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Formation of the information and methodological competence of students in the process of distance learning

The article discusses the issues of distance learning, which has become popular with the advent of the Internet, opening up new development opportunities for residents of remote communities and business people with busy work schedules, is perceived only as an additional way to gain knowledge or prepare for exams, provides an opportunity full-fledged distance courses and advanced training programs at prestigious universities, commercial and non-profit companies from different countries, anywhere in the world, at a convenient time and pacing. Thus, distance education was an important problem for Kazakhstan even before the pandemic, which made the issue even more pressing. The authors also discuss the differences and provide examples of distance and online learning. The essence of online learning and distance learning concepts is revealed. Ways of providing students with information and methodological materials in distance learning are considered. The authors carried out a theoretical and methodological analysis of distance learning, distance education concepts. The paper identifies and analyzes the mechanisms of establishment of distance education. The types of international and national online platforms are shown. For illustrative examples of the resources used, the authors describe “on-screen” copies of the lectures of the online conference program zoom.us and idl.ksu.kz — platforms for distance learning of Karaganda University of the name of academician E.A. Buketov. The paper summarizes the problems of distance education, including the organization of distance learning of the University, outlines the prospects for further scientific developments.

Keywords: information technologies, distance education, distance learning, online learning, online platform, information competence, methodical competence, motivation.

Introduction

Due to recent pandemic concerns worldwide and in Kazakhstan, certain changes regarding education and distance learning were introduced after March 2020. This served as a powerful impulse for all branches of distance learning research and development. Based on the letter of the Ministry of Education and Science of the Republic of Kazakhstan dated March 14, 2020 No.4-14-5/1026 — students of KarU of the name of academician E.A. Buketov (students, undergraduates, doctoral students, preparatory department) are switched to online training [1].

To organize the educational process, teachers and students are provided with conditions for access to the platforms. Video lessons are used as a means of learning, self-employed online work and online courses. Kazakhstan has developed own national training platforms: “Bilimland”, “Platonus”, “Daryn”, “Univer”. They also use the tool platforms: “Google Classroom”, “Microsoft Teams”, “MOODLE” and “Canvas”. Also, the foreign platform “Coursera” presented its courses for free, also ZOOM training conditions were created for free use of the service.

We should remember that the distance learning system for universities is not an innovation. Since the signing of the law of the Ministry of Education and Science of the Republic of Kazakhstan, some universities using special technologies have started training in an online format. The questions will be: why are the courses called distance or online? Do they have a fundamental difference? In this article we try to offer the solutions to these problems.

Experimental

Our study of the topic of the formation of information and methodological competence is based on the competence approach, which is analyzed in detail by V.V. Kraevsky and A.V. Khutorsky. It assumes a complex of “additional opportunities to present the goals, content of education (educational standards) and educational technologies in a systematic form, allowing for verification of the success of their development by students. The formation of competencies is carried out by means of the content of education”[2]. The use of this

approach in pedagogical practice also makes it possible to organize the educational process at the university in a versatile and accurate way with distance learning.

The analysis of scientific literature and real pedagogical practice shows that the most concentrated essence of distance education, which fits into modern trends in the development of education, is defined by A.A. Andreev: “Distance education is a synthetic, integral, humanistic form of education based on the use of a wide range of traditional and new information technologies and their technical means, which are used to deliver educational material, its independent study, organization of dialogue exchange between the teacher and students when the learning process is uncritical to their location in space and time, as well as to a specific educational institution” [3]. In the system of relations between the teacher and students in the conditions of distance education, the position of the question is realized, which is not exhausted by any answer, but reveals the meaning of the sociable connection between them and generates an understanding of the ways of knowledge movement, ways of forming the subjectivity of the student.

Distance learning is a form of education in which a teacher and a student interact at a distance using information technology. During distance learning, the student studies independently according to the developed program, looks through the recordings of webinars, solves problems, consults with the teacher in an online chat and gives the teacher his work for verification.

Distance learning has become popular with the creation of the Internet, opening new development opportunities for students of remote settlements and business people with busy work schedules. At the beginning, distance learning was perceived only as an additional way of acquiring knowledge or preparing for exams. Now you can take full-fledged distance courses and advanced training programs from prestigious universities, commercial and non-profit companies from different countries, from anywhere in the world.

