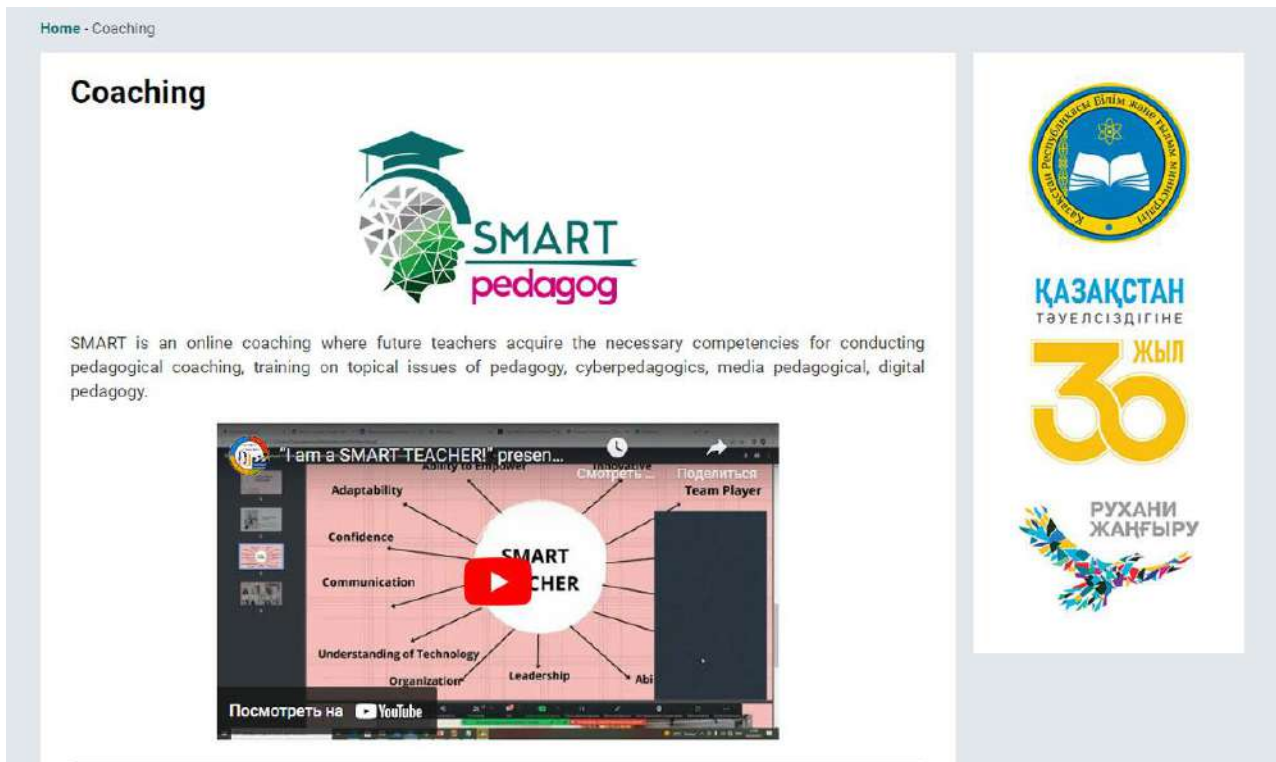


Figure 106– SMART-online coaching

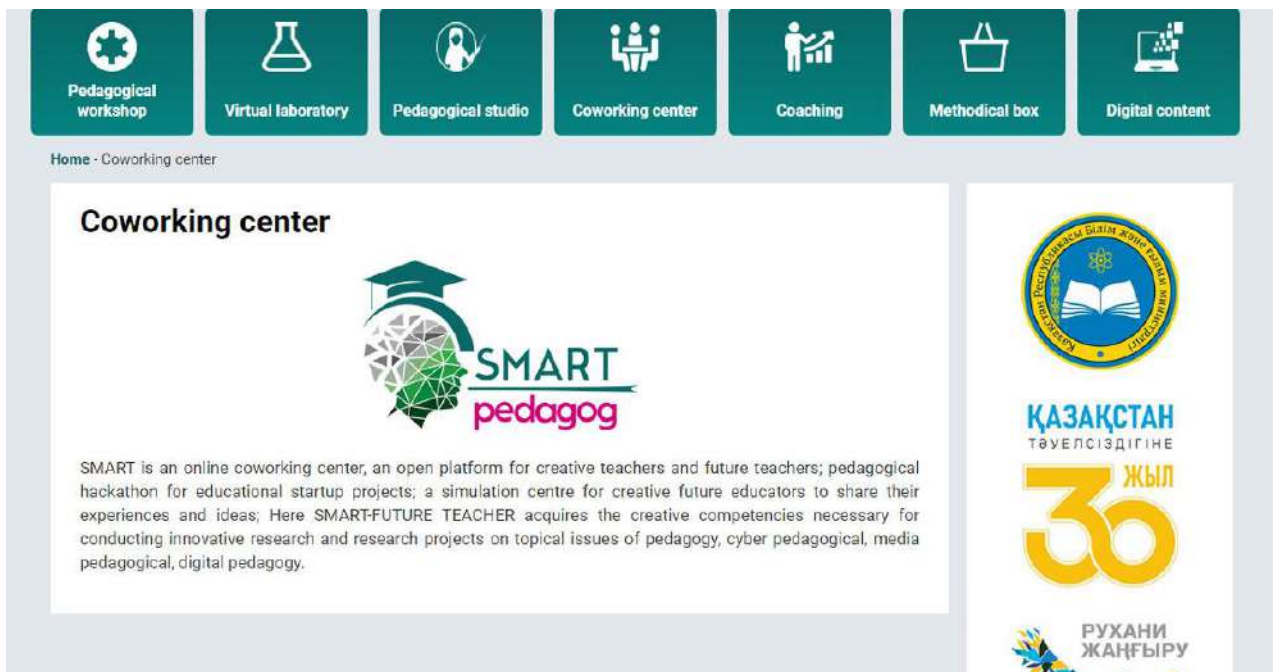


Figure 107– SMART - online coworking-center

Within the framework of the student scientific circle «smart-pedagog» on April 12 –the day of Science workers «I will be smart-pedagog!» the regional pedagogical coworking. In order to promote the pedagogical profession in the pedagogical coworking, such tasks as: promoting the basics of the pedagogical profession to graduates of colleges and schools; attracting talented graduates to the pedagogical profession; encouraging them to choose a pedagogical profession and directing them to conduct research work productively.

Pedagogical coworking was conducted in 2 rounds as follows:

I round. Presentation: «I will become a smart teacher! presentation of their groups and poster protection on the topic». Regulation 10 minutes.

II round. Contest of the educated «Young scientist»: answers to questions of Fortune.

5 pedagogical coworking centers took part in the regional pedagogical coworking:

1. Coworking center «Prosper» secondary school No.42 of Taraz. (Leaders: K.A.Egemberdieva, S.D.Karymsakova).

2. Coworking center «Karatau kyrandary» from secondary school No. 53 named after K.Turysov. (Leaders: N.A. Userova, A.B.Toktarbayeva).

3. Zhambyl humanitarian higher college named after Abai, a coworking center for students of the specialty «Preschool education and training» (Head: Serikova Z.B.).

4. Coworking center «Parasat» from the College «Parasat» (managers: A.T.Ermekova, B.T.Kerimbayeva).

5. Coworking center «Smart-pedagogue», consisting of students of Taraz regional university named after M.Kh.Dulaty (Supervisor: S.Zh. Bupetaeva).

The first round «I will become a smart teacher!» in the presentation section, each coworking center defended its groups with posters.

In the II round of the Zhas Galym expert contest, each coworking center answered the following Fortuna questions:

1) on April 12, The Republic of Kazakhstan has been celebrating the «Day of scientific workers» since 2012. Do you know on the basis of the date of birth of which scientist this «Day of scientific workers» was formed? Name, give details!

2) What do we know about the first president of the Kazakh Academy of Sciences, academician Kanysh Imantayevich Satpayev? Give details!

3) According to Kanysh Satpayev's words: «To develop the science in Kazakhstan in the right way, people who are devoted to the interests of their homeland should serve in its headquarters - in the Academy of Sciences» - what do you think should be a person who is devoted to the interests of his homeland?

4) Name the 3 qualities that a smart teacher needs to have! Discover the content!

5) What is the connection of «Smart teacher» with the science?

6) Who is a «Smart teacher»?

7) What is the difference between «Smart teacher» and the concept of «teacher»?

- 8) Explain the essence of «the path to smart pedagogical science»!
- 9) Name several scientific achievements of Kazakhstan that you know!
- 10) Name the academician of sciences who invented the "QazVac" vaccine!
- 11) Who is the academician who in 2022 received the High title of «Labor hero of Kazakhstan» for his great contribution to the field of «Kazakh Nutrition» in the development of healthcare?
- 12) The famous academician Mukhtarbay Utelbayev is an academician of what field of science?
- 13) The author of the classic historical work «Tarikh-i-Rashidi», which provides the most valuable information about the formation of the Kazakh Khanate?
- 14) Who is Muhammad Khaidar Dulaty? Give details!
- 15) Biologist who founded the Center for Ecology in his native Karaganda in 1992, specialist in the study of genetic abnormalities caused by radiation, eco-activist in 2005, winner of the International Goldman Prize in the field of Environmental Protection. The Goldman Prize was also called the «Green Nobel». Who is the first recipient of this Green Nobel Prize?
- 16) Who is the scientist who was awarded the title «Outstanding people of the 20th century» (English: outstanding person of the XX century) for his discovery «absolute spectroscopy of a solid body», which he studied for 25 years at the suggestion of a foreign organization?
- 17) Do you know a Kazakh mathematician who solved a problem that even the strongest in the world could not find the answer for about 30 years? Who is he?
- 18) Who is the great scientist who left us the catchphrase «the future of a country without science is bleak»?
- 19) «Analysis of scientific achievements:
 Built a Palace out of stone;
 Moonlight from distant lands,
 In the blink of an eye,
 We got a quick message.
 A horse-drawn carriage without a name
 To a thousand kilometers of land,
 The sun was setting,
 He flew a man like a bird» - Who is the author of this poem?
- 20) An outstanding state and public figure, a talented scientist-historian, professor, teacher, military doctor - Whom do you think these qualities belong to?
- 21) Who is the Kazakh scientist who recognized NATO as an example of partnership between NATO and Kazakhstan scientists?
- 22) Who is Taraz regional university named after?
- 23) What is the name of the first Technical University in Kazakhstan and in which city is it located?
- 24) How is the award, established in 1895 and awarded internationally according to the will of Alfred Nobel, named and how many areas? Name!
- 25) In what direction it began to be issued since 1969, outside the Nobel testament. Name!

The members of each coworking center, who took part in the pedagogical co-working, took an active part, competed with their knowledge and honed their creative abilities.

The role of pedagogical coworking in the formation of digital competence of future teachers is great.

Smart-online virtual laboratory - future teachers carry out some laboratory work in virtual laboratories (fig.108).

You can familiarize yourself with the materials presented in the SMART-online virtual laboratory at the following link: <https://smart-pedagog.kz/kk/virtualdy-zertkhana> [130].

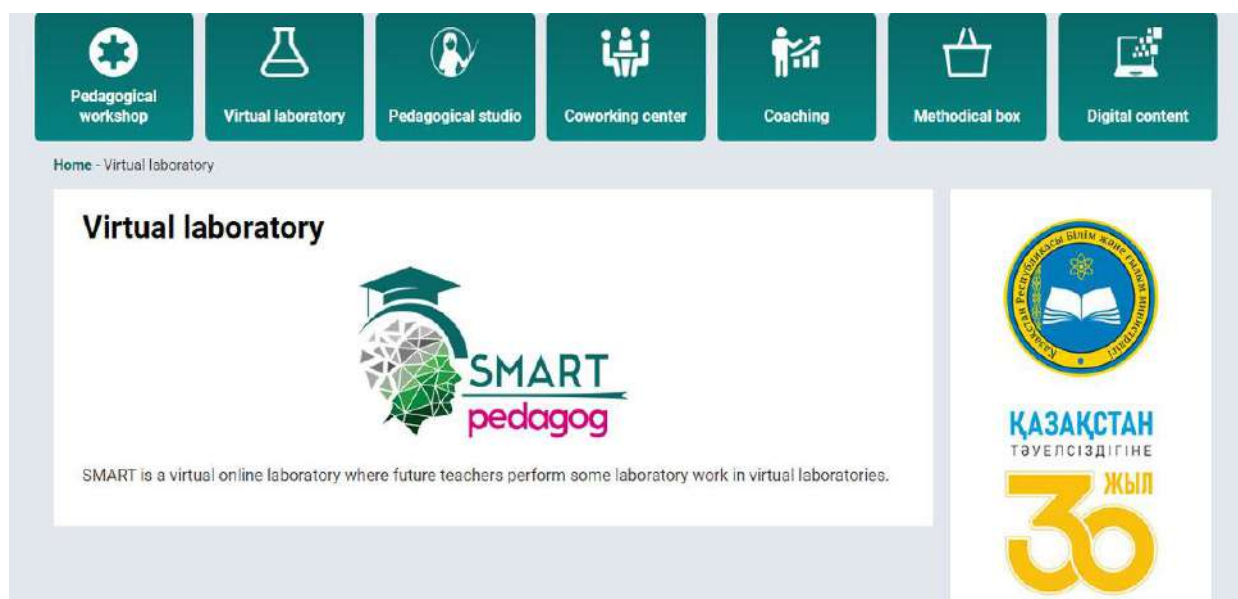


Figure 108– SMART - online virtual laboratory

Smart - online digital content-smart-future teacher develops electronic content in his discipline (fig.109).

You can familiarize yourself with the materials presented in SMART-online digital content at the following link: <https://smart-pedagog.kz/kk/tsifirly-kontent> [131].

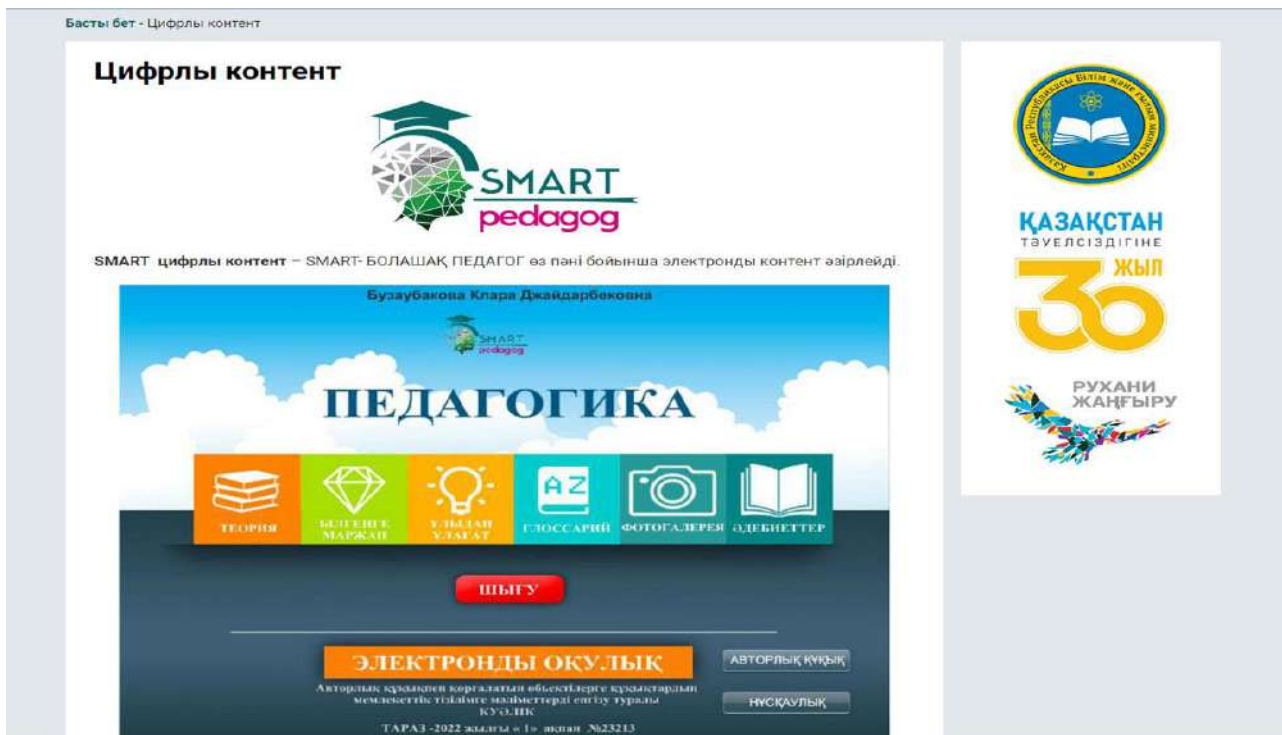


Figure 109– SMART-online digital content

The video gallery blog of the pedagogical educational portal www.smart-pedagog.kz contains video lectures by the author of the textbook on «Pedagogy», project manager K.D.Buzaubakova.

Also, on the pedagogical educational portal www.smart-pedagog.kz, you can access the web version and mobile application of the online test and online questionnaire «Smart-future teacher» (fig.110).

