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Distance learning with COVID-19

This article deals with the issue of distance education in which the main role is given to digitalization. All this applies to the system of higher and secondary education. During the pandemic, distance learning has become an integral part of the learning process and will certainly remain a popular form of education in the future. Thus, this research aims to use several interactive resources as a means for teachers to control the independent activity of the student. There are Learning Apps, Padlet, Quizizz, Flippity, Kahoot, QR code. The author describes the advantages of these applications in the context of the use of resources in current and final control and analyzes the main functions, such as the presence of a variety of templates and a task execution timer, an application for mobile devices. During the study following methods were used: theoretical, empirical, experimental, statistical. As a result, the advantages of using digital technologies in distance learning are determined.

Keywords: education, distance education, modern technologies, digitalization, digital technologies, digital educational technologies, digital resources, online training.

Introduction

Modern technologies have completely changed our world. Today people spend more and more time on the Internet, communicating with friends, watching movies, making purchases, and getting a lot of interesting information in the virtual space. The same applies to education.

The ability to exchange knowledge and skills via the Internet has led to the rapid development of online education in recent years. Distance learning in a modern format has allowed millions of people around the world to get a high-quality education without leaving home.

The COVID-19 pandemic has given a new impetus to the development of online education. Universities from different countries have turned to distance learning because they could not open their doors to students in the usual way.

The pandemic has given a new impetus to the digitalization of society. Digitalization is one of the most significant trends in our real life, which is actively being implemented in the field of education and is rapidly gaining its positions in Kazakhstan.

At the beginning of the pandemic, educational institutions were forced to switch to distance learning in a short and fast time.

The shock that the education system has experienced due to COVID-19 is unprecedented. It has reversed the achievement of international education goals and disproportionately affected less affluent and more vulnerable groups of the population. Nevertheless, the educational community has demonstrated its resilience and laid the foundation for further recovery.

Experimental

The article uses scientific methods including comparative analysis, induction, deduction, sociological survey, expert assessments and conclusions.

To describe the current situation in the field of distance education, the methods of descriptive statistics were practiced and the methods of visualization of research results were used for the visual presentation of analytical data.

Let us define the concept of “distance learning”.

Distance learning is a teaching model that is usually asynchronous and always distributed. That is, there is no need to attend classes in a specific physical environment and usually not at a particular time. The student receives and accesses the content to engage with their studies, then completes and transmits evaluation

and often collaborative activities, and can ask their teacher questions through mediated means: initially by traditional mail, telephone, fax, and during the last decades, through various online tools [1].

Based on the analysis of the pedagogical literature we formulate the following definition: distance learning is understood as the organization of educational activities using distance educational technologies, involving the use of information and telecommunications infrastructure for the transmission of information and indirect synchronous or asynchronous interaction of students and teaching staff [2–4]. For a teacher the strength of online courses is the possibility of self-expression, in transferring their experience to an infinite number of students; for students, it is in the availability of education in the opportunity to improve their skills, to acquire new contacts for cooperation in the future [5–7].

To implement distance learning, the teacher must possess active teaching methods and help students form their own learning styles online, master the capabilities of the online learning platform and the necessary software, overcome difficulties and barriers of electronic communication. To effectively manage the online course teachers need to use tools to encourage students to master the course, develop their discipline and skills to meet deadlines for completing tasks, carry out a timely assessment of student work and provide prompt feedback [8].

During the transition of Karaganda Buketov University to a new training format, students promptly conducted training and webinars. The university provided support to both students and the teaching staff. Methodological recommendations for students were developed by a step-by-step algorithm for what teachers should do. What was the readiness for distance education?

We decided to conduct the training using the Zoom platform. Zoom is a service for video conferences, online meetings, and distance learning. Anyone who has created an account can arrange a meeting. The program is great for individual and group classes, students can log in both from a computer and from a tablet with a phone. Anyone with a link or a conference ID can connect to a video conference. The event can be planned in advance, as well as making a recurring link, that is, for a permanent lesson at a certain time, one can make the same login link [7].

There was instruction on the use of the ZOOM platform, trainings were organized. At first, there were difficulties in connecting the microphone causing a lack of audibility and turning on the webcam. Nevertheless, by the beginning of training, all students mastered the skills of working with the ZOOM platform.