Organizational forms and technologies of distance learning are closely related to the use of information and telecommunication technologies with significant didactic potential. This potential can be successfully realized in distance learning. Information and telecommunication technologies ensure the use of electronic educational resources (multimedia encyclopedias, electronic textbooks, simulators, etc.) and the organization of presentation of educational material, monitoring of the educational process and effective feedback using telecommunication networks. Information and telecommunication technologies can make a certain contribution to the organization of network interaction between participants in the educational process, contributing, to a certain extent, to the formation of a professional community of trainees [4].

The platform for distance learning at the Karaganda University of the name of academician E.A. Buketov was used as the technical basis of the study. The information technologies used in distance education and the methods used in accordance with this are included in the groups of presentation, transmission, storage and processing of educational information, the implementation of this will be given in this article.

Results and Discussion

For information and methodological support of the educational process and its technical support the platform is used in the Karagandy University of the name of academician E.A. Buketov, was developed for teachers and students for distance learning — idl.ksu.kz. A personal login and password are entered into the platform, which is issued by the remote department of the university (Fig. 1).

The screenshot shows the login interface of the Distance Education Center. At the top, there is a blue navigation bar containing the text "Distance Education Center" and "Student information". Below this, the page title "Distance Education Center" is displayed in red, followed by "Academician Y.A. Buketov Karaganda University" in bold black text, and a contact number "CALL-CENTER 8 7212 900270". The main content area contains a login form with a green button labeled "Get login and password / Forgot your password". Below the button are two input fields for username and password. The footer of the page contains the copyright notice: "Copyright © Электронный университет Карагандинский университет им. академика Е.А.Букетова."

Figure 1. Platform page idl.ksu.kz

The educational platform for teachers has all the functions for distance learning (Fig. 2):

- Electronic Dean's Office;
- Educational and methodological materials;
- Classes with a teacher (Form-Chat);
- Choice of disciplines;
- Announcement;
- Messaging;
- File manager;
- Instructions;
- References for students.

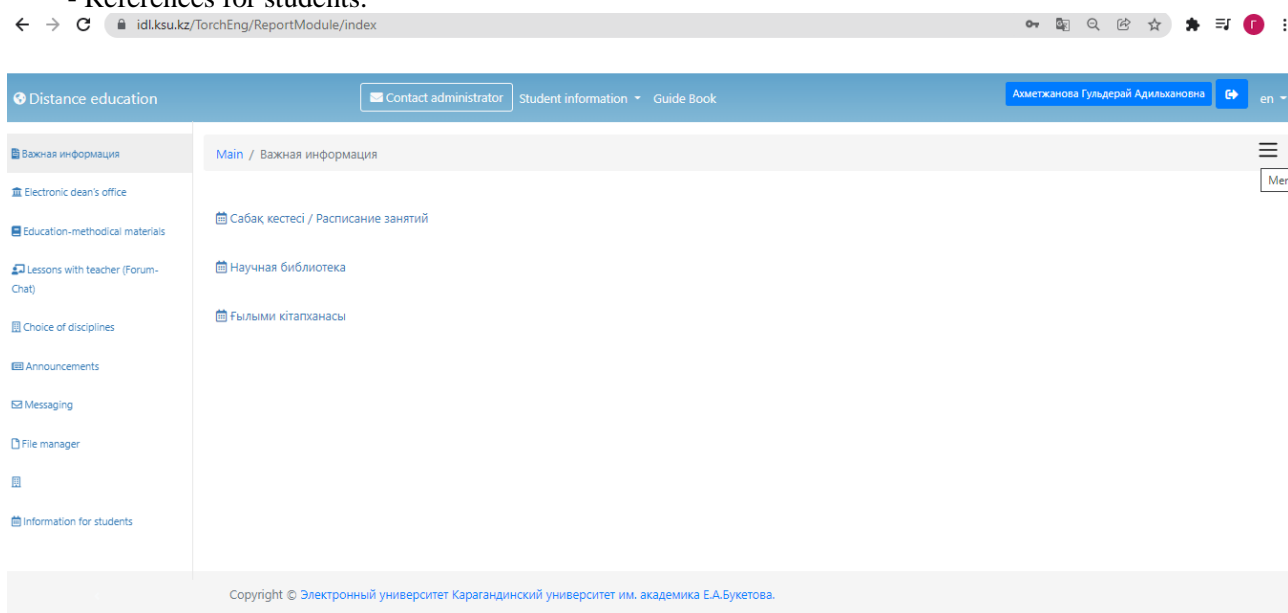


Figure 2. Page of senior teacher Akhmetzhanova G.A. on the platform idl.ksu.kz

There is also a personal account for students, the same functions for distance learning (Fig. 3). On the student's home page, there is an announcement, an academic calendar, a link to the schedule immediately appear, i.e. the student receives full information about his studies in his personal account.