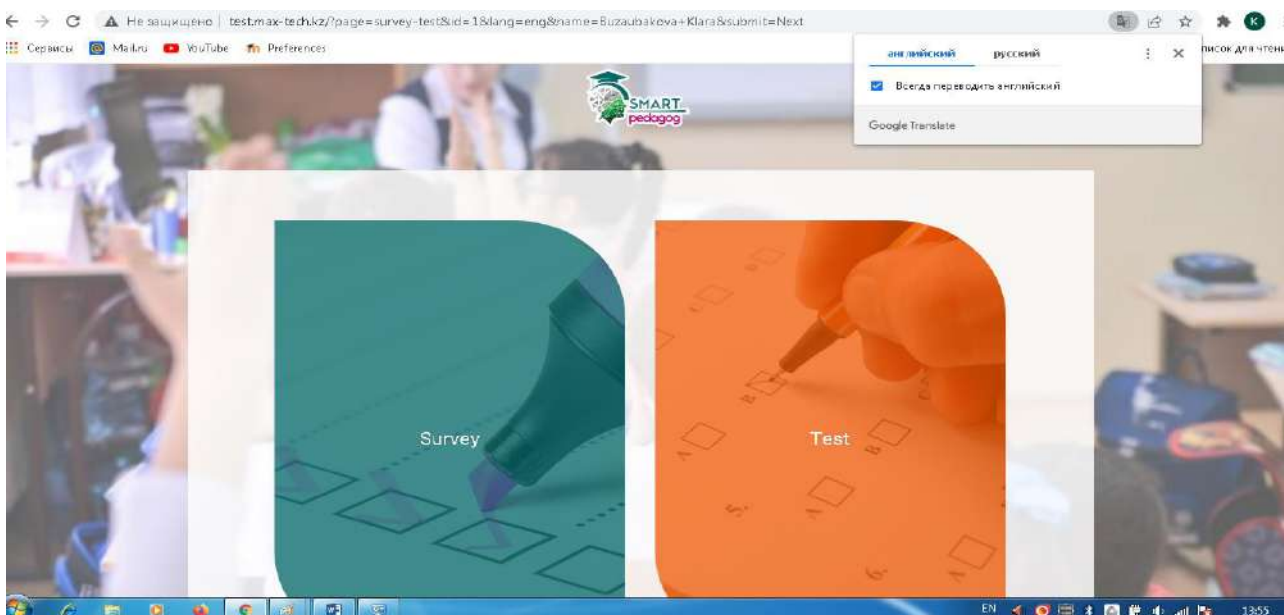


Figure 110 – Web version of the online test and online questionnaire «Smart - future teacher» of the pedagogical educational portal www.smart-pedagog.kz

Smart-future teacher online questionnaire of the pedagogical educational portal www.smart-pedagog.kz 10 questionnaires are offered, there is an opportunity to select a language by clicking on the above buttons (fig.111).

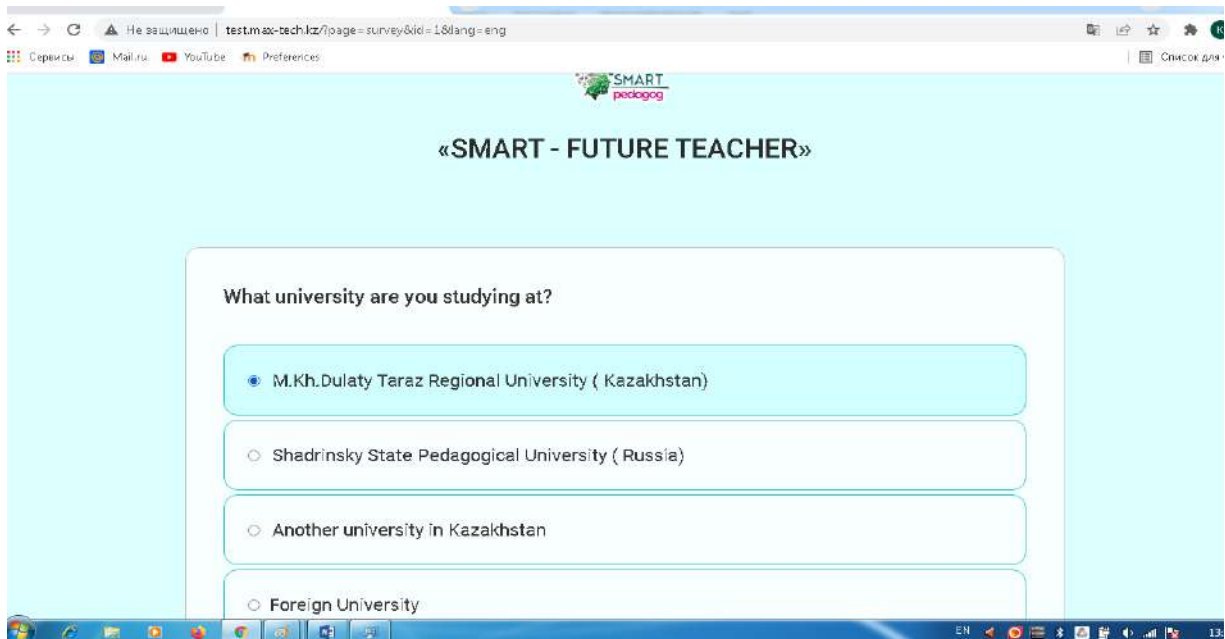


Figure 111–The online questionnaire «Smart - future teacher» of pedagogical educational portal www.smart-pedagog.kz

You can go to the web version of the online test «smart - future teacher» of pedagogical educational portal www.smart-pedagog.kz. By clicking on the online test button «Smart-future teacher», the future teacher will have the opportunity to test his knowledge by passing a test consisting of 15 test tasks (fig.112).

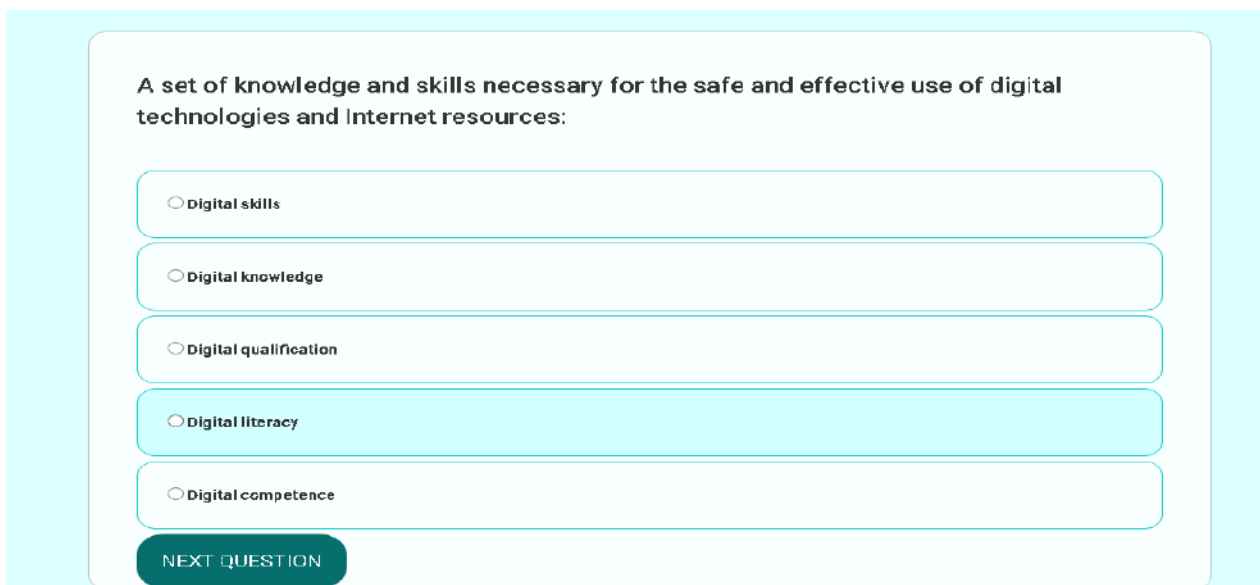


Figure 112–The online test «Smart - future teacher» of the pedagogical educational portal www.smart-pedagog.kz

Above on the left is the «Search» grid. You can search and find the necessary information by writing down the keywords of any information you are looking for. For example, if we write the word «project» in the «Search» grid, we can get data about the project (figure 113).

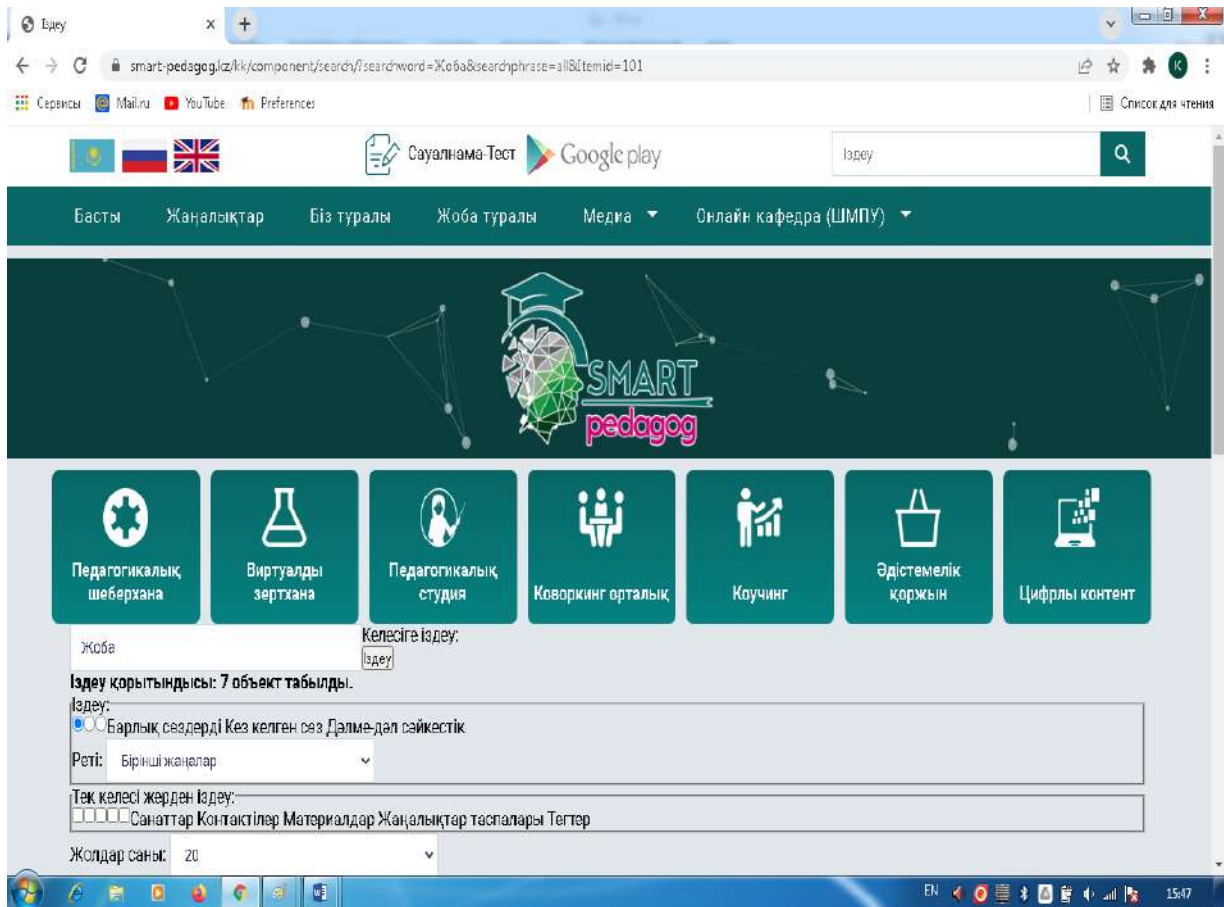


Figure 113–The blog «Search» of pedagogical educational portal www.smart-pedagog.kz

The contribution of the pedagogical educational portal www.smart-pedagog.kz will be great in the formation of digital and creative competencies of future teachers.

3.4 International Congress «Distance education: challenges, modern trends and strategies»

According to the program of the Ministry of Science and higher education of the Republic of Kazakhstan «Grant financing for scientific and scientific-technical projects for 2021-2023» within the grant project AP09259497 «Improving the system of pedagogical education in Kazakhstan in new conditions: technological and methodological aspects of the formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan» Taraz regional university named

after M. Kh. Dulaty conducted the International Congress «Distance education: challenges, modern trends and strategies».

The purpose of the International Congress is to identify modern trends in professional training of teaching staff in a digital society; to identify modern trends in distance learning; to reveal the essence of digital technologies that improve the quality of education in the critical context of the XXI century; to study the innovative experience of the world's best universities in training teachers.

The International Congress set the task of identifying ways to effectively use digital learning technologies in the teaching process that improve the quality of education in a critical context in the training of teaching staff in the context of Digital Kazakhstan; considering modern trends in distance learning and pedagogical education in the training of globally competitive teaching staff; identifying modern trends in training teaching staff in a digital environment and studying world experience, etc.

The International Congress worked in 3 directions:

1) Digital society: digital teaching technologies and the personality of the teacher.

2) Distance learning: modern trends and new opportunities.

3) Modern trends in the training of teaching staff in a digital environment: national values, world experience, innovations.

Within the framework of the International Congress, author's courses of domestic and foreign scientists, master classes of innovative teachers, psychological and pedagogical trainings were organized in online and offline formats.

Specially invited to participate in the International Congress:

Heads, methodologists of JSC «National Center for advanced training «Orleu», Nazarbayev University, Center of pedagogical excellence of IEO «Nazarbayev Intellectual Schools»;

- Directors, methodologists and trainers of the branches of the center of pedagogical excellence of the IEO «Nazarbayev Intellectual Schools» and the branches of JSC «National Center for advanced training «Orleu»;

- Heads, scientists-teachers, future teachers, undergraduates and doctoral students of universities and organizations of secondary professional education;

- Heads, methodologists, innovative teachers of general secondary education organizations.

During the International Congress, modern trends in pedagogical education, modern trends in the training of teaching staff in a digital environment and the current state of studying world experience were discussed.

To International Congress E.A. Köksal – associate professor of Omera Halisdemira University in Nigde (Turkey); B.Pshibytsky – professor of Maria Grzegorzewsky University (Poland); N.V.Skorobogatova – vice rector for scientific and innovative work (Russia); R.T.Sulaimanova, T.Ch.Abdyldaeva – scientists of the Kyrgyz National University named after Zh.Balasagun (Kyrgyzstan); D.M.Yuldasheva, I.S.Soliev – Fergana scientists of the State University (Uzbekistan); K.K.Zhampeisova, U.K.Kiyakbaeva-professors of the Abai

Kazakh National Pedagogical University (Almaty); S. K.Abildina – Head of the Department of Pedagogy and methods of primary education, professor of Karaganda State University named after E. A. Buketov (Karaganda); R.L.Kalimzhanova - Head of the educational program 6B01101–Pedagogy and psychology, associate professor of Arkalyk Pedagogical University named after Y.Altynsarin (Arkalyk); T.B.Baynazarova – Professor of the Kazakh National Women's Pedagogical University (Almaty); G.A.Abisheva - President of the Kazakh League of education experts, general director of the educational center «KPI BILIM» (Almaty); N.A.Drait – teacher of the category «teacher-Master» of gymnasium № 68 (Almaty); heads, methodologists, trainers of JSC «Center of pedagogical excellence» Nazarbayev Intellectual Schools, Nazarbayev University, JSC « National Center for advanced training «Orleu»; directors, methodologists of branches of JSC «Center of pedagogical excellence «Nazarbayev Intellectual Schools» and JSC «National Center for advanced training «Orleu»; heads, scientists-teachers, future teachers of pedagogical universities and organizations of secondary professional education, undergraduates and doctoral students; heads of general secondary education organizations, methodologists, innovative teachers more than 200 participants of the International Congress shared their innovative experience and showed great activity [132].

Table 18 presents the program of the International Congress «Distance education: challenges, modern trends and strategies».

The materials of the International Congress «Distance education: challenges, modern trends and strategies» were published in 2 volumes: 88 scientific articles were published in Volume 1; 40 scientific articles were published in Volume 2.

As part of the materials of the International Congress, it was posted on the website of Taraz regional university named after M.Kh.Dulaty:

<https://dulaty.kz/2019-09-23-06-38-15/conference-materials-kaz.html> [133].