On the Karaganda Buketov University website <https://e.ksu.kz> materials for practical, lecture classes, presentations for students were posted, as well as educational and methodological material on the topics of classes in the form of tasks on this topic, situational tasks, tests, links to electronic resources were placed on the platform. Feedback from students was supported using the ZOOM platform. On the day of the lectures, conferences were organized with the participation of the lecturer, and «live communication» between teachers and students was also carried out on this platform.

The convenience of the ZOOM platform for online student learning:

- * real-time discussion, communication;
- * interactive whiteboard, there is an opportunity for presentation on the whiteboard;
- * materials (joint viewing);
- * presence of a chat where one can write messages, transfer files;
- * monitoring of class attendance (via the participant function);
- * monitoring of the teacher (invitation to the conference of a representative of the administration);
- * archiving of the lesson (by recording the conference).

Students were also allowed to use electronic resources, electronic books, and electronic materials for use in preparing for classes.

The advantages of using digital technologies in education are shown on the face. The teachers themselves have adapted and learned to use technologies in a short period. Surely, they will not give up many of the advantages they have today.

In just a few days, the teachers transferred the educational processes to the digital form of distance learning. At the same time, digital solutions in the field of education were previously not used as actively as it might seem.

Dudar et al. consider information technologies and digital tools that could be used in educational institutions in the context of distance and mixed learning. The authors examine the practical and systematic use of educational technologies and digital tools in the implementation of educational programs for teaching students distance and mixed learning, with such video communication systems as Google Hangouts Meet, Webex, and Zoom for the organisation of lectures and Google Classroom for practical classes, which allow

one to organize the learning process in accordance with the modern requirements of teaching in higher education institutions both remotely and a mixed form of learning [9].

With the ever increasing need to use the distance learning format, digital resources have become not just an option for conducting a lesson, but also one of the only possible ways to conduct it effectively.

In distance learning, the presentation of the material and the interaction between the teacher and the student in the training takes place at a distance, through computer telecommunications networks.

To form an objective view of the level of knowledge and the level of assimilation of this knowledge among students, it is proposed to use several interactive applications. Next, we will look at the features and possibilities of using them.

Padlet is a website that allows one to communicate with other users via text messages, photos, links, and more. Each place for communication is called a “wall”. It can also be used as a private bulletin board [10].

The Padlet virtual whiteboard templates that appeared relatively recently have significantly expanded its capabilities. Owing to this service, it is possible to provide both synchronous and asynchronous distance learning. A teacher can create a collection of visual bookmarks for independent remote work of students. Also, it is possible to avoid monotony in distance education, connect students to active independent cognitive activity with the help of Padlet where the teacher can do it easily and quickly.

Of the available templates for organizing distance learning, the template called Shelf is the most suitable. In some cases, where the training material is associated with the description of processes, sequential phenomena or events, the Timeline template may be suitable.

Learningapps.org It is an application to support learning and the teaching process through interactive modules. Existing modules can be directly included in the training content, and they can also be changed or created online. For this reason, such blocks (so-called applications or exercises) are not included in any programs or specific scenarios. They have their own value, namely interactivity. Due to its interactivity, this resource can be used as a program that provides control [11].

Flippity is a web service that allows one to create a variety of interactive exercises for training.

All of them are created based on Google tables, which easily turn into didactic online teacher tools. Just go to the website Flippity.net and there you can see how Google tables can be easily turned into an interactive exercise, simulator, flashcards, etc.

Quizizz.com. This is another assessment tool, the main advantage of which is the establishment of automatic feedback with each student, which is another indisputable advantage in distance education. This resource is used for formative control of students’ knowledge of all ages [12].

The features of this resource are:

- supporting the learning process;
- conducting games, quizzes, and tests;
- doing one’s homework;
- tracking the results of each training session;
- providing automatic feedback to each trainee.

The **Kahoot** interactive resource is also a program for creating quizzes, didactic games, and tests. The following are the features of this application:

- Students can answer the created tests from tablets, laptops, smartphones, that is, from any device that has access to the Internet.
- Tasks created in Kahoot enable to include photos and even video clips in them.
- The pace of quizzes and tests is regulated by introducing a time limit for each question.
- If desired, the teacher can enter separate points for answers to the questions posed: for correct answers and speed. The scoreboard is displayed on the main computer monitor.
- It is convenient for the student to choose the correct answer on his device.

QR-code is a means of a more interesting interactive learning tool in the modern educational process.

A QR code (from the English Quick Response – quick response) is understood as a miniature data carrier that stores textual information in the order of three thousand bytes. This data is encoded using special programs or services in the form of black–and–white or colored squares [13].