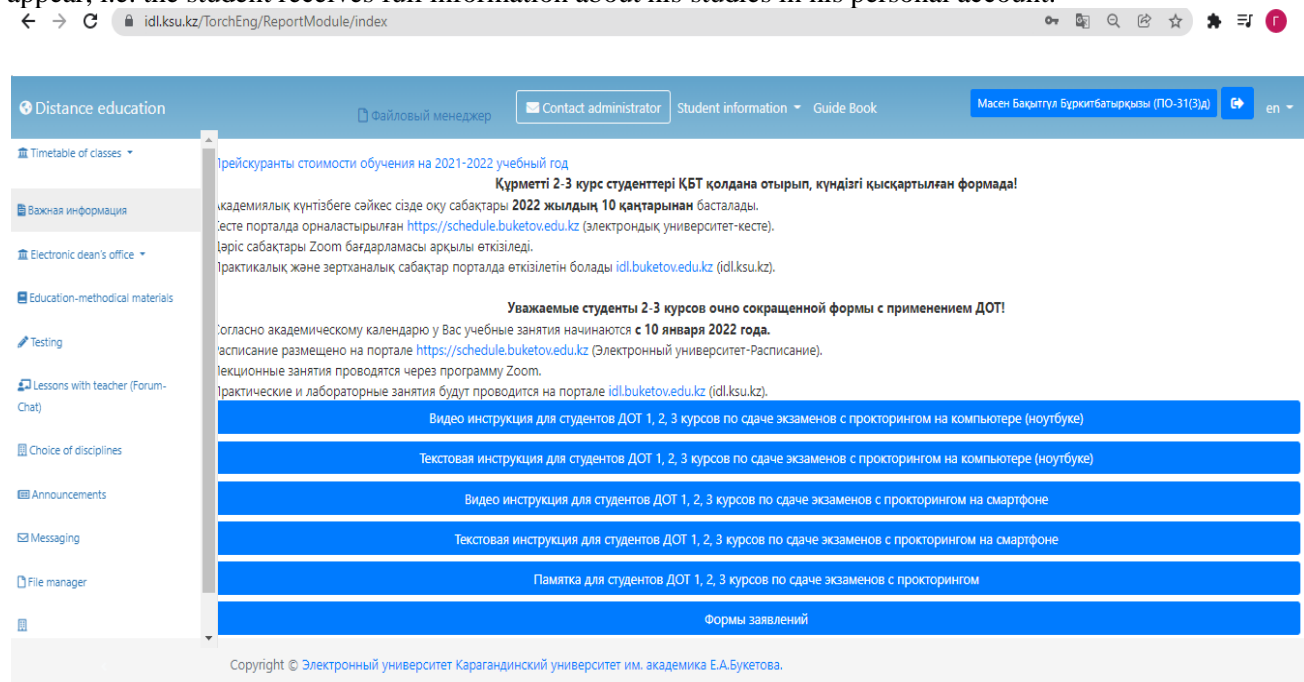


Figure 3. Sample page of a student in the educational program “Vocational training”

The high interactivity of the learning process, expressed in constant contacts between all participants of the training (teachers and students) throughout the entire period of training (via e-mail and video lectures), prompt feedback, the presence of constant monitoring of the student's learning activities, give a truly educational character to the entire process of cognition. Feedback carried out during the interaction of the student with the computer allows for the management and control of the student's educational and cognitive activity. Moreover, all students consider computer control be objective, while many find control by the teacher be subjective (personal sympathy, the mood of the teacher).

Among the feedback criteria, we consider the following indicators to be the most significant: objectivity, unambiguity, efficiency, frequency/continuity of evaluation. It is easier to implement these requirements in computer training, since in the process of interaction of the student with the computer, the educational system records and analyzes all aspects of the student's activity, any message entered into the computer and can adequately (objectively, accurately, clearly, unambiguously) respond to it. As for the efficiency and frequency of feedback, they depend on the tasks and training conditions [5].