Table 18 – International Congress program

9.00 – 10.00	
REGISTRATION OF PARTICIPANTS OF THE INTERNATIONAL CONGRESS	
Venue: Taraz regional university named after M. Kh. Dulaty, Youth Palace named after Urkimbayev	
10.00 -13.00	
PLENARY SESSION	
Venue: Satpayev street, 26 Urkimbayev Youth Palace, conference hall	
ZOOM: ID - 705 004 4324; Code - 234564	
ХАЛЫҚАРАЛЫҚ КОНГРЕСТІҢ САЛТАНАТТЫ АШЫЛУЫ	
10.00-10.10	Welcome speech: Taraz regional university named after M. Kh. Dulaty Chairman of the Management Board - Rector Baizhumanov Mukhtar Kazbekuly

10.10 - 10.30	<p>Ways to form digital competencies of future teachers in the context of distance education in the Republic of Kazakhstan: innovative experience of Dulary University BUZAUBAKOVA Klara Dzhaidarbekovna Doctor of Pedagogical Sciences, Professor M.Kh. Dulary Taraz regional university, Taraz, Kazakhstan</p>
10.30 - 10.40	<p>Distance technologies in the training of future teachers SKOROBOGATOVA Natalia Vladimirovna Candidate of Psychological Sciences, Associate Professor Shadrinsky State Pedagogical University, Russia</p>
10.40 - 10.50	<p>Theory and practice of teacher training in modern Kyrgyzstan SULEYMANOVA RAKHAT TOKTOGULOVNA Candidate of Pedagogical Sciences, Professor, Kyrgyz National University named after Zh .Balasagun, Bishkek, Kyrgyzstan</p>
10.50 - 11.00 Online communication	<p>Contribution of virtual museum to nature of science views of teacher candidates ELA AYŞE KÖKSAL PhD, Assoc. Prof. Dr., Niğde Ömer Halisdemir University, Türkiye</p>
11.00-11.10	<p>Development of media competence of future teachers in a digital educational environment GALIMZHANOVA ROZA LAIKOVNA PhD, Associate Professor, Arkalyk Pedagogical Institute named after I. Altynsarin, Arkalyk, Kazakhstan</p>
11.10-11.30 Online communication	<p>Innovative technologies of higher education BAIDZHANOV BEKZOD KHAITBAEVICH Doctor of Philosophy in Pedagogical Sciences (PhD), Ferghana State University, Ferghana, Uzbekistan</p>
11.30- 11.40	<p>The role of artpedagogy in the development of creative interests of future teachers as a pedagogical science BAINAZAROVA TURSUNAI BEISEMBEKOVNA Candidate of Pedagogical Sciences, Professor Kazakh National Women's teacher training University Almaty, Kazakhstan</p>
11.40.- 11.50	<p>Training of future teachers in the conditions of integration of higher pedagogical and general education systems PONOMAREVA LYUDMILA IVANOVNA Doctor of Pedagogical Sciences, Professor Shadrinsk State Pedagogical University, Russia</p>
11.50-12.00	<p>The trajectory of development of Kazakhstan's education: actualization of the national education system and active inclusion in the international educational space ABISHEVA GULNARA ABDRAKHMANOVNA President of the Kazakh League of Education Experts, Almaty, Kazakhstan</p>

12.00 – 12.10	An innovative method of using creolized text in the speech development of preschoolers YULDASHEVA DILAFRUZ MAKHMADALIEVNA Doctor of Philology, Associate Professor Ferghana State University, Ferghana, Uzbekistan KHOLMATOVA EDGOROI BAKHTIERZHONKIZI Ferghana State University, Ferghana, Uzbekistan
12.10-12.20	Modern approach to the use of digital technologies in preschool organizations AUEZOVA AIZHAN ABILDAYEVNA Kazakh National Pedagogical University named after Abai, Almaty, Kazakhstan
12.20-12.40	OPEN MICROPHONE
12.40-13.00	PHOTO SESSION
Lunch break 13.00-14.30	
MASTER CLASS 14.30-15.30	1-MASTER CLASS Emotional intelligence and professional training in the activities of a teacher DREIT NATALIA ALEXANDROVNA Vice-president of the Kazakh league of education experts 2-MASTER CLASS Psychology of identification and formation of character traits ZHAKSYBAYEVA SAGYM KOPBAYEVNA Member of the Kazakh league of education experts, Almaty
Pedagogical square 15.30-16.30	1 - PEDAGOGICAL SQUARE Digital society: digital learning technologies and teacher personality 2 - PEDAGOGICAL SQUARE Distance education: modern trends and new opportunities 3 - PEDAGOGICAL SQUARE Modern trends in the training of teaching staff in a digital environment: national values, world experience, innovations
OPEN MICROPHONE	
Adoption of the resolution	
AWARD MOMENT	

Professor of M.Kh. Dulaty Taraz regional university, Doctor of Pedagogical Sciences, project manager K.D. Buzaubakova made a report on the topic: «Ways to form digital competencies of future teachers in the context of distance education in the Republic of Kazakhstan: innovative practice of M.Kh. Dulaty Taraz regional university» and she had identified the content, features, ways of forming digital competencies of future teachers in the conditions of distance education in the Republic of Kazakhstan, revealed the essence and content of a webinar, online course, online competition on the formation of digital competencies of future teachers in the conditions of distance learning.

Vice-rector for scientific and innovative work of Shadrinsk State Pedagogical University from the Russian Federation N.V.Skorobogatova made a meaningful

report on «Distance learning technologies in the training of future teachers» and impressed the public.

Professor of the Kyrgyz national university named after Zh.Balasagun of the Kyrgyz Republic R.T.Sulaimanova made a report on the topic «Theory and practice of training of pedagogical personnel in Kyrgyzstan at the present stage» and dwelled on the features of the system of training of pedagogical personnel in Kyrgyzstan [134].

Ela Ayşe Köksal, associate professor of the University of Nigde Omer Halisdemira, who got online from Turkey, impressed the audience with his report on the topic «Attracting applicants to the pedagogical profession through a virtual trip to the world of Science».

R.L.Kalimzhanova, associate professor of Arkalyk Pedagogical University named after I. Altynsarin, made a large-scale report on the topic «Development of meta-competencies of future teachers in the context of digital education» and demonstrated digital competence in a new light [135].

PhD doctor B.H.Baidzhanov, who contacted online from the Republic of Uzbekistan, spoke about the peculiarities of the training system of teaching staff in the Republic of Uzbekistan and shared his innovative experience.

The report of the professor of the Kazakh National Women's Pedagogical University B.B.Bainazarova on the topic «The role of artpedagogy in the development of creative abilities of future teachers» pleased and interested the pedagogical community [136].

The report of Professor of Shadrinsk State Pedagogical University from the Russian Federation L.I.Ponomareva on the topic «Training of future teachers in the context of the integration of general secondary and higher education» turned out to be impressive.

A.A.Auezova, a doctoral student of the Abai Kazakh National Pedagogical University, made a report on the topic «Modern directions of the use of digital technologies in preschool institutions and was able to reveal the priority areas of the use of digital technologies based on national values [137].

The report of the president of the Kazakh League of education experts, general director of the educational center «KPI BILIM» G.A. Abisheva on the topic «Trajectory of development of Kazakhstan's education: updating the national education system and active integration into the international educational space» received support from the pedagogical community [138].

The International Congress identified modern trends in the training of globally competitive teaching staff in the conditions of New Kazakhstan, identified ways to establish cooperation with domestic and foreign scientists in the digital environment and identified priority areas of collaboration research, focused on the need to apply digital teaching technologies in the training of globally competitive teaching staff in the conditions of Digital Kazakhstan, create digital teaching content.

According to the results of the International Congress, it was suggested:

To pedagogical universities of the Republic of Kazakhstan:

- to identify modern trends in the training of globally competitive teaching staff in the context of the New Kazakhstan, ways to establish cooperation with domestic and foreign scientists and conduct collaborative research;

- to create favorable conditions for establishing cooperation between leading educational institutions of the Republic of Kazakhstan and general secondary schools;

- to intensify work to improve the status of a teacher in improving the quality of education;

- to use digital learning technologies in the training of globally competitive teaching staff in the context of Digital Kazakhstan, to create digital learning content.

To the Kazakhstan Academy of Pedagogical Sciences, the Kazakh league of education experts, the public Association Academy of national values:

- consider ways to establish effective cooperation between kindergartens-schools-universities in ensuring the quality of education;

- to implement joint innovative projects and research with innovative teachers of schools and universities within the framework of digital learning technologies, etc.

To the center for pedagogical excellence and the National center for advanced training «Orleu»JSC:

- establish cooperation with pedagogical universities and centers of pedagogical excellence in improving the professional skills of teachers;

- consider ways to improve the skills of teaching staff in the context of globalization.

To Nazarbayev Intellectual Schools and general secondary schools:

- to identify ways of forming national values among students in the context of globalization of education;

- to consider ways to improve the quality of students' knowledge in the context of distance learning;

- to improve the use of digital learning technologies in the practice of secondary schools in improving the professional skills of teachers;

- to consider effective ways to use digital learning technologies that improve the quality of education in the context of critical conditions in Digital Kazakhstan;

- to intensify the work on the study, research and promotion of innovative experience of teachers in order to improve professional competence.

Table 19 provides a link to the materials of the International Congress.

The International Congress made a significant contribution to identifying effective ways to use digital learning technologies that improve the quality of education in the context of critical conditions in Digital Kazakhstan.

Table 19 – The links to the materials of International Congress

№	International Congress	Links
1	Information letter of the International Congress	https://dulaty.kz/2020-01-30-02-50-58/item/4913-ashy-tan-bilim-beru-khaly-araly-kongress.html https://dulaty.kz/ru/2020-01-30-02-50-58/item/4912-dstantsionnoe-obrazovanie-mezhdunarodnyj-kongress.html
2	Collection of materials of the International Congress	https://dulaty.kz/2019-09-23-06-38-15/conference-materials-kaz.html
3	International Congress was organized within the framework of the research project	https://dulaty.kz/2020-01-30-02-50-58/item/5045-ylymi-zhoba-ayasynda-khaly-araly-kongress-jymdastyryldy.html

In figure 114 the cover of the collection of materials of the International Congress was shown.

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ҒЫЛЫМ ЖӘНЕ ЖОҒАРЫ БІЛІМ МИНИСТРЛІГІ
М.Х. ДУЛАТЫ АТЫНДАҒЫ ТАРАЗ ӨҢІРЛІК УНИВЕРСИТЕТІ (ҚАЗАҚСТАН)
ШАДРИНСК МЕМЛЕКЕТТІК ПЕДАГОГИКАЛЫҚ УНИВЕРСИТЕТІ (РЕСЕЙ ФЕДЕРАЦИЯСЫ)



ХАЛЫҚАРАЛЫҚ КОНГРЕСС

**ҚАШЫҚТАН БІЛІМ БЕРУ:
СЫН-ҚАТЕРЛЕР, ЗАМАНАУИ
ТРЕНДТЕР ЖӘНЕ СТРАТЕГИЯЛАР**

МЕЖДУНАРОДНЫЙ КОНГРЕСС

**ДИСТАНЦИОННОЕ ОБРАЗОВАНИЕ:
ВЫЗОВЫ, СОВРЕМЕННЫЕ ТРЕНДЫ
И СТРАТЕГИИ**

INTERNATIONAL CONGRESS

**DISTANCE EDUCATION: CRITICAL THREAT,
MODERN TRENDS AND STRATEGIES**

I TOM

**14 наурыз 2023 жыл
14 марта 2023 года
14 march 2023 year**

Figure 114– The cover of the collection of materials of the International Congress

3.5 International online coaching webinar «I am a Smart teacher»

Head of the state K. Tokayev in his address to the people of Kazakhstan «A Just state. United Nation. Blessed society»: «Teachers who are devoted to their work make a great contribution to the development of education. The quality of secondary education is another important condition for a successful nation. It is necessary to create favorable conditions for the full development and education of each student. For this purpose, the national project «Comfortable school» was launched. We will create conditions for 800 thousand children to study in a modern school by 2025» – noted that the need for a smart teacher to work efficiently in a comfortable school is an urgent problem [114;2].

An international online coaching webinar on the formation of digital and creative competencies of future teachers in the context of distance education was organized in the Republic of Kazakhstan.

Figure 115 presents the program of the International online coaching webinar «I am a Smart teacher».

The figure displays the program for an international online coaching webinar. On the left is a promotional poster for the event, and on the right is a detailed program schedule.

Poster Information:

- BAĞДАРЛАМА (Program):** «Мен – SMART педагог!» онлайн коучинг-вебинар
- Hosts:**
 - Бузаубакова Клара Джайдарбековна, п.ғ.д., профессор
 - Маковецкая Анастасия Андреевна, сектор жетекшісі
- SMART-PELAGOG.KZ** AP09259497
- 8 қыркүйек 2022, 12:00**
- Идентификатор:** 766 0154 8506 123

Program Schedule:

«МЕН – SMART ПЕДАГОГ!» ХАЛЫҚАРАЛЫҚ ОНЛАЙН КОУЧИНГ-ВЕБИНАРДЫҢ БАҒДАРЛАМАСЫ / ПРОГРАММА МЕЖДУНАРОДНОГО ОНЛАЙН КОУЧИНГ-ВЕБИНАРА «Я – SMART ПЕДАГОГ!»	
08.09.2022 жыл, бейсенбі/08.09.2022г., четверг	
11.30 – 12.00	Онлайн коучинг-вебинарға қатысушыларды тіркеу / Регистрация участников онлайн коучинг-вебинара
Оттың аяғы: 8.1 оқу ғимараты, кабинет, 407-аудитория. Мекен-жайы: уезбей көпірі 5.1.4 таяқ, 407-аудитория	
ZOOM: Идентификатор конференциясы: 766 0154 8506. Код қосылуы: 123	
ОНЛАЙН КОУЧИНГ-ВЕБИНАРДЫҢ САЛТАНАТТЫ АШЫЛУЫ / ТОРЖЕСТВЕННОЕ ОТКРЫТИЕ ОНЛАЙН КОУЧИНГ-ВЕБИНАРА	
12.00-10.08	<p>ҚУТТЫҚТАУ СӨЗІ / ПРИВЕТСТВЕННОЕ СЛОВО:</p> <p>М.Х.Дулати атындағы Тараз өңірлік университетінің Бақарина Төреғасы – Ретор м.д. – Диплом Исақұлы НУРМУХАМБЕТ</p> <p>М.Х.Дулати атындағы Тараз өңірлік университетінің Бақарина мұнсікі, академиялық қызмет жөніндегі проректор – Гүлшәра Айдарханова МҰСАБЕКОВА</p> <p>Зиятуолда кафедралық Дипломның ие және социальное образование (Падранского государственного педагогического университета, к.п.д., профессор – Наталья Александровна КАРАТАЕВА</p>
12.08-12.15	<p>«ЦИФРЛЫ ПЕДАГОГІКА» ОҚУ-ЛЫҒЫНЫҢ ТУСАУКЕСЕРІ / ПРЕЗЕНТАЦИЯ УЧЕБНИКА «ЦИФРЛЫ ПЕДАГОГІКА»</p> <p>Авторлары:</p> <ul style="list-style-type: none"> 1. БУЗАУБАКОВА Клара Джайдарбековна – п.ғ.д., профессор; Жоба жетекшісі, Дулати университеті 2. АМИРОВА Аминә Салимановна – п.ғ.д., профессор; Жоба мұнсікі, Абай атындағы Қызық Ултық педагогикалық университеті 3. МАКОВЕЦКАЯ Анастасия Андреевна – магистр, Жоба мұнсікі, Дулати университеті
12.15-12.30	<p>«МЕН – SMART ПЕДАГОГ!» педагогикалық нақарлар түзеуі / «Я – SMART ПЕДАГОГ!» презентация педагогических идей</p> <p>Бузаубакова Клара Джайдарбековна Кудабаяна Перизат Асанбаева</p>
12.30-12.40	<p>ШЕБЕР СЫНЫП / МАСТЕР КЛАСС:</p> <p>«Білім беру процесінде цифрлы білім беру ресурстарын пайдалану» / «Использование цифровых образовательных ресурсов в образовательном процессе»</p> <p>Бузаубакова Клара Джайдарбековна, Маковецкая Анастасия Андреевна</p>
12.40-12.50	Онлайн-тестирование будущих педагогов с помощью приложения для образовательных проектов Google Forms. Тест «Использование цифровых образовательных ресурсов в педагогической деятельности. ИКТ-компетентность, анализ результатов тестирования» Маковецкая Анастасия Андреевна
12.50-12.55	Ашық микрофон / Открытый микрофон
12.55-13.00	Вебинардан қорытындысын шығару: резолюция қабылдау / кредиттік қатысушыларды марапаттау / Подведение итогов вебинара: принятие резолюции; награждение активных участников

Figure 115– Program of the international online coaching webinar «I am a Smart teacher»

The international online coaching webinar was attended by well-known scientists, future teachers, methodologists of educational organizations and scientists and future teachers of the Shadrinsk State Pedagogical University of Russia.

The purpose of the international online coaching webinar is to identify priority areas for the formation of digital competencies of future teachers.

Head of the Department of «Preschool and social education» of Shadrinsk State Pedagogical University of Russia, Candidate of Pedagogical Sciences, professor N.A.Karataeva, who joined the coaching webinar remotely, emphasized the importance of the webinar and focused on the collaboration research of Dulaty University and Shadrinsk State Pedagogical University on the formation of digital competencies of future teachers [140].

At the online coaching webinar, the project manager, Professor of Dulaty University, member of the project K.D.Buzaubakova; professor of the Kazakh National Pedagogical University named after Abai, member of the project A.S.Amirova and a department sector of Dulaty University A.A.Makovetskaya presented the textbook «Digital Pedagogy» (fig.116).



Figure 116– Presentation of the textbook «Digital Pedagogy»

Figure 117 presents the outer cover and barcode of the textbook «Digital Pedagogy» [141].

A.S.Amirova, a member of the project, Professor of the Kazakh National Pedagogical University named after Abay, who took part in the online coaching webinar, noted that the textbook «Digital pedagogy» was tested in the practice of

the Kazakh National Pedagogical University named after Abay and is being used effectively in the educational process in the new academic year.



Figure 117– The external cover and barcode of the textbook «Digital Pedagogy»

Chapter 1 of the textbook «Digital pedagogy» »Digital transformation of education in the XXI century» reveals the essence of the digital educational environment, trends in the development of digital education, patterns, principles, methods and technologies. The emergence of cyberpedagogy, its basic concepts are given. The didactic digest of technologies and methods of cyberpedagogy is analyzed [7;4].

Chapter 2 of the textbook «Digital pedagogy» »The development and prospects of Digital Pedagogy» reveals the content of the development and formation of the personality in the context of digital pedagogy and defines the role of the teacher and student in the digital environment». The development and formation of personality in the context of the digital environment, the features of

the digital generation are revealed.

Chapter 3 of the textbook «Digital pedagogy» »Technologies of learning in a digital environment» defines the requirements for digital learning tools, features of digital learning tools and reveals the didactic capabilities of digital educational platforms: Skype, Zoom, Microsoft Teams, Google Meet, Google Classroom, Nearpod, Learning Apps, Quizizz, Kahoot, «Diary», BilimLand, Online Mektep, etc.

Digital educational platforms are considered as one of the main components of the e-learning system. A description of the types of digital educational platforms that exist in the world practice: Edmodo, Socratic, project, thinglink, TED-Bass, cK-12, ClassDojo, eduClipper, etc.is given. The WizIQ virtual laboratory and its capabilities will be highlighted.

The textbook «Digital Pedagogy» also contains questions, test tasks, and a glossary for testing and evaluating students' knowledge.