The QR code also contains additional data that is required for the correct decoding of information by special programs of mobile devices. This code fully meets modern requirements for obtaining and distributing information, making this process convenient, operational and interactive. Currently, any smartphone or tablet can easily recognize and decrypt information from a QR code. To do this, one needs to bring the cam-

era of a mobile device with a QR code recognition program installed to the code image. The program will decrypt it, and then offer to perform a certain action provided by the content of the code.

Creating this code will not take too much time and effort from the teacher. Currently, there are a huge number of special services that help to generate such a code in a few clicks, which can be saved to the computer and subsequently used anytime.

This study examines the use of several interactive resources that a teacher can use as a means of control, independent activity of the student and the advantages of these applications in the context of the use of resources in conducting current and final control. The main analyzed functions in this work are the presence of a variety of templates, the presence of a task execution timer, and an application for mobile devices. Such training helps to get maximum freedom when mastering the material. The student develops critical thinking, he trains to establish logical and cause-and-effect relationships between different concepts, constructs his own arguments, collects information, formulates problems, improves the skill of designing under certain restrictions. These qualities work great for the development of many specialists.

These interactive applications are a really effective way of conducting control, and therefore an important component of distance learning. A survey was conducted to identify the effectiveness of the results of distance learning. The advantages of using digital technologies in distance learning are determined.

Results and Discussion

A survey was conducted among students of the specialty 6B01301-Pedagogy and methods of primary education the purpose of which was to assess the effectiveness of the results of distance learning in the version that is currently being implemented at the university.

The students were asked several questions about how satisfied they are with the distance learning offered by the university, whether they manage to focus on their studies; the degree of their participation in the educational process and the possibility of using the information posted on the university's website and in their personal account were clarified. It was also suggested to make suggestions on improving the educational process and evaluate the work of the dean's office in a remote mode.

Analyzing the results, it can be noted that the majority of students (43 %) manage to participate in the distance learning process without compromising the quality of their knowledge.

Only 15 % of respondents admitted that they could not concentrate on studying due to factors such as the need to work in addition to studying, periodically arising technical problems with communication, the lack of comfortable learning conditions at home, the inability to change the situation due to forced self-isolation.

We asked the students if they participate in all scheduled distance classes. According to the survey, 60% of students continue to participate in all classes. 28 % participate in the majority of classes. 11 % of students participate in part of the lesson. Only 1 % of students do not participate in distance classes at all.

Of the respondents, 81 % of students regularly use information posted in the electronic information and educational environment and on the university's website. Occasionally, 4 % of students use it, and only 1 % of students do not use electronic capabilities.

41 % of respondents expressed their positive attitude to distance learning, and 48 % replied that they are neutral about this process.

We would like to note with satisfaction that the absolute majority of respondents (86 %) were satisfied with the organization of distance learning at the university and, in particular, highly appreciated the remote work of the dean's office staff (74 % of respondents).

Today, the educational process in the distance format at the university is debugged according to the schedule.

Although online education has been around for a long time, many people still have a lot of concerns about this format. The main ones are related to the fact that virtual learning does not involve classes or interaction with teachers and fellow students in a traditional academic environment.

There is an opinion that this reduces the effectiveness of the educational process and deprives students of the opportunity to communicate with professors. Studies have already shown that online learning is no less effective than classical education. In addition, it is even more suitable for some students and helps them focus on their classes.

It is important to remember that the effectiveness of training largely depends on the structure of the program and the method of teaching. Modern methods of online learning are aimed at maximum interaction and joint work of students and professors. This makes the format close to real classes at the university.

Considering the foreign and Kazakh experience of implementing distance education, according to some scientists, there are advantages and disadvantages to the active use of digital technologies in distance learning (Table 1).

Table 1

Advantages and disadvantages of distance learning

<i>Disadvantages</i>	<i>Advantages</i>
Lack of “live” communication skills	Access to lectures
Reduced physical activity	Developing self-study skills
Students without supervision, control	More opportunities for automating the teacher’s work
Lack of practical skills in experimental disciplines	Development of information search skills on the Internet

In the format of distance learning via the Internet, educational institutions, particularly teachers and students passed the stage of adaptation successfully. Despite encountering various difficulties during the habituation period students could overcome them.

First, we are talking about the technical side of the issue. Some students had problems accessing and using the platform for distance learning. In this case, they could contact the university’s technical support service and get all the necessary help.