Online learning is the acquisition of knowledge and skills using a computer or other gadget connected to the Internet in the "here and now" mode. This training format is also called "e-learning". And it is considered a logical continuation of the remote. And the word "online" only indicates the method of obtaining knowledge and communication between the teacher and the student. During online training, a student watches lectures in a video or live broadcast, passes interactive tests, exchanges files with a tutor, communicates with classmates and teachers in chats, passes tests, etc. Such training allows you to fully immerse yourself in the educational environment and improve your skills without interrupting the work process [6].

Today, online learning is one of the main trends in the development of educational technologies around the world. Among the variety of forms of online learning, everyone can choose the most convenient and appropriate form of training for themselves. Let's give a short list and a description of the most common types of online learning.

University teachers enter online training through the website schedule by following the link, the link goes to the ZOOM identifier. Zoom is one of the types of effective service for online meetings. In the ZOOM application, teachers conduct lectures for students. The lecture is held online, according to the schedule. The time has passed when people gathered in one office, looking for a special place to hold a meeting. Thanks to the developed technology, you can simultaneously communicate with hundreds of people online.

An online course is a type of e-learning, a purposeful educational process built on the basis of pedagogical principles, provided technically by means of modern information technologies and representing a logically and structurally completed educational unit, methodically provided with a unique set of electronic learning tools, control and management of the educational process, ensuring interaction between students and teaching staff.

Online courses are a complex pedagogical phenomenon, the introduction of which into the educational environment of the university affects all aspects of the life of its pedagogical system, therefore, the analysis and assessment of factors and barriers to the integration of online courses is an important stage in the institutionalization of online courses as a pedagogical innovation. This problem is discussed in the works of Gotskaya I.B. and Zhuchkov V.M. [7], Timkin S.L. [8, pp.233-241].

A 4th-year student of the educational program "Vocational Training" Nadirkhan A. (supervisor-Akhmetzhanova G.A.) participated in a scientific conference during the pandemic (Innovative Eurasian Institute, Pavlodar, Kazakhstan) in Zoom on the topic "The importance of online learning and distance learning in education" received good feedback in the end of the online conference, the student was sent a certificate of participation (Fig. 4).

And also during the pandemic, 4th-year students in the specialty "Vocational Training" participated online via ZOOM in the XII Republican Olympiad among students on the topic "Innovations in the higher professional education" (Nur-Sultan, Kazakhstan).

In the process of working on the platform, automation of operations for the presentation and display, collection and transmission, processing and storage of educational information with the ability of users to access it at any time is provided. Together with the development of the university's information and communication subject environment, the entire process of using the platform contributes to the consolidation of students' information and methodological competencies, where students' motivation plays an important role.

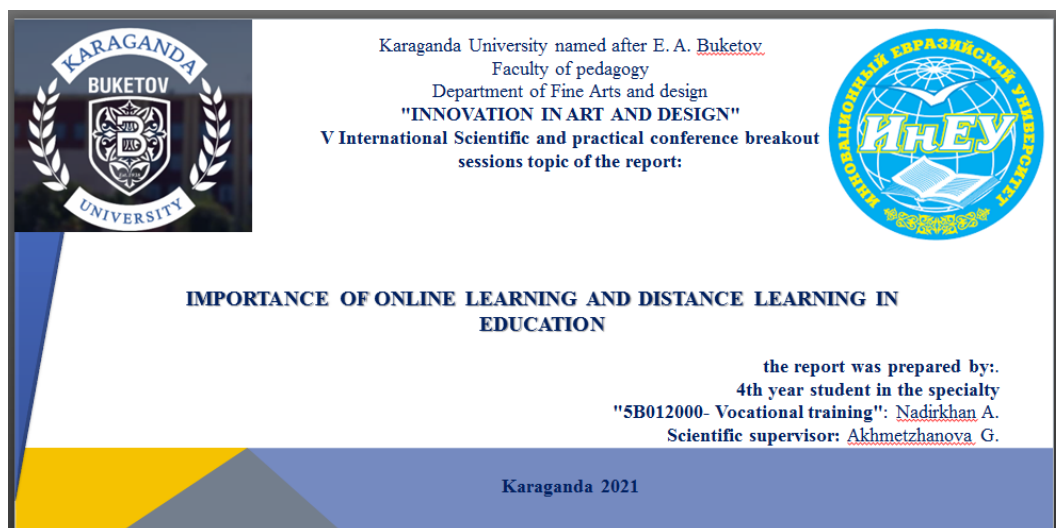


Figure 4. Title page and student's certificate of participation in the conference