Undergraduates and doctoral students who took part in the online coaching webinar were happy to note that the textbook «Digital pedagogy» is an indispensable tool for improving the digital competencies of future teachers.

On the online coaching-webinar the presentation of pedagogical ideas «I am a smart teacher!» was made.

2nd year students studying on the educational program 6B01501– Mathematics teacher training of Dulaty University A.Zhekenova, A.Abulkhair, B.Amangeldy, A.Molshykova, E.Aidarov prepared an impressive poster «I am a SMART teacher!» (figure 118).



Figure 118– Poster «I am a smart teacher!»

Future teachers see the appearance of a SMART teacher – an innovative teacher who provides high-quality education to each student in a comfortable school, is critical, very kind, has boundless love for the child, sincerely loves the child, has a warm, cheerful character, understands the student's soul with his heart, is constantly ready to explain to the child incomprehensible material over and over again, help, advise, meet the needs of each child; a master teacher who has developed digital competencies and effectively uses information and communication technologies in the educational process so that he can work in a digital environment; a creative teacher who has a high reflective competence, is critical, can evaluate the teacher himself as a professional, is constantly in search of improving the quality of education; a creative teacher who recognizes personality-forming pedagogical activity as art.

At the online coaching webinar, a member of the project Makovetskaya A. A. held a master class on the topic «using digital educational resources in the educational process», revealing the essence of digital educational resources, crosswordlabs.com he introduced the technology of creating and preparing a crossword puzzle on the platform [141,1].

The presentation of innovative ideas «I am a SMART teacher!» was made in the English language by the 4th year students of Dulaty University under the educational program 6B01707 – Training of teachers of foreign languages Zh.Erkaraeva, A.Meymanzhanina, U.Seitkasymova, M. Tubanova. Future teachers revealed the modern look of the smart teacher and made a deep analysis (fig.119).

At the end of the master class, future teachers [https://docs.google.com/forms/d/e/1FAIpQLSdaiuytducyazJd_pWw5nFDL2juFiiGIPiNQRgdA0sQ9RGaSw / viewform?entering with the link usp=sf_link](https://docs.google.com/forms/d/e/1FAIpQLSdaiuytducyazJd_pWw5nFDL2juFiiGIPiNQRgdA0sQ9RGaSw/viewform?entering_with_the_link_osp=sf_link), they took a specially prepared 10-question test and had the opportunity to test and increase their digital competencies.

At the end of the online coaching, the results of the webinar were summed up and a resolution was adopted; creative future teachers were awarded special certificates.

The online coaching webinar provided future teachers with advanced forms of teaching technologies from the point of view of digital education, the partnership between the teacher and the student guided the effective use of new forms of digital content of educational material, opened the way for future SMART teachers to get acquainted with the best achievements of world-class science and innovative practices of well-known scientists.

An online test consisting of 10 questions was presented on the topic «The use of digital educational resources in training. ICT competence» to the participants within the framework of the international coaching webinar.

The purpose of the test is to study the competencies of future teachers on the types of digital educational resources and the possibilities of their use in the educational process. The test questions were available at the link below:

16 future teachers took part in the online test, but none of the participants answered all the questions correctly.

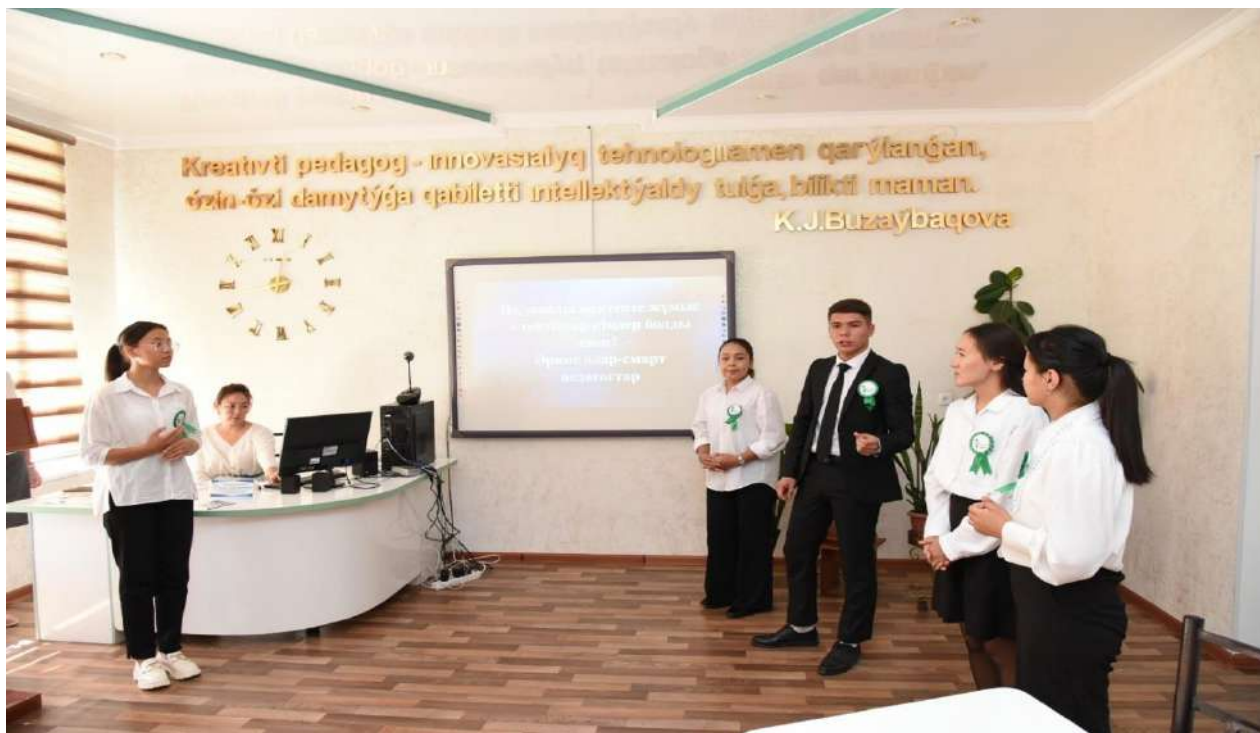


Figure 119– Presentation of innovative ideas «I am a smart teacher!»

The maximum 8 points were awarded to 3 participants - future teachers. And this corresponds to 8 correct answers out of 10 questions. 5 of the future teachers participating in the online test correctly answered 7 questions, which indicates that the digital competencies of future teachers are sufficiently well formed (figure 120).

Based on the results of the test, three questions were identified to which were most often given the correct answers, these are:

Question # 5, called «The benefits of using a computer in teaching», was answered by 100% of the respondents who took part in the online test correctly.

«Automated workplace ... 93,75% of respondents who took part in the online test answered the question number 8 correctly, that is, 15 respondents.

The question №9 «Choose from the list of educational facilities that include a distance format» was answered correctly by 68,75% of respondents who took part in the online test, that is, 11 respondents.

In recent years, informatization of education has begun to be carried out within the framework of educational organizations. The pandemic of 2020 reassessed existing approaches to informatization of education and pushed it beyond the

boundaries of organizations, isolating the teacher and student at the place of residence.

This radically changes both the established organization of education and the requirements for teachers, the recipients of education themselves and their parents.

«Informatization of education is a set of measures to transform pedagogical processes based on the introduction of information products, tools, technologies in education» was correctly answered by 87,5% of respondents, i.e. 14 future teachers.

The results of question 1 showed that 6.3% of respondents (1 future teacher) who took part in the online test received an incomplete answer «development of information perception skills of users through a computer», and 6,3% of respondents (1 future teacher) chose an incorrect answer called «the use of computers in the education system».



Figure 120– General statistics of online testing

Information and communication technologies (ICT) play an increasingly important role in our lives, including communication and learning. It is necessary to be able to use these technologies effectively for students and the learning community as a whole.

In this regard, the second question was devoted to understanding the essence of the concept of ICT.

Question 2, called «Information and Communication Technology (ICT) is» was correctly answered by 93,8% of respondents (15 future teachers) as «pedagogical technology that uses special methods, software and technical means to work with information», only 6,3% of respondents, that is, only 1 future teacher, chose the wrong answer «using a computer as a tool for creating an optimal learning strategy».

If 93,8% of respondents (15 future teachers) correctly answered question 3 called «ICT literacy is the use of digital technologies, means of communication and/or networks to access, manage, integrate, evaluate and create information to work in modern society», then only 1 6,3% of respondents, that is, only 1 future teacher, chose the wrong answer «a special type of competence necessary for the successful work of a programmer» .

One of the information and communication technologies is a computer. Computerization of learning can be defined both in a narrow sense and in a broad sense: in the narrow sense, «the use of this computer as a teaching tool», and in the broad sense, «the multi-purpose use of this computer in the educational process». The test participants were asked to choose the advantages of using a computer in teaching.

«ICT competence – this is the correct answer to question 4, which is called» 68,8% of respondents (11 future teachers) correctly answer that «the user has reliable mastery of all components of ICT literacy skills to solve problems arising in educational and other activities», 3 future teachers (18,8%) choose the wrong answer «knowledge of various computer programs and their use for information processing», 1 future teacher (6,3%), use of communication tools.

Several correct answers were proposed to question 5, which is called «The benefits of using a computer in teaching». 68,8% of respondents (11 future teachers) who took part in the online test chose the wrong answer «interactivity (interaction with the student, imitation of natural communication)», 5 future teachers, that is, 31,3% of respondents found the correct answer «adaptability of educational material», and 3 future teachers, that is, 18,8% of respondents chose the answer «facilitate the work of the teacher», and 3(18,8 %) future teachers chose the correct answer «control the individual work of students outside of classes», which is more appropriate for the use of synchronous communication platforms in distance learning than using a computer in general education.

81,3% of respondents (13 future teachers) who took part in the online testing of the so-called «digital educational resources» submitted the correct answer «a set of electronic objects that can be used in different forms of organizing educational activities, in different combinations, for different purposes», while 2 future teachers, i.e. 12,5% of respondents, were satisfied with the wrong answer «digital encyclopedias», 1 future teacher, i.e. 6,3% of respondents answered incorrectly «electronic training sessions».

The development of information and communication technologies shows that digital educational resources take their rightful place. Therefore, it directly depends on the teacher how the choice of educational resources will be pedagogically justified. The development of high-quality digital educational resources allows you to automate the educational process. Creating resources with students can diversify project activities and increase their interest in research activities.

The results of the answers to the sixth question indicate that not all respondents understood the concept of digital educational resources.

To check whether future teachers have a deeper understanding of digital educational resources, 62,5% of respondents (10 future teachers) who took part in

the online testing of the question 7 «How digital educational resources differ from traditional» paper «textbooks» chose the correct answer «interactivity of learning, motivation of active student activity and learning motivation», and 3 future teachers, that is, 18,8% of respondents chose the answer «ensuring the integrity and continuity of the didactic learning cycle», another 3(18,8%) future teachers were satisfied with the answer «saving paper production and printing textbooks».

«Automated workplace ... only 6,3% of respondents (1 future teacher) who took part in the online test correctly answered »software and hardware complex of an automated system for automating a certain type of activity», 75% of respondents (12 future teachers) chose the wrong answer «ergonomic provision of an automated system for coordinating the parameters of the working environment at the workplaces of personnel of an automated system, 2 (12,5%) future teachers received the answer «technical support of an automated system for automating certain types of activities», and 1(6,3%) future teachers received the answer «software complex of an automated system for automating certain types of activities».

Through the effective use of digital educational resources (DER), it is possible to improve the working conditions of both the teacher and the student: the lesson will be informative, interesting, presentable, the learning space and time will change, and the illustrative material will significantly expand. DER creates problem situations and organizes the search activity of students, strengthens the emotional background of learning, forms the motivation of future teachers, individualizes and differentiates the educational process.

In solving certain problems, there is a free movement of information, which determines the need not only to receive information, but also to activate it: to ensure maximum use in all types of information, including electronic ones, helps to disseminate and acquire knowledge.

The linguistic resources necessary to support the educational environment are created and used not only in research projects, but also as part of the creation of the educational environment of the university in the form of a system of individual automated workplaces (AWPs).

Only 31,3% of respondents (5 future teachers) who took part in the online test correctly answered «electronic, mobile, network» to the 9th question «select forms of education from the list that include remote formats», 50% of respondents (8 future teachers) chose the answer «electronic, mobile, network, autonomous, mixed», and 18,8% of the remaining respondents (3 future teachers) chose the answer «mobile, network, offline, mixed, shared».

Since the DER includes graphic, text, digital, speech, music, video, photo and other information aimed at realizing the goals and objectives of modern education, the question «What are digital educational resources?» only 75% of respondents (12 future teachers) who took part in the online test correctly answered «all of the above options are correct», 12,5% of respondents (2 future teachers) chose the answer «multimedia files», and 12,5% of the remaining respondents (2 future teachers) chose the answer «presentations».

The results of the online test on the topic «The use of digital educational resources in teaching. ICT competence» were studied in table 20 and figure 121.

Future teachers are well versed in the concepts of «Information and Communication Technology», «ICT literacy», «ICT competence», «digital educational resources», and have a low level of knowledge of the concepts of «automated workplace», «educational facilities with a remote format».

Table 20 – Results of the online test on the topic «The use of digital educational resources in teaching. ICT competence»

№	Question	«Correct» answer, %	«Incorrect» answer, %
1	Informatization of education means	87,5% (14)	12,5% (2)
2	Information and Communication Technology (ICT) is:	93,8% (15)	6,2% (1)
3	ICT literacy is:	93,8% (15)	6,2% (1)
4	ICT competence is:	68,8% (11)	31,2% (5)
5	Benefits of using a computer in teaching	31,2% (5)	68,8% (11)
6	Digital educational resources	81,3 % (13)	18,7% (3)
7	How digital educational resources differ from traditional «paper»textbooks	62,5 % (10)	37,5% (6)
8	Automated workplace ... it is called	6,3% (1)	93,7% (15)
9	From the list, select educational facilities that include a remote format	31,3 % (5)	68,7% (11)
10	What are digital educational resources?	75% (12)	25% (4)

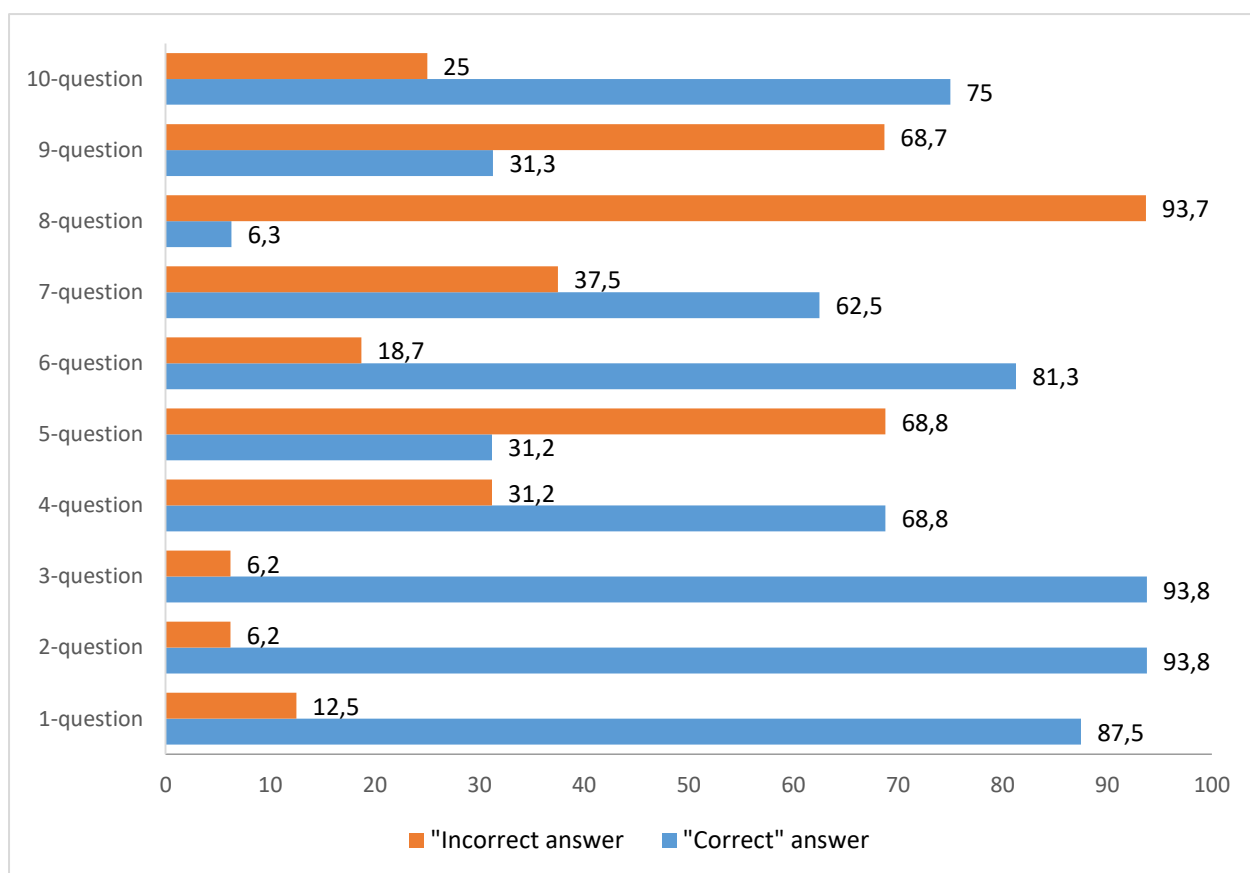


Figure 121 – General characteristics of online testing

If we study the results of the online test, it turns out that the vast majority of future teachers answered questions 1-6 «correctly», and 5,8,9 - «incorrectly».

The online webinar made a significant contribution to the formation of digital competencies of future teachers.

