

DISTANCE LEARNING IN EDUCATIONAL INSTITUTIONS OF RUSSIA AND KAZAKHSTAN

G. Eremeeva¹, F. Ratner¹, R. Bikbulatov², I. Nalimova¹

¹*Kazan Federal University (RUSSIAN FEDERATION)*

²*Nazarbayev Intellectual School of Physics and Mathematics (KAZAKHSTAN)*

Abstract

The relevance of the problem under study is caused by the need to transform the educational process because of the pandemic. The article is devoted to the problem of digitalization of the educational process and distance learning. The purpose of the article is to analyze the advantages and disadvantages of digital technology integration into the educational process. The leading approaches to the problem research are person-oriented and information approaches, the theory of individual activity, the concept of values, motives, personalization. The main results of the research present the authors' own experience of using the Microsoft Teams educational platform at Kazan Federal University (Russia) and Nazarbayev Intellectual School of Physics and Mathematics (Republic of Kazakhstan). Special attention is paid to the measures for Microsoft Teams usage in the process of study. Materials of the article can be useful to the experts working in educational institutions, to students and everyone who is connected with the field of education.

Keywords: Students, teachers, education, learning, distance, Microsoft Teams, digital technologies, lecturer.

1 INTRODUCTION

Current realities show that the pandemic, which has affected the entire globe, has brought a number of very significant changes to the educational process. There is a turning point in the educational system. That is a shift towards distance learning. In this context, it is necessary to study the advantages and disadvantages of distance learning and to analyze the modernization of the digital mastery of new material as a necessary and unconditional item.

According to E.S. Polat, distance learning is an independent form of learning. Information technology in this training plays a leading role [1].

Distance learning is based on several principles. Among the basic principles, there are the following ones: interactivity, basic education, individualization, identification, regulation, openness, and flexibility. The use of these principles facilitates active communication between students with each other and with the teacher. It improves the transfer of knowledge of higher quality.

The features of distance learning are the motivation of the learners to acquire knowledge and develop skills, the ability to self-educate, i.e. a part of the material will have to be mastered by themselves outside the educational institution.

Distance learning has several advantages over traditional learning. The individual approach and personalization of the process are widely used. The quality of education is improved, as the student more often analyzes the information received. The boundaries are widened and the components of the educational process are getting cheaper. It reduces the burden on teachers when printing and distributing materials.

However, apart from the benefits of distance learning, there are also disadvantages. Firstly, the long-term use of monitors can lead to impaired vision. Secondly, there may be a risk of the negative outcome, lack of creativity, reduced mental activity, low level of socialization, problems with physical development [2]. Thirdly, in the future, the learner may not need to reason, extract information, analyze and synthesize available information. Just having access to the Internet is enough. We agree with the view that there will be an inevitable weakening of thinking [3]. There is a lack of 100% confidence that the learners have completed the proposed tasks themselves. There may be no incentive to learn on their own. There is a lot of labor-intensive work in preparation for the classes because it is necessary to find many information resources as well as to define a rating system. There

is no proper emotional and physical environment in the classroom and certainly a low level of knowledge of information technologies.

In order to initiate training, constructive feedback should be provided regularly and in a timely manner. Feedback should be based on the successful completion of tasks, evaluation criteria, or descriptors. The teacher must recommend the necessary actions to improve the quality of education and constantly motivate his or her students.

Before starting distance learning, the teacher must consider the expected results, whether the students will be able to improve their level of education, how to adjust the work to help the learners to do so. The focus should be on making learners feel comfortable with this form of education.

An important factor is the evaluation method chosen. It is necessary, in this situation, to help learners to demonstrate their knowledge. Experience shows that in distance learning, the most convenient and effective methods of evaluation are self-evaluation and mutual evaluation of learners. The systematic use of formative evaluation allows teacher to manage learning in a distance format.

2 METHODOLOGY

The theoretical and methodological base of the research is conceptual ideas of the person-oriented and activity approach by L.S. Vygotsky [4], V.A. Slavenin [5], information approach by V.I. Shtanko [6]. While considering psychological and pedagogical aspects of the studied problem we were guided by the theory of educational activity by V.I. Zagvyazinsky [7], I.Ya. Lerner [8], the concepts of values, motives, personalization by G.E. Zalessky [9], E.N. Shiyarov [10].

The person-oriented and activity approach has allowed creating conditions to form students' activity due to the partnership with other participants of the educational process, the work in cooperation taking into account their age and specific features. The information approach has provided expeditious and high-quality implementation of feedback.

In order to solve didactic problems when using the MS Teams platform for conducting online classes, we use different teaching methods. Verbal methods are determined by the goals and objectives that need to be disclosed and solved in the classroom. There are different kinds of conversation and explanations at the lesson. Questions about knowledge, understanding, application, analysis, synthesis of knowledge are asked. Visual methods are used depending on the level of preparedness of students. There is a viewing of a picture, an episode from a video resource, i.e. students are shown various ways, actions or images to achieve a higher level of development. In online classes, practical methods pose a problem. However, modern sources of information allow the use of experimental and practical works recorded and posted on the Internet. You can make videos in the lab beforehand. Practical methods allow learners to solve proposed exercises and answer questions on the video viewed. By the nature of the training management, it can be understood that distance work may involve instructor-led training and that much of the work will be done independently. The majority of learners are interested in getting knowledge in a non-traditional format. With this goal, the method of stimulating interest in learning should be used by creating situations of success, emotional experiences, and cognitive games. A game learning platform Kahoot! is widely used by us. Students develop cognitive activity in a playful way, consolidate the studied material, and form readiness for self-education.

The study shows that the bulk of pedagogical technologies is applicable to distance learning: information and communication, unit-modular, educational development, critical thinking, problem-based learning, case technology, integrated learning, level differentiation, etc. In the current situation, the most relevant information and communication technology is information and communication technology, which is aimed at solving various tasks: the formation of communicative competencies, the desire for self-education, positive motivation for learning, etc. In order to use this technology, the teacher must