In the learning process the competence approach involves not only the acquisition and development of professional qualities, knowledge and skills, but also personal ones, which are easier to assimilate in the presence of socially and personally significant motivation. Online learning gives students many opportunities and successes, and also increases motivation. Our survey of students showed that during the pandemic, despite restrictions in movement and traditional classes, if you have the Internet, you can study online, participate online in various activities and get excellent results. There is the following classification of students' learning motivation:

- cognitive motives (acquiring new knowledge and becoming more erudite);
- broad social motives (expressed in the desire of the individual to assert himself in society, to assert his social status through teaching);
- pragmatic motives (to receive a decent reward for their work);
- professional and value motives (expanding opportunities to get a promising and interesting job);
- aesthetic motives (getting pleasure from learning, revealing their hidden abilities and talents);
- status-positional motives (the desire to establish oneself in society through teaching or social activity, to receive recognition from others, to take a certain position);
- communicative motives; (expanding the circle of communication by increasing your intellectual level and making new acquaintances);
- traditional-historical motives (stereotypes that have arisen in society and strengthened over time);
- utilitarian and practical motives (striving for self-education);
- educational and cognitive motives (orientation to ways of acquiring knowledge, mastering specific academic subjects);
- motives of social and personal prestige (orientation to a certain position in society);
- unconscious motives (getting an education not by their own will, but by the influence of someone, based on a complete misunderstanding of the meaning of the information received and a complete lack of interest in the cognitive process).

It should be noted that external and internal motives are intertwined in the system of educational motives. Internal motives include one's own development in the learning process; it is necessary that the learner himself wants to do something and does it, because the true source of a person is inside the person. External motives come from parents, teachers, the group in which the student is studying, the environment or society, i.e. this study is forced behavior and often meets internal resistance from students. And therefore, decisive importance should be attached not to external pressure, but to internal motivating forces [9].

Conclusion

In this article, we tried to draw attention to those significant characteristics that may be relevant when drawing up a technical task for equipping an educational organization with a videoconferencing platform, which can also be called an online platform. The use of these methods and teaching tools allowed us not only to continue training within the existing quarantine restrictions, but also to increase the motivation of students,

expand their information competencies and apply relevant teaching methods and the formation of knowledge and skills.

The term “online” has already become established in the teaching environment and the question of what it rarely arises. The first thing you should pay attention to is which software and technical solutions will be used to save data of the online events with all relevant materials. This may be of key importance, especially if we are talking about a departmental educational organization. This key point in the future significantly affects the price of the concluded contract. You should immediately assess your strength by the content of the server version. Will there be enough memory resources, server power, and system administrators’ capabilities when it comes to full offline use? It should be understood that the manufacturer will not set a low price for full autonomous use. The cost in this case will be calculated; most likely, based on how many users the server version of the platform will be installed. This factor should be calculated in advance.

A massive role in the formation and improvement of students’ competence is played by new educational products with such qualities as interactivity, the possibility of remote access during the interaction of all components of the educational process — the presentation of information (visualization, modeling), the presentation of practical tasks and the control of educational achievements, as well as communication, i.e. the presence of feedback between users that determines the interactive character.

You may have to upgrade some of your equipment, renegotiate a contract for connecting high-speed Internet services. For the convenience of work, the teacher should periodically display all connected trainees on the desktop, and the program should support this. The next important element that the program should contain is a testing module, that is, the possibility of conducting a survey promptly before, after or during a class (lecture, webinar). It is very important how this module works, how many questions can be asked through it, in what format, etc. It should be noted that there are not so many programs with a satisfactorily working testing module [10].

Thus, when forming information and methodological competencies, their complex kind is taken into account, assuming both the socio-professional mobility of students and the willingness to update their professional knowledge and skills. Another and also important element to pay attention to is the compatibility of the software product with the software installed in the educational organization and at the workplaces of teachers and students. Of course, manufacturers try to ensure compatibility of their products with the most common types of browsers and most often there are no big problems with hardware configuration. However, it is also necessary to take into account the specifics of some educational organizations, where specific security system settings or specialized software may not allow downloading a software product. Therefore, when writing a technical task, it is necessary to set all the conditions and list all the programs that may affect the operation of the online platform.