3.6 International competition «My first online lesson»

In order to make education the central link of a new model of economic growth in the XXI century, it is necessary to focus the training program on the development of critical thinking, independent search skills, and distance learning.

By adapting the experience of international pedagogical and professional education centers to the current Kazakh market, we need to prepare future teachers with high digital and creative competencies for global competitiveness.

In the context of distance education, there is a need to identify effective ways to form digital and creative competencies of future teachers, to develop a methodology.

Effective ways of forming digital and creative competencies of future teachers in the context of distance education in Kazakhstan in the new conditions have been identified.

The international online contest «My first online lesson» was organized (figure 122).

In the context of Information Science of Digital Kazakhstan, the use of electronic resources for the formation of the personality, intellectual culture, technological competencies of a future specialist is important for his survival in the information society, training a professional who will correctly navigate in its information flow and find an effective solution.

The international competition was attended by well-known scientists of the Republic, future teachers, methodologists of educational organizations and scientists and future teachers of the Shadrinsk State Pedagogical University of Russia.

The purpose of the international online competition is to develop the digital competence of students of pedagogical educational programs, stimulate the creative activity of future teachers, improve the quality of educational activities and improve the scientific and methodological support of the educational process.

The international online competition «My first online lesson» was able to solve the tasks of activating the creative and professional potential of future teachers; introducing modern innovative educational technologies into the practice of the educational process; improving the professional skills of future teachers; forming a social and professional image of future teachers, etc. [140,1].

Associate professor of the department «Theory and methodology of primary education» of Shadrinsk State Pedagogical University of Russia, candidate of Pedagogical Sciences N.M.Zhdanova, who joined the international webinar online, noted that the online competition is the result of collaborative research conducted by Dulaty University and Shadrinsk State Pedagogical University on the formation of digital competencies of future teachers.



Figure 122– Poster of the international online contest «My first online lesson»

Lessons of future teachers who took part in the international online competition «My first online lesson» uploaded to the pedagogical portal [https:// www.smart-pedagog.kz](https://www.smart-pedagog.kz) (table 21; figure 123).



Figure 123– Poster for summing up the final results of the international online contest «My first online lesson»

Online-lessons of future teachers were evaluated according to 5 criteria: compliance of the content of the educational material with didactic requirements; mastery of subject and technological competencies and general erudition of the future teacher; speech culture and optimal style of communication with students; general culture of the future teacher; quality of the video lesson, logic of constructing a storyline, optimality, content and informativeness of selected fragments; quality of materials attached to the video lesson; effectiveness of using information and communication technologies; technical level of recording and editing of a video lesson.

Table 21– The final result of the International contest «My first online lesson»

№	Full name of the participant	Lesson link
1	Abulhair A. Zh.	https://youtu.be/qWnffOc_nSI
2	Baysultanova A.V.	https://youtu.be/WmdSvqIn1I8
3	Tumabaeva A.B.	https://youtu.be/Qv00FUqrM
4	Serik N.L	https://youtu.be/kiL4BJwQeUw
5	Zhaybergen Zh.A	https://youtu.be/0xFGAiMrvm0
6	Manakova A.V.	https://youtu.be/d7S4A5-aBjc
7	Sarypbek K. M.	https://youtu.be/ECJVhC5pa3w
8	Amangeldy B.A.	https://youtu.be/xsRsIC0b0qo
9	Batyrbekova M.M.	https://youtu.be/N0NCndeUA1s
10	Sagymbek K.S	https://youtu.be/YairMBeHn_A
11	Kalbaeva A.M.	https://youtu.be/AplAtRom2T4
12	Alpysbay G. A., Aznur K. A.,	https://youtu.be/5C9VsJvTTao
13	Zhanabayeva A. K.	https://youtu.be/zjpbjOIUinw
14	Rakhimov Sh.B.	https://youtu.be/qRaRk6EQ7n0
15	Nyshambai A.	https://youtu.be/DYqMO3fyBEs
16	Kislukhina M.V.	https://youtu.be/18rZOv_y8JM
17	Zhekenova A.B.	https://youtu.be/T1S852ImXBU
18	Shayakhmet S.B.	https://youtu.be/mo8s9i1Y00Q
19	Ayarbek M.	https://youtu.be/BxM7f4nSY_Q
20	Kaldarbekova Sh.T.	https://youtu.be/HbhNSvEjeGQ
21	Reimbay M.Kh.	https://youtu.be/5IMSgORI5XQ
22	Molshylykova A.O.	https://youtu.be/K8XyumROMMk
23	Askar D.G.	https://youtu.be/gO3Y7uzwvTw
24	Sharipkhanova P.K.	https://youtu.be/UXt1YQaE0BA
25	Rakhmaninova N.B.	https://youtu.be/QQGgKGgvxRM
26	Ussipbek A.B.	https://youtu.be/4_puiMp4RSY
27	Bazarova A.Kh.	https://youtu.be/ScFEAJaoeOQ
28	Guvandzhova S.	https://youtu.be/IrWeKYBopTA
29	Serik	https://youtu.be/dPzBK10Ft6w
30	Tulemisov A.E.	https://youtu.be/s2mqCJFJ6zc
31	Tlegen A.K.	https://youtu.be/s3k6GC0G-2c
32	Tenirkhan T.M.	https://youtu.be/jQ66PFMMB8Y
33	Saparbayeva S.R.	https://youtu.be/8QqqDn1OV9M
34	Satybaldy M.E.	https://youtu.be/HR8ISCNP8Vs

Future teachers who took part in the competition used the capabilities of digital educational platforms Zoom, Microsoft Teams, Google Meet, Google Classroom, Padlet, Clideo, Quizizz, Wordwall, Crossword Labs, Canva, Survio, etc. in their classes (figure 124).



Figure 124– Digital platforms used in the International online contest «My first online lesson»

At the international online contest «My first online lesson», future teachers conducted innovative lessons using various digital platforms (Figure 125).

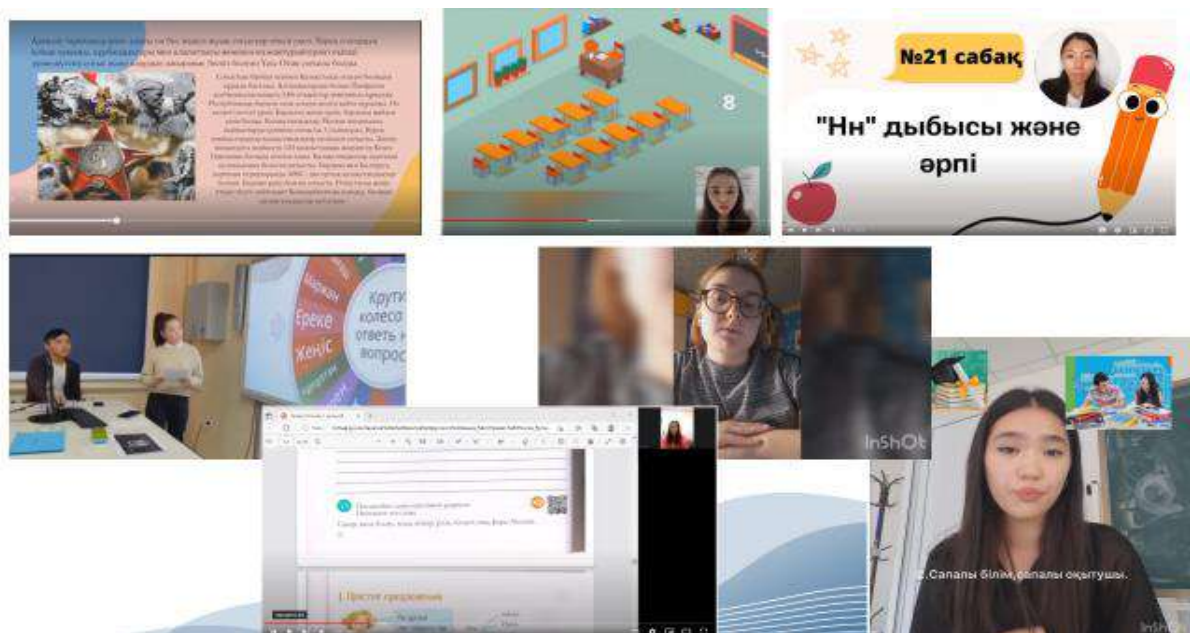


Figure 125– Innovative lessons in the international online contest «My first online lesson»

A. Abulhair, a 2nd year student of Dulaty University, studying on the educational program 6B01501– Mathematics teacher training, took the 1st place, presenting her online lesson on the topic «Smart teacher-who is he?» [141,2].

Students of Dulaty University A. Baisultanova and A.Tumabayeva took the 2nd place.

Student of North Kazakhstan University named after M. Kozybayev Zh.Zhaybergen, student of Shadrinsk State Pedagogical University of Russia A. Manakova and a student of Dulaty University N.Serik shared the 3rd place (Table 22).

The international online contest focused on the effective use of new forms of digital content of educational material, providing future teachers with improved forms of teaching technologies from the point of view of digital education.

K. Sarypbek, a student of Dulaty University, who scored the highest points as a result of electronic voting in the social network, won the audience's sympathy (figure 126).

Table 22 – Results of the International online contest «My first online lesson»

№	Full name of the participant	Link to the lesson on the social network	Total score	Place
1	Abulhair A. Zh., Dulaty University	https://youtu.be/qWnffOc_nSI	117	I
2	Baysultanova A.V. Dulaty University	https://youtu.be/WmdSvqln1I8	115	II
3	Tumabayeva A.B., Дулати университеті	https://youtu.be/--Qv00FUqrM	114	II
4	Serik N.L., Dulaty University	https://youtu.be/kiL4BJwQeUw	110	III
5	Zhaybergen Zh.A., M. Kozybayev North Kazakhstan University	https://youtu.be/0xFGAiMrvm0	110	III
6	Manakova A.V., Shadrinsk State Pedagogical University, Russia	https://youtu.be/d7S4A5-aBjc	110	III
7	Sarypbek K. M., Dulati University	https://youtu.be/ECJVhC5pa3w Дулати университеті	109	III

The full version of the contest «My first online lesson» can be found at the link below.

Вопросы **Ответы 1 457** Настройки

1 457 ответов

Ответы не принимаются

Сообщение для респондентов

Эта форма закрыта. Ответы больше не принимаются.

Сводка

Вопрос

Отдельный пользователь

Мен мүше(лер)ге дауыс беремін
Я голосую за участника(-ков)

Копировать

1 457 ответов

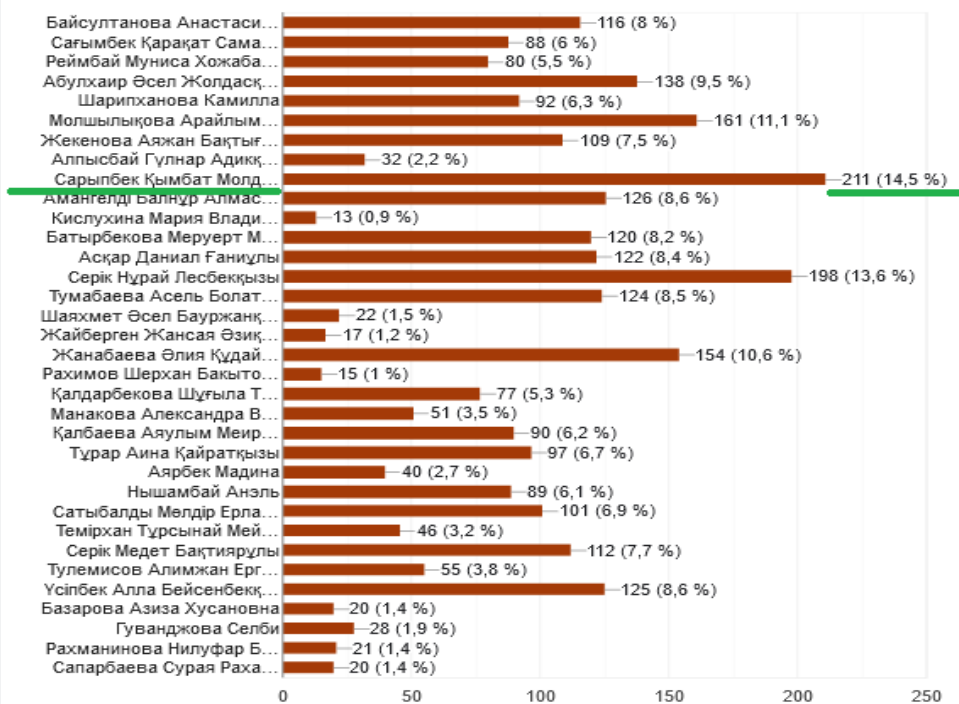


Figure 126–The result of electronic voting in the social network contest «My first online lesson»

34 future teachers who took part in the international online contest «My first online lesson» were awarded special certificates (figure 127).

ҚР ҒЫЛЫМ ЖӘНЕ ЖОҒАРЫ БІЛІМ МИНИСТРАЛІГІ
М.Х. ДУЛАТЫ АТЫНДАҒЫ ТАРАЗ ӨңіРАІК УНИВЕРСИТЕТІ
ШАДРИНСК МЕМАЕКЕТТІК ПЕДАГОГИКАЛЫҚ УНИВЕРСИТЕТІ



СЕРТИФИКАТ

Манакова Александра Витальевна

“МЕНИҢ АЛҒАШҚЫ ОНЛАЙН САБАҒЫМ!”
Халықаралық онлайн
байқауға қатысқаны үшін берілді

выдан за участие в Международном
онлайн конкурсе
“МОЙ ПЕРВЫЙ ОНЛАЙН УРОК!”

Г.А. МУСАБЕКОВА
Басқарма Төрағасы -
Ректор м.а.



12/10/2022

Figure 127– Certificate issued to future teachers who took part in the International online contest «My first online lesson»

The link of the International online contest «My first online lesson» in the social network was given table 23 and all materials in full uploaded to the pedagogical portal [https:// www.smart-pedagog.kz](https://www.smart-pedagog.kz).

Table 23 - The link to the International contest «My first online lesson» in the social network

№	International contest «My first online lesson»	
	Name	Link on the social network
1	About the contest	https://dulaty.kz/ru/2020-01-30-02-50-58/item/4507-onlajn-konkurs-moj-pervyj-onlajn-urok.html https://dulaty.kz/2020-01-30-02-50-58/item/4603-dulati-universitetini-studenti-khaly-araly-baj-auda-zhe-iske-zhetti.html
2	Results of the contest	https://youtu.be/vF3AxW9S9YU https://youtu.be/z2CxM-gApeI
3	Grand opening of the online contest	https://youtu.be/Neqk5vEZ9xs
4	Online congratulations of Shadrinsk State Pedagogical University	https://youtu.be/zcPqOGAzFYg
5	Presentation of comission members of the online contest	https://youtu.be/lnwf1p099qk
6	Results of the contest	https://youtu.be/sSpWihCuVWg
7	Analysis of lessons submitted to the contest	https://youtu.be/uw1tf0kmp7g
8	Heading «open microphone»	https://youtu.be/6RL9iN9EDRk
9	Full version of the International contest «My first online lesson»	https://youtu.be/z2CxM-gApeI

The contribution of the international online competition «My first online lesson» in the formation of digital competence of future teachers was significant.

3.7 Master's research work on the topic «Technological and methodological aspects of the formation of digital and creative competencies of future teachers in the Republic of Kazakhstan»

Zhakip Zh. defended his master's thesis on the topic «Technological and methodological aspects of the formation of digital-creative competencies of future teachers in the Republic of Kazakhstan» in the specialty 7M01104-Pedagogical dimensions [142].

The purpose of the study: to determine the scientific, theoretical and methodological foundations of the formation of digital-creative competencies of future teachers, to develop a methodology and prove its effectiveness experimentally, to give scientifically based recommendations.

Object of the study: educational process of pedagogical university

Subject of the study: pedagogical conditions for the formation of digital and creative competencies of future teachers.

Scientific hypothesis of the study: if the pedagogical conditions for the formation of digital-creative competencies of the future teacher are determined, a structural-content model and methodology are prepared and introduced into the educational process, then the effectiveness of the formation of research activities of future teachers will increase, which will ensure the success of educational activities, since special educational and practical work will allow them to develop this quality.

Objectives of the study:

1) determination of scientific and theoretical foundations for the formation of digital and creative competencies of future teachers in the Republic of Kazakhstan;

2) determining the essence of the concepts of «competence», «new information technologies», «creativity», «digital competence», «creative competence»;

3) consideration of the study of the problem of formation of digital and creative competencies of future teachers in scientific works;

4) identification of technological and methodological aspects of the formation of digital and creative competencies of future teachers in the Republic of Kazakhstan;

5) testing the effectiveness of experimental work on the formation of digital and creative competencies of future teachers in the Republic of Kazakhstan [142;8] .

The leading idea of the study: the formation of digital and creative competencies of future teachers is a key factor in improving the level of education in the Republic of Kazakhstan.

Scientific novelty and theoretical significance of the study:

1) identified the scientific and theoretical foundations for the formation of digital and creative competencies of future teachers in the Republic of Kazakhstan;

2) revealed the essence of the concepts of «competence», «new information technologies», «creativity», «digital competence», «creative competence»;

3) study of the problem of formation of digital and creative competencies of future teachers in scientific works;

4) identified technological and methodological aspects of the formation of digital and creative competencies of future teachers in the Republic of Kazakhstan;

5) tested the effectiveness of experimental work on the formation of digital and creative competencies of future teachers in the Republic of Kazakhstan [142;10] .

Practical significance of the research work: the results of the study can be used in the educational process in higher and secondary specialized pedagogical educational institutions, in professional development centers.

Dissertation structure: the dissertation consists of an introduction, two parts, a conclusion and a list of references.