Secondly, distance education is suitable for different students to different degrees. If for some people complete independence, a home environment and a flexible schedule are ideal conditions for productive classes, then others have problems with the organization of the working space and concentration on studying.

Thirdly, the absence of paperwork since digital education saves a person from unnecessary spending on paperwork. All textbooks, manuals, and work records can accommodate computers and replace a tablet.

It seemed to us that the pandemic gave us the opportunity to retrain, regroup and already with a new training model and reach a new level.

Conclusions

The following conclusions can be drawn based on the study results.

Modern distance learning technologies have a wide range of opportunities for students to master existing educational programs. They allow many types of classes to be adopted for distance learning.

Distance learning forms are not able to completely replace full-time classes and therefore, when preparing for distance learning, it is necessary to adjust the educational activities of students considering the capabilities of the educational environment used.

The main disadvantage of distance learning is the lack of practical skills in experimental disciplines, skills of “live” communication, difficulty in determining the independence of students when performing tasks and, as a result, difficulties in making an objective assessment.

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А.О. Мухаметжанова

COVID-19 кезіндегі қашықтықтан оқыту

Мақалада цифрландыруға байланысты қашықтықтан оқыту туралы мәселе қарастырылған. Мұның барлығы жоғары және орта білім беру жүйесіне қатысты. Автор ұсынған мақаланың мақсаты — білім алушы өзіндік қызметі ретінде пайдаланған бірнеше интерактивті ресурстарды, яғни Padlet, Learning Apps, Quizizz, Flippity, Kahoot, QR-кодты педагог бақылау құралы ретінде пайдалануға болатындығын көрсету. Сонымен қатар мақалада ағымдағы және қорытынды бақылауды жүзеге асыруда ресурстарды пайдалану контексіндегі осы қосымшалардың артықшылығы мен ерекшеліктері сипатталған. Бұл жұмыста талданатын негізгі функциялар — әртүрлі шаблондарды, тапсырмаларды орындау таймерінің және мобильді құрылғыларға арналған қосымшалардың болуы. Пандемия кезеңінде қашықтықтан оқыту оқу процесінің ажырамас бөлігі бола алды және болашақта оқудың танымал түрі болып қала береді. Мұндай интерактивті қосымшалар, мақалада айтылғандай, бақылауды жүргізудің тиімді әдісі болып табылады, яғни қашықтықтан оқытудың маңызды құрамдас бөлігі. Қашықтықтан оқыту нәтижелерінің тиімділігін анықтау бойынша сауалнама жүргізілді. Қашықтықтан оқытуда сандық білім беру технологияларды пайдаланудың артықшылықтары анықталды. Мақаланы жазу барысында теориялық, эмпирикалық, эксперименттік, статистикалық әдістер қолданылған.

Кілт сөздер: білім беру, қашықтықтан білім беру, заманауи технологиялар, цифрландыру, сандық технологиялар, сандық білім беру технологиялары, сандық ресурстар, онлайн оқыту.

А.О. Мухаметжанова

Дистанционное обучение при COVID-19

В статье рассмотрен вопрос о дистанционном обучении, в котором главная роль отводится цифровизации. Все это относится к системе высшего и среднего образования. Целью исследования в предлагаемой автором научной статье является использование нескольких интерактивных ресурсов, которые педагог может использовать в качестве средств контроля, самостоятельной деятельности обучающегося — Padlet, Learning Apps, Quizizz, Flippity, Kahoot, QR-код. Описаны преимущества данных приложений в контексте использования ресурсов в проведении текущего и итогового контроля. Основными анализируемыми функциями в данной работе являются наличие разнообразных шаблонов, таймера выполнения заданий и приложения для мобильных устройств. Дистанционное обучение за период пандемии успело стать неотъемлемой частью процесса обучения, и непременно останется популярной формой обучения и в будущем. И такие интерактивные приложения, как и было сказано в статье, являются действительно эффективным способом проведения контроля, а потому важной составляющей дистанционного обучения. Проведён опрос по выявлению эффективности результатов дистанционного обучения. Определены преимущества использования цифровых технологий в дистанционном обучении. Используются следующие методы: теоретический, эмпирический, экспериментальный, статистический.

Ключевые слова образование, дистанционное образование, современные технологии, цифровизация, цифровые технологии, цифровые образовательные технологии, цифровые ресурсы, онлайн обучение.

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