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Қашықтықтан оқыту үдерісінде білім алушылардың ақпараттық-әдістемелік құзыреттілігін қалыптастыру

Мақалада қазіргі уақытта Интернеттің пайда болуымен танымал болған қашықтықтан оқыту мәселелері қарастырылған, яғни шалғайдағы елді мекендердің тұрғындары мен жұмыс кестесі тығыз болатын іскер адамдар үшін дамудың жаңа мүмкіндіктерін ашады, білім алудың немесе емтиханға дайындалудың қосымша әдісі ретінде қабылданады, беделді университеттерде де, коммерциялық университеттерде де толыққанды қашықтықтан оқыту курстары мен бағдарламаларынан әлемнің кез келген нүктесінде, ыңғайлы уақытта өтуге мүмкіндік береді. Осылайша, қашықтан білім беру Қазақстан үшін пандемияға дейін де маңызды мәселе болды, бұл қазір де өзекті мәселе. Сондай-ақ, мақалада авторлар қашықтықтан және онлайн оқыту айырмашылықтарын талқылап және мысалдар келтіреді. Онлайн оқыту және қашықтықтан оқыту тұжырымдамасының мәні ашылған. Қашықтықтан оқыту кезінде студенттерге ақпараттық және әдістемелік материалдарды ұсыну тәсілдері қарастырылған. Авторлар қашықтықтан оқыту, қашықтықтан білім беру тұжырымдамасының мәніне теориялық және әдіснамалық талдау жүргізген. Жұмыста қашықтықтан білім беруді қалыптастыру тетіктері анықталып, талданған. Халықаралық және ұлттық онлайн платформалардың түрлері көрсетілген. Пайдаланылған ресурстардың мысал көрнекілігі ретінде авторлар zoom.us бағдарламасы мен idl.ksu.kz — академик Е.А. Бөкетов атындағы Қарағанды университетінің қашықтықтан оқыту платформасы арқылы онлайн-конференция дәрістерінің «экрандық» көшірмелері туралы баяндаған. Жұмыста қашықтықтан білім беру мәселелері, оның ішінде осы университетте қашықтықтан оқытуды ұйымдастыру, алдағы ғылыми эзирлемелердің болашағы туралы айтылған.

Кілт сөздер: ақпараттық технологиялар, қашықтықтан білім беру, қашықтықтан оқыту, онлайн оқыту, онлайн-платформа, ақпараттық құзыреттілік, әдістемелік құзыреттілік, уәждеме.

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Формирование информационно-методической компетенции обучающихся в процессе дистанционного обучения

В статье рассмотрены вопросы дистанционного обучения, которое в настоящее время стало популярным с появлением Интернета, открывая новые возможности развития для жителей отдаленных населенных пунктов и деловых людей с напряженным графиком работы, воспринимается как дополнительный способ получения знаний или подготовки к экзаменам, предоставляет возможность пройти полноценные дистанционные курсы и программы повышения квалификации в престижных университетах, коммерческих и некоммерческих компаниях из разных стран, в любой точке мира, в удобное время. Таким образом, дистанционное образование было важной проблемой для Казахстана еще до пандемии, которая сделала этот вопрос еще более актуальным. Также авторами в статье обсуждены различия и приведены примеры дистанционного и онлайн-обучения. Раскрыта суть концепции онлайн-обучения и дистанционного обучения. Рассмотрены способы предоставления студентам информационных и методических материалов при дистанционном обучении. Авторами проведен теоретико-методологический анализ сущности понятия дистанционного обучения, дистанционного образования. В работе выявлены и проанализированы механизмы формирования дистанционного образования. Показаны виды международных и национальных онлайн-платформ. Для наглядности примеров используемых ресурсов авторами описаны «экранные» копии лекций онлайн-конференции программы zoom.us и idl.ksu.kz — платформы для дистанционного обучения Карагандинского университета имени академика Е.А. Букетова. В работе обобщены проблемы дистанционного образования, в том числе организация дистанционного обучения в данном университете, обозначены перспективы дальнейших научных разработок.

Ключевые слова: информационные технологии, дистанционное образование, дистанционное обучение, онлайн обучение, онлайн платформа, информационная компетентность, методическая компетентность, мотивация.

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