The introduction sets out the scientific apparatus of the study, the relevance of

the study, the purpose, object, subject, scientific forecast, objectives, leading idea, theoretical and methodological foundations, research sources, research methods, base, main stages of the study, practical significance, principles proposed for protection, validity and validity of the research result, reliability, approval, implementation of the research results in practice.

In the first chapter «Scientific and theoretical foundations of the formation of digital-creative competencies of future teachers in the Republic of Kazakhstan», the problem of the formation of digital-creative competencies of future teachers is considered in scientific works, the theoretical foundations are revealed in the analysis of theoretical scientific works, the meaning of the concepts of «competence», «creativity» as a philosophical, psychological and pedagogical category, technological and methodological aspects of the formation of digital-creative competencies of future teachers are given [142;11] .

In the second chapter «The experimental work on the formation of digital-creative competencies of future teachers in the Republic of Kazakhstan», diagnostics of the initial stage of formation of digital-creative competencies of future teachers is given. The conducted experimental work on the research problem and their conclusions are presented.

The conclusion describes the conclusions obtained based on the results of the study. Scientific and methodological recommendations are given on the research issue.

The application provides methods for diagnosing the results of research used in scientific and experimental work.

Under the influence of ICT on educational processes, a type of modern teacher is being formed who can not only master knowledge in the field of information and communication technologies, but also use it in his professional activities; in this case, another type of student is being formed, who cannot imagine his life without a personal computer and the World Wide Web, using the capabilities of modern technologies as a source of information [143].

Therefore, it is important that the teacher of the XXI century takes into account the useful points of ICT and is able not only to acquire knowledge in this area, but also to apply them in his professional activities [144].

Digital competence is a fairly high level of knowledge of modern information and communication tools. Today, digital competence is determined by the implementation of information search in the internet space, the creation of social interaction, the ability to select specific data and critically evaluate professionally important information, the creation of an individual trajectory of continuous professional development in the open information space.

According to the DigCompEdu profile compiled by the European Committee, the digital competencies of future teachers cover six areas (figure 128) [145].

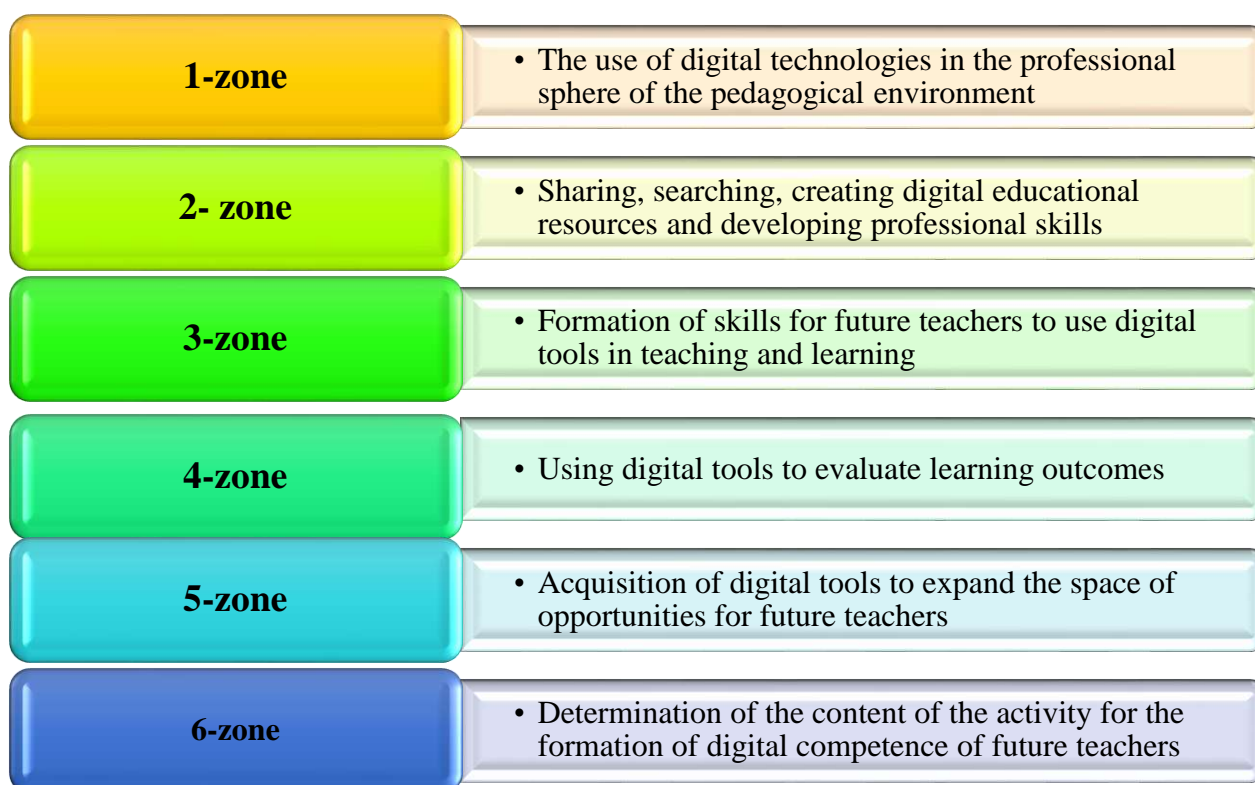


Figure 128– Areas of formation of digital competencies of future teachers

In modern times, in order to be comprehensive in digital technologies, it is mandatory to know the capabilities of the computer (including mobile devices) and technologies, understand the role of the digital educational environment (DEE), be able to analyze information, design and create your own environment, work on the network information needs to be used taking into account opportunities, limitations, risks.

The use of digital competence also increases the competitiveness of the future teacher in the professional environment, helps to form the value of education and general media literacy of students when working with the internet and world media.

It should be borne in mind that education is becoming a continuous process, and in order to achieve its competitiveness, it is necessary to form and develop digital skills. This is facilitated not only by the appropriate material and technical support in educational institutions, but also by the creation of an appropriate environment. No less important is the digital transformation of modern teachers to achieve a high level of digital literacy [146].

In recent years, distance education has been established in all educational institutions of the world. During the distance learning, the importance of using social platforms in an online format has increased. The main thing in the use of internet resources is that when introducing distance learning, communication between the future teacher and the student is not interrupted.

One of the most effective teaching principles is the use of meaningful, cognitively realistic educational material. The educational material offered to the student should be informative and have a high cognitive load. The choice of

interactive realistic materials and teaching aids will allow the future teacher to increase the motivation of students to learn, as well as to use the lesson as a language environment. Web 2.0 technologies can be used in teaching disciplines as the basis for the development of educational content, as well as the organization of interactive learning, which allows you to achieve learning goals in the classroom .

Figure 129 reveals the basic skills of digital competence.

The most important characteristic of the formation of digital competencies of the future teacher:

- effective work with digital devices;
- correct information analysis;
- use your time correctly;
- be able to select only those sources that guarantee the high quality of the necessary material and get rid of unnecessary details;
- the ability to save time using various ready-made templates and tasks in the internet system, photo, video, virtual games, etc.

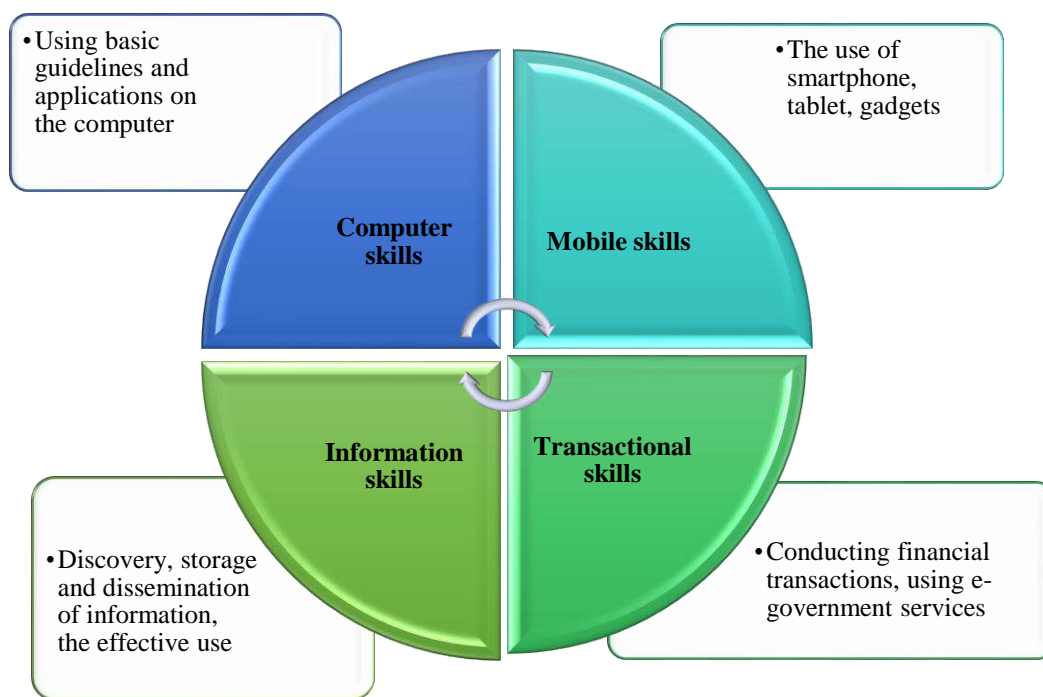


Figure 129– Basic skills of digital competence

Despite the fact that future teachers of the university receive theoretical knowledge at a high level, difficulties arise during practice. For young professionals who have never taught a full-fledged lesson before, it is not easy to explain the lesson to students in an interesting way. At this point, you will have to turn to online assistants for help, which are currently gaining popularity. This, of course, is very useful not only for future teachers, but also for experienced teachers. There are many online resources to create interactive tasks that facilitate the process of obtaining knowledge. They can be similar in functionality and differ from each other both in

functionality and interface. Some applications and sites can be mastered very quickly, and in some you have to work hard to learn how to work. But nevertheless, each of them is unique, interesting and useful. With one service, we can create a quiz quickly and efficiently. Another service helps to compose crosswords [147].

In the course of the study, we will show several online services that will help simplify the pedagogical process for future teachers in our country. We will show several online services that will help simplify the process.

Learningapps is a completely free online service that allows you to perform interactive exercises to test your knowledge. The program works in 22 languages (including English and Russian). 21 different games are offered on this service, which help to form the cognitive interest of students by using the same games during the lesson, to test the knowledge gained, to form it (figures 130,131).

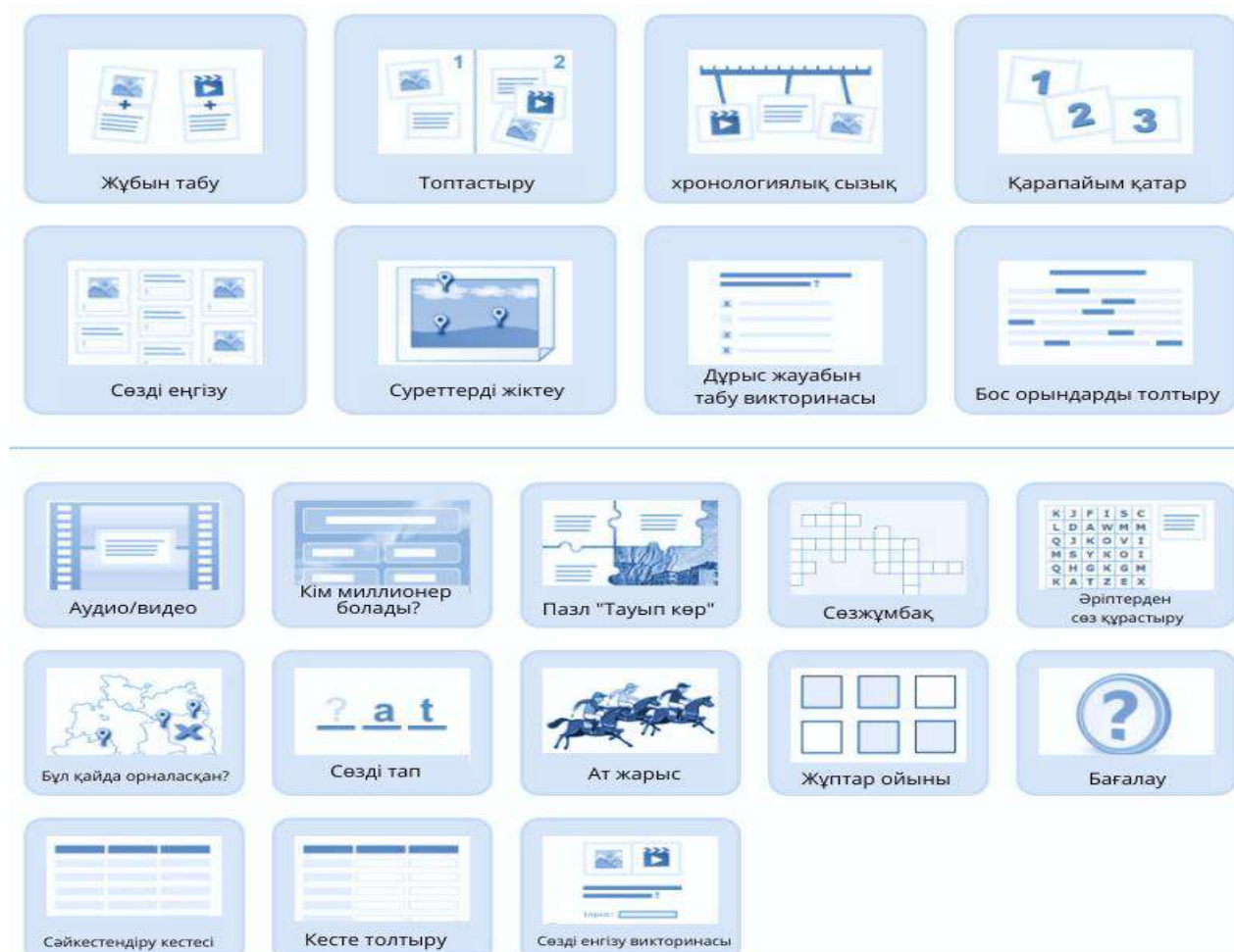


Figure 130 – Learningapps patterns

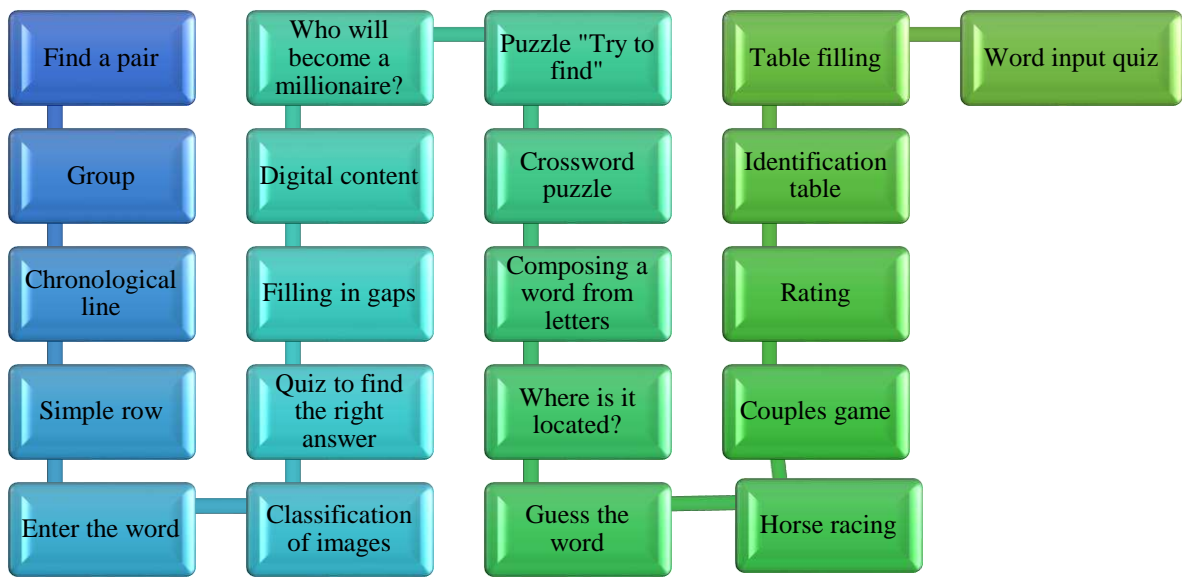


Figure 131 – Learningapps

This game can be used to compose our own task on a specific topic by choosing one of the templates. You can create a task by selecting any template and looking at the specified example. Questions related to the topic can be reproduced in various versions in the format of quizzes, matching tables, puzzles and cards, intellectual game, audio and video content, etc. (fig. 132).

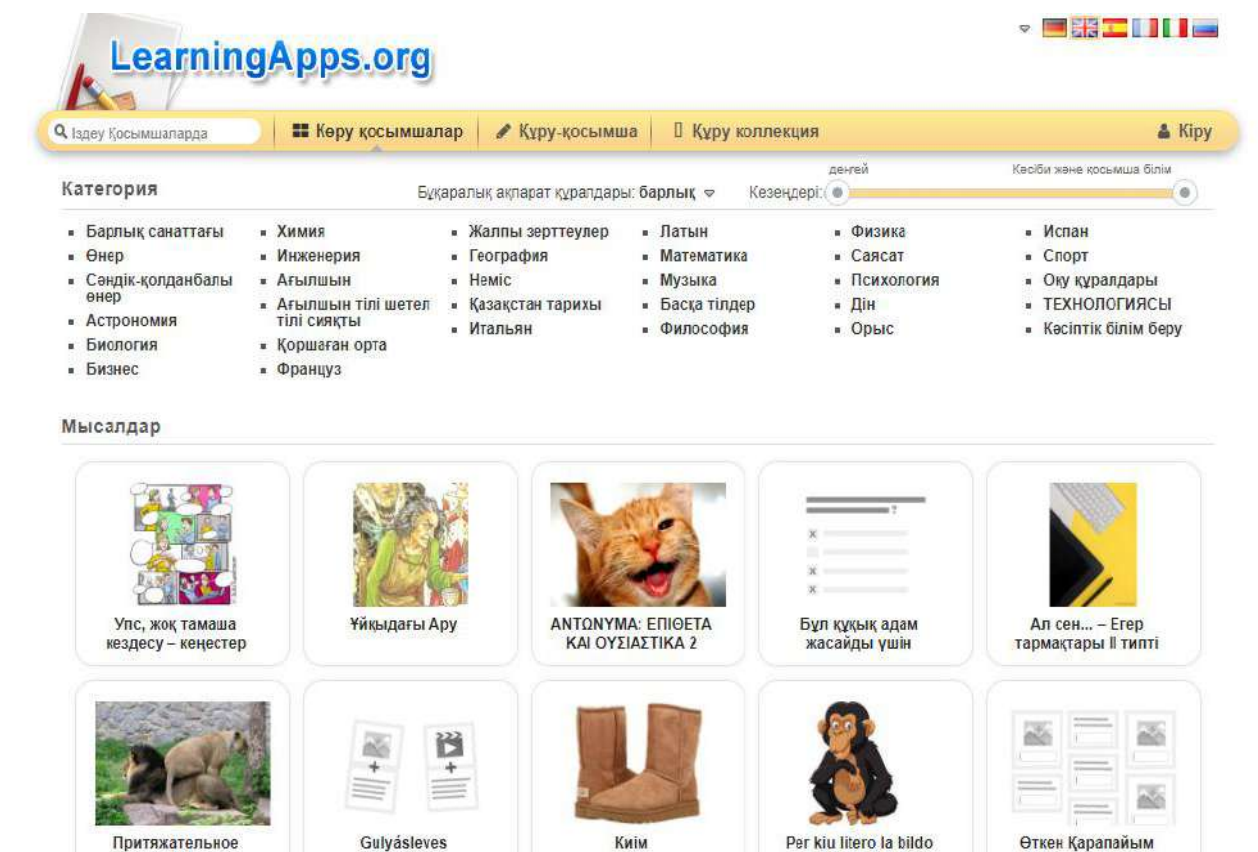


Figure 132– Learningapps tasks

2) Kahoot is an online quiz platform for testing knowledge. The process of obtaining a simple test is interesting, it teaches students the ability to recognize, as well as speed and intelligence (figure 133).

This application allows you to create various types of tests, such as quizzes, puzzles and various questionnaires, as well as presentations, as shown in the figure. Students can choose a winner by entering the system using a mobile phone or computer, watching the test questions on a shared screen, answering the questions and scoring points. The test can be passed both individually and in groups.

The site provides thousands of ready-made test materials. Any quiz test related to the topic can be used for free.

In addition, you can create a shared task by creating a virtual team around the world.

Жаңа kahoot құру

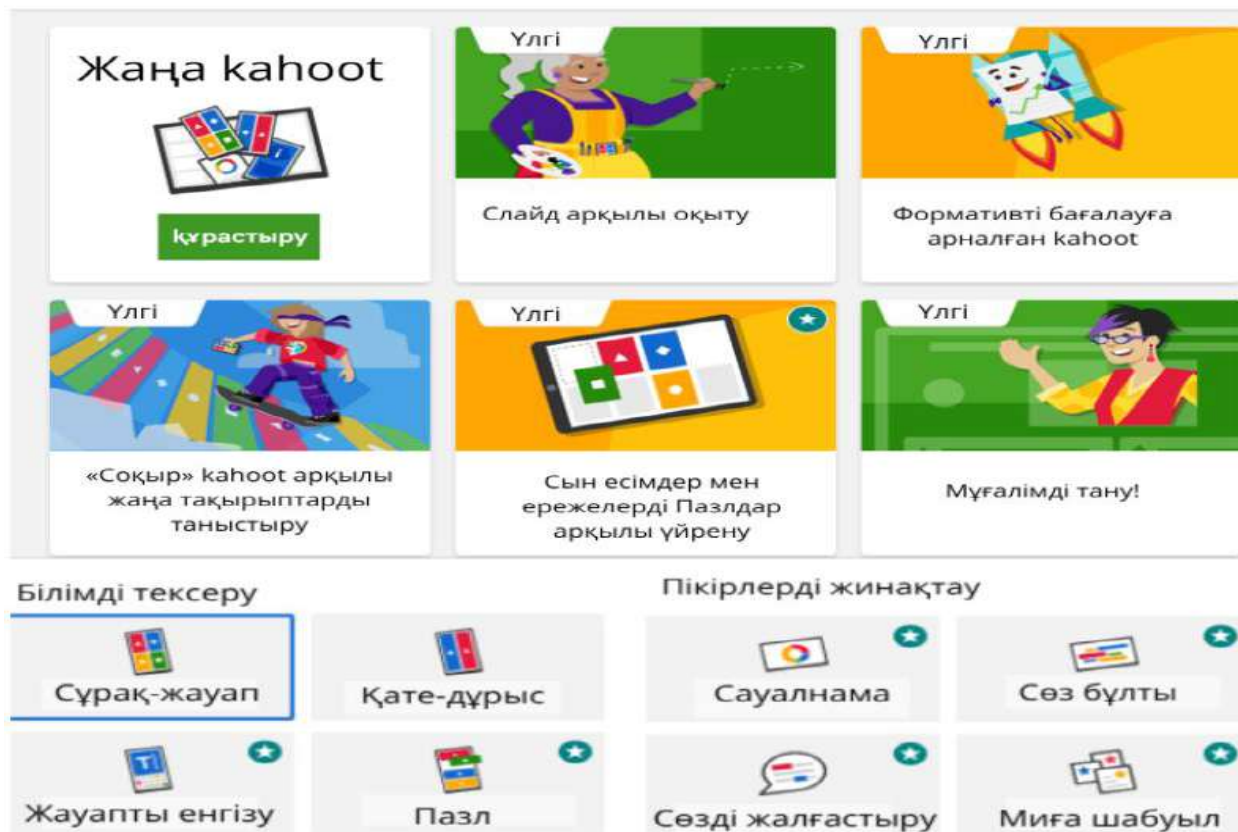


Figure 133 – Models and types of Kahoot

3) Wordwall is a modern assistant to the teacher, full of great opportunities for creating interactive games and interesting tasks. Now future teachers do not need to look for answers to questions about how to check the topics covered in a non-standard way, how to consolidate the knowledge gained, how to conduct a lesson interesting. Because Wordwall is a free 18 template tool (figures 134-135, table 24) that facilitates the work of educators.

These templates include familiar didactic games that are often found in teaching practice. Even using the free version, you can access a huge arsenal of games. You can create a training task by selecting any template and entering the content.

You can use ready-made templates on the site or start it a new. In any case, creating a game will not take much time. A great help in the game is to connect to the Bing search engine, through which you will be able to quickly find the images you need. The future teacher can insert a game task prepared by him on the site or send a link to other students. Tasks can be personalized .

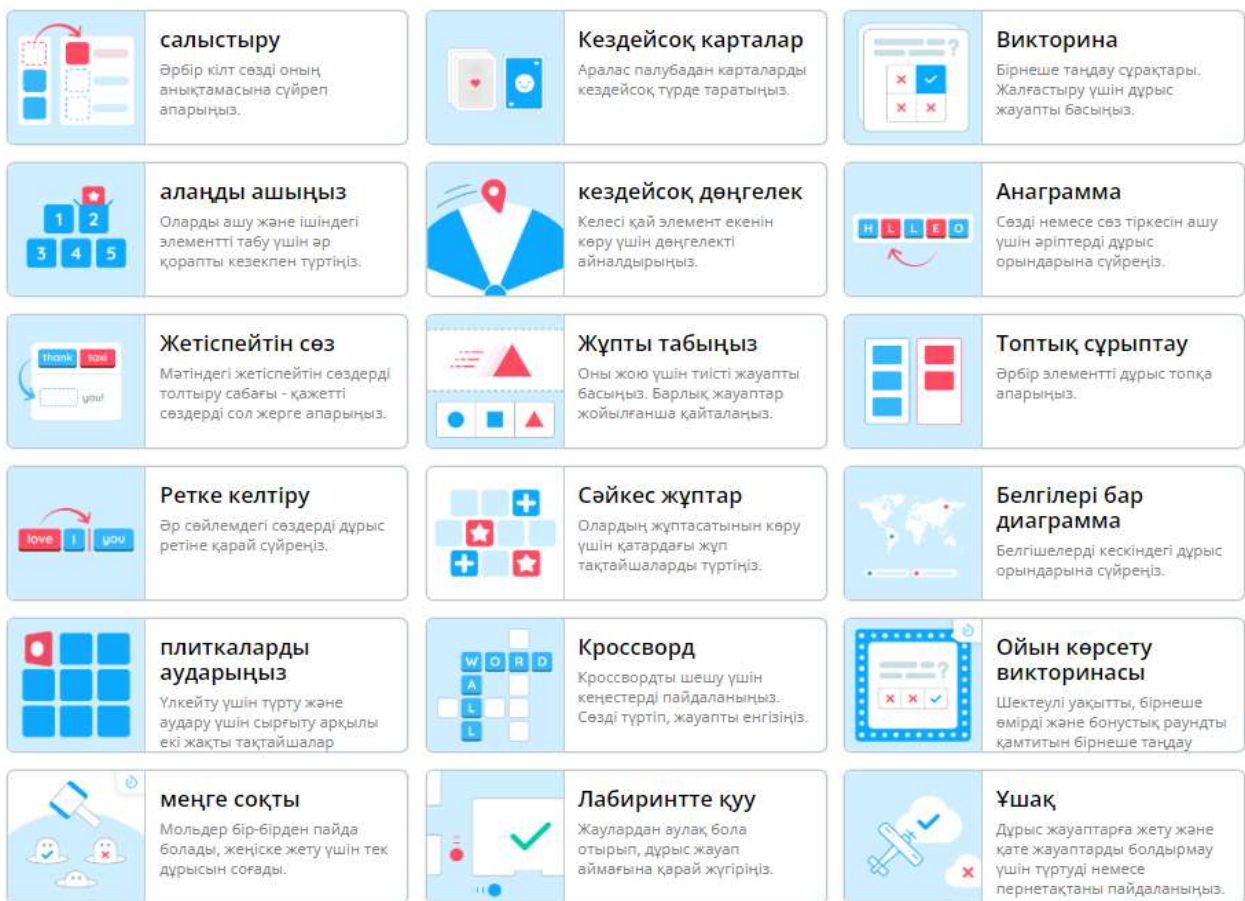


Figure 134 – Wordwall templates

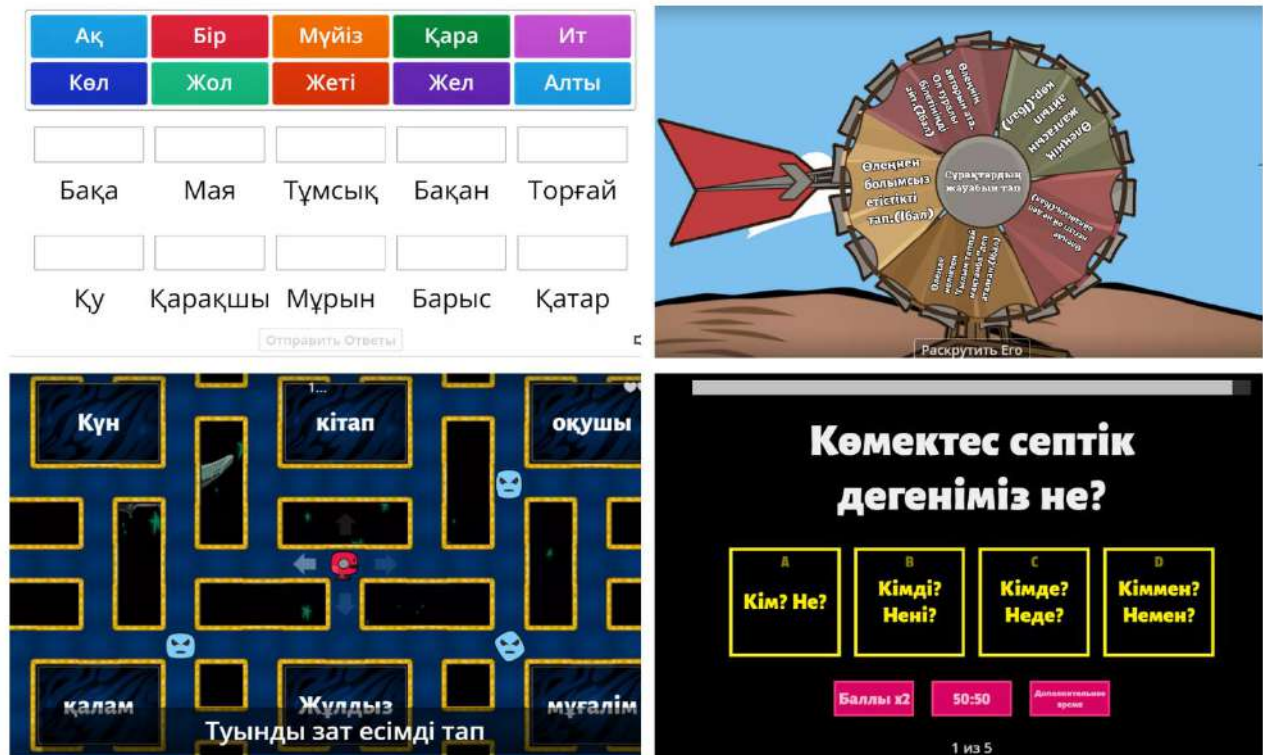


Figure 135– Wordwall game examples

Table 24 – The value of Wordwall templates

No	Name	Value
1	Comparison	• Drag and drop each keyword into its definition
2	Opening the square	• Tap each box in turn to find the item inside
3	Missing word	• Filling in missing words in the text, dragging the necessary words into place
4	Order	• Arrange the words in the correct order in each sentence
5	Flipping tiles	• Explore a series of double-sided tiles by tapping to zoom in and swiping to flip
6	Hitting a mole	• Moles appear one at a time, hitting only the right one
7	Random cards	• Random distribution of cards from a mixed deck
8	Random round	• Rotate the wheel to see which item is next
9	Find a pair	• Click over to find the answer that matches. Repeat until all answers are removed
10	Matching pairs	• Tapping a pair of tiles in a row to determine if they will pair with each other
11	Crossword	• Use hints to solve the crossword, touch the word and enter the answer
12	Chase in the maze	• Run to the correct response zone while avoiding enemies
13	Quiz	• Multiple choice questions are given, clicking on the correct answer to continue
14	Anagram	• Drag letters to their correct places to open a word or phrase
15	Group sorting	• Drag each item to the correct group
16	Signs diagram	• Drag icons to their correct positions in the image
17	Game Show Quiz	• Quiz with multiple choices, including limited time, multiple lives, and a bonus round
18	Aircraft	• Touch or use the keyboard to achieve correct answers and avoid incorrect answers

In addition, 18 more professional templates work on the site for a fee. In practice, it has been proven that this supplement reveals the motivation of children to learn and leads to versatility (fig.136).

3) **QUIZZZ** is an online assistant that works in 12 languages, offering various methods for creating tests. On questions prepared by the future teacher in advance, the student can take a test by dialing a certain PIN code using any device with access to the internet.

Жаңа сұрақтар құрастыру

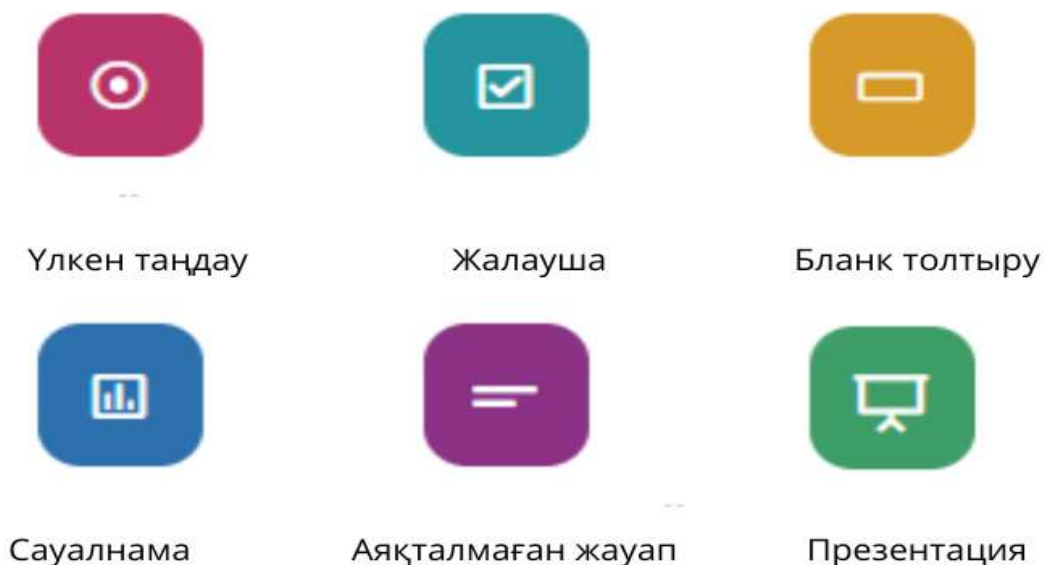


Figure 136 – Quizizz samples

Table 25 reveals the value of Wordwall templates.

Table 25 - Value of Wordwall templates

№	Name	Value
1	Large selection	•This is where you can compose endless questions. Regarding the questions, you can put an image, sound, mathematical formula or video
2	Flag	•The structure is the same as the above model, only here there will be opportunities to think, and not immediately send the chosen answer.
3	Filling the form	•According to this model, the test taker can specify a predictive version of the question, in addition to the actual answer
4	Survey	•There is no correct answer here, but only the compilation of a questionnaire in order to get students' opinions on a particular topic
5	Unfinished answer	•The person taking the test is not shown the options for the question, but he only writes his own answer
6	Presentation	•Allows you to make presentations using tables, videos, images, etc. to explain the lesson

Although everyone has common questions, each user has questions in a different sequence. This helps to consider the knowledge test of each person individually, that is, each child answers the questions himself, without looking at someone else. And at the end of the test, it will also be easier to work on the error by getting small statistics on which places students made mistakes, which question students answered more incorrectly, and so on.

In addition, there is an opportunity to take and use ready-made test samples on the site.

1. Class dojo is a unique tool that helps you pass classes effectively today. In this application, the teacher can create a virtual Journal of the same group, where he can score according to the criteria of knowledge, activity, etc. Through this, it is possible to motivate and discipline students in the group without spending as much energy during class time as before(figure 137).



Figure 137– View of Class Dojo

ClassDojo is mainly intended for future educators, teachers of higher education and high school. Bright colors, cute avatars, funny characters will surely attract the attention of school-age children. In ClassDojo, you can register as a teacher (he creates badges, sets goals, collects statistics and creates group messages); as a student (a personal code is sent to access his profile, where he can change his avatar and customize his profile for himself); and as a teacher (he can access the student's profile).

The purpose of the service is to provide students with quick feedback on their work in the classroom and encourage them to engage in effective learning activities. This goal is achieved with the help of two categories of service badges: positive and negative (not called «negative», tactfully and pedagogically called «more work is needed»).

For example, for completing tasks such as finding new information, writing a lecture, making a presentation, writing an abstract, completing tasks in full, working in a group, negative points will be received as a warning for cases such as not attending lectures, being late, not writing lectures, not performing student independent work, not completing tasks (figure 138).

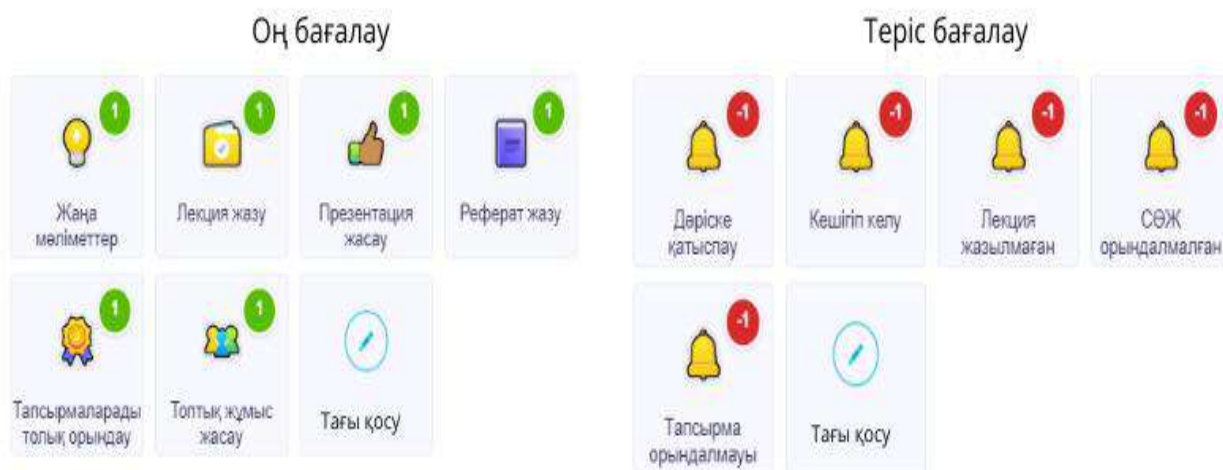


Figure 138– Types of estimates

3) Canva is a service for creating unique graphic designs, illustrations and simple designs that you need every day. The possibilities offered by Canva that anyone can use in their work and study needs, etc., the availability of this application is one of the main reasons for its current relevance (figure 139).

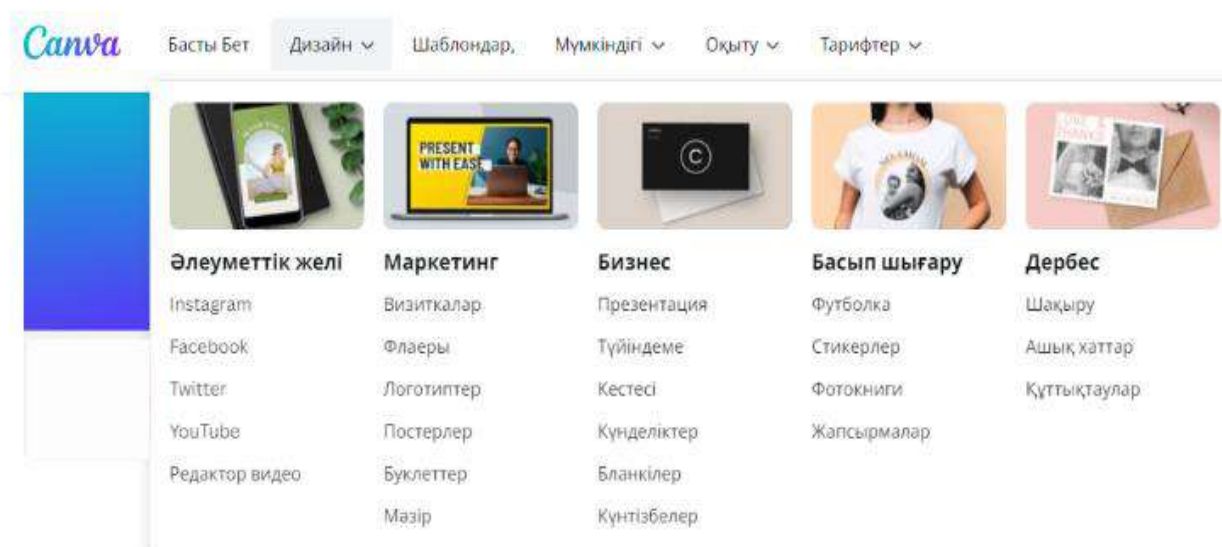


Figure 139– Canva designer

The service offers many templates in various formats: presentation, flyer, comic book, plan, book cover, business card, logo, poster, booklet, menu, resume, schedule, diary, letterhead, calendar, photo book, sticker, sticker, invitation, postcard, greeting card. This means that now future teachers do not need to work for hours in

such programs as Power point and Excel. At the same time, thousands of illustrations and possibilities affect the effectiveness of the work.

The great thing about this is that if it doesn't work the first time, you can use it again. According to research, the ScampeR method can give a positive result in 80% of cases (table 25).

Table 26 - Sample of SCAMPER method

The action	Question	Solution
Switch	Can we replace it with something else?	<ul style="list-style-type: none"> • Division of students into different groups • Replacing team members, team leaders
Combine harvester	What can we combine?	<ul style="list-style-type: none"> • Try combining other subjects with the main ones
Adaptation (adjustment)	How can we adjust it?	<ul style="list-style-type: none"> • Organize different ideas between the group and come up with a common solution when performing assigned tasks on the topic • Adapt the given rules as needed
Change	Can we change it?	<ul style="list-style-type: none"> • Change the volume of tasks • Change the format and criteria of tasks
Use for other purposes	Can it be used for something else?	<ul style="list-style-type: none"> • Try to apply the acquired knowledge in practice • Be able to use what you know on any topic in a different way • Combine knowledge with values
Delete	Is there a reason why we should eliminate this?	<ul style="list-style-type: none"> • Analyze what was useful or useless on past topics • Reduce the task size and introduce additional other details • Exclusion of incorrect information on the received answers
Reverse	Can we change the order?	<ul style="list-style-type: none"> • Rearrange or change some parts of the answers • Try changing your work plan

Scamper is a method that is gaining popularity around the world. This incredibly successful technique was developed by Alex Osborne, and it focuses on monitoring habits and exchanging ideas in groups of people. To better understand this method, we must think about these words and some of the questions they may arise. Since this problem solving tool is very simple and quick to perform, it can be said to be very effective. [150].

It is effective to use the Scamper method in the course of independent work of future teachers.

CONCLUSION

In order to make education the central link of a new model of economic growth in the XXI century, it is necessary to focus the training program on the development of critical thinking, independent search skills, and distance learning.

In the context of Digital Kazakhstan, the professional training of future teachers needs to be considered in a new content.

The monograph «Theory and practice of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan» was designed to solve such urgent tasks.

In the monograph «Theory and practice of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan» a model of the formation of digital competencies of future teachers in the Republic of Kazakhstan is developed, the essence of the concept «digital pedagogical competence of future teachers in a digital environment» is revealed more deeply, technological and methodological aspects of the formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan are identified, the stages of development of distance learning are distinguished, current problems and solutions are studied.

In the monograph «Theory and practice of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan», published within the framework of the grant project AP09259497 «Improving the system of pedagogical education in Kazakhstan in new conditions: technological and methodological aspects of the formation of digital competencies of future teachers in distance learning in the Republic of Kazakhstan», funded by the Ministry of Education and Science of the Republic of Kazakhstan, the following results were achieved:

1) In order to learn, use, study, promote innovative practices in the conditions of distance learning in the training of globally competitive teaching staff in Kazakhstan in the new conditions, a single common joint network and methodological link between Dumaty University (Kazakhstan) and ShSPU (Russia) will be established: the center «smart-pedagog» will be opened, and the online department «smart-pedagog» has been opened at ShSPU as a partner university.

2) Kazakhstan will create an innovative information bank fund for the formation of digital and creative competencies of future teachers in the context of distance education in the training of globally competitive teaching staff, the new pedagogical educational portal [www. smart-pedagog.kz](http://www.smart-pedagog.kz) has been opened.

3) In the context of distance learning in Kazakhstan in the new conditions, effective ways of forming digital-creative competencies of future teachers have been identified, a methodology has been developed.

4) The results of research are published in domestic and foreign publications with an impact factor through scientific articles, monographs, textbooks, electronic textbooks, digital educational content of the discipline and translated into English and published in a foreign publication by foreign scientists (in an author's Association).

5) A mobile application for the online test « Smart-future teacher» has been developed.

6) The International Congress «Distance learning: challenges, modern trends and strategies» is organized and a collection of works is published.

7) An online course program for future teachers «Distance learning technologies» will be prepared and an online course will be organized, all educational materials will be disclosed as a result of the project and uploaded to the pedagogical educational portal www.smart-pedagog.kz

8) An online coaching for future teachers «I will be a smart-teacher!» was organized and the result, all educational and didactic materials were uploaded to the blog smart-online coaching in the pedagogical educational portal www.smart-pedagog.kz

9) An online contest for future teachers «My first online lesson» was organized and the result, all educational and didactic materials were uploaded to the blog SMART-online methodological box of the pedagogical educational portal www.smart-pedagog.kz

10) In the new conditions of Kazakhstan, a digital pedagogical hub (pedagogical campus) DULATY has been created to train teachers and improve the digital literacy and competence of future teachers.

The information age requires the preparation of globally competitive future teachers who will be able to systematically use digital technologies in their practice, manage the educational process rationally, constantly conduct scientific research to improve the educational process, and have developed digital and creative competencies.

The monograph «Theory and practice of the formation of digital competencies of future teachers in the conditions of distance learning in the Republic of Kazakhstan» has a great role in solving such important tasks.

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GLOSSARY

Information – an adaptation to random processes in the external environment, received from the world around us, and a meaningful sign of life activity in this environment, a discovery, a message that reveals the secret of the unknown.

Information technology – a hardware and software based on the use of computer technology, providing storage and processing of educational information, its delivery to the student, interactive interaction of the student with the teacher or pedagogical software, as well as testing students' knowledge.

Information competence – a competence that is associated with the experience of activities in the world of information intelligence, ways of interacting with techniques and technologies for the implementation of general and professional information needs of the individual.

Information competence – the ability of a future teacher to present information, find information and store information.

Innovative activity – the process of creating new models and methods of training and education that qualitatively change the productivity of pedagogical labor.

Interactive communication – the interaction of students with other participants of the webinar through software.

Volume of information – the speed of perception of information;

Ability to process information in a meaningful way – to find and sort the information that is searched for, necessary for it.

Telecommunication (information – satellite) technology – distance education technology based on the priority use of space-satellite means of data transmission and television broadcasting, as well as global and local networks to ensure students' access to information educational resources presented in the form of digital libraries, video lectures and other teaching aids.

The quality of information perception–the assimilation of the necessary material;

The ability to make decisions based on information – to make pedagogical reflections and think constructively, etc.

The portfolio method (from Italian: portfolio – «portfolio», from English – a folder for documents) is a modern educational technology based on the method of realistic assessment of the results of educational and professional activities.

The professional competence of the future teacher - the unity of his theoretical and practical training, achieving high results for the implementation of pedagogical activity.

The digital pedagogical campus – an intelligent innovative virtual educational platform that provides access to all educational resources in education, distance learning and professional development.

The ability to empathize – to understand others; to empathize; to be able to put oneself in someone else's shoes.

The digital educational environment– an open complex of resources, conditions and opportunities for human learning, development, socialization.

Bilimland – a digital education platform based on the advanced achievements of world leaders in e-learning.

Web classes – remote classes, conferences, seminars, business games, laboratory work, workshops and other forms of training sessions conducted using telecommunications tools and other capabilities of the internet.

Wiziq – a platform where the state-of-the-art WizIQ virtual laboratory, specially designed for the educational field, offers all the functions and tools necessary to simulate face-to-face classes in a group.

WizIQ Virtual Classroom – a full-fledged collaborative software for agencies and startups.

EDUS system– e-school-educational platform for schools.

Nearpod – a digital tool based on a website and applications, a platform that allows teachers to create interactive slide learning resources that students can interact with and learn.

Nearpod –a platform that allows teachers to import lessons from any type of file and add interactive elements, web links or video clips to them, and is designed by subject experts for all educational organization levels and disciplines to use pre-prepared, fully interactive lessons , to further expand interactive lessons, allowing teachers to synchronize their lessons with gadgets, create custom assignments, and monitor progress.

Network or internet technology – a distance education technology based on the use of global and local computer networks to ensure students' access to information educational resources and the formation of a set of methodological, organizational, technical and software tools for the implementation and management of the educational process, regardless of the location of its subjects.

Learning Apps – an application designed to support the learning process through interactive modules (applications, exercises).

Microsoft Teams – a unified communication and collaboration platform that performs regular conversations, video meetings, file storage, and application integration in the workplace.

Microsoft Teams – a corporate platform that integrates chat, meetings, notes and applications in the workspace developed by Microsoft.

Kahoot – a free platform for learning in a playful way, suitable for any academic subject and any age.

Creativity – a personality trait that is observed in informational, current processes: the quality of personality that arises through its penetration into information substructures; a trait that manifests itself when looking for a solution when proposing a hypothesis and proving its correctness.

Digital competence – the ability of future teachers to use information and communication technologies (ICT) in a professional context in combination with a good pedagogical (didactic) understanding and understanding of its importance for learning strategies and the digital base of students.

Digital competence – the safe choice, reliable, constructive and effective use of information and communication technology by an individual in various areas of activity in life, work with digital content, communication, consumption, etc.

Digital competence – the ability of people to confidently and constructively use information technologies in the work environment, in their free time and for communication.

Digital competence – the ability of future teachers to effectively use information technologies in educational conditions, in their free time and for communication, store information, exchange information, communicate and communicate on the internet; safe choice of information and communication technologies in the digital area, work with digital content in a reliable, digital environment, etc.

Digital literacy – the ability to find, evaluate and clearly convey information with the help of text and other media on various digital platforms.

Distance learning – a type of training based on the educational interaction of teachers and students located at a distance from each other, carried out with the help of telecommunications technologies and internet resources.

Distance learning – training carried out using information and communication technologies, telecommunication means in the case of indirect (remote) or incomplete indirect mutual educational work activities of a student and a teacher.

Distance learning – a special form of digital competence formation that creates conditions for any person to improve themselves, improve their abilities, improve their professional skills, use audiovisual devices, information and communication technologies.

Canva – a service for creating unique graphic designs, illustrations and simple designs that you need every day.

Coursera – an online learning platform founded by two computer science professors at Stanford University.

Cisco Webex Classrooms – a platform that provides intuitive online learning for learners, teachers, and parents.

Competence – the ability of a teacher to independently raise knowledge, professional skills, culture and adapt them to modern requirements as a specialist.

Competence (from the Latin «Competens» – worthy, striving to achieve, corresponding) – capable, qualified, proficient in their business; knowledge and experience in a particular area.

Padlet – a platform for creating boards for posting content.

Pedagogical technology – a model of well-thought-out pedagogical «activity» that creates favorable conditions for joint activities between the student and the teacher in the design and organization of the educational process.

Pedagogical educational portal www.smart-pedagog.kz – an intelligent innovative virtual educational platform that provides access to all educational resources to provide distance learning and advanced training.

Reflexive ability – the ability to instantly regulate one's own behavior and behavior of a partner; the ability to make effective decisions in conflict situations; the ability to create a favorable psychological climate; the ability to predict the development of intersubject relationships.

Organizational skills – the ability of a specialist to rationally create a relationship of mutual cooperation.

Quizizz – an internet tool for evaluating students, very similar to Kahoot.

Google Meet (formerly Hangouts Meet) – a business – oriented version of the Google Hangouts platform that fits into a company of any size and allows you to conduct video conferencing, remote conversations, webinars, virtual trainings, remote interviews.

Smart-learning – self-oriented, motivated, personality-oriented learning with free access to resources using modern technologies

Skype – a free web communication tool that allows people to conduct video conferencing, make calls, and instant messaging.

Zoom – a platform for holding video conferences, webinars and other similar online events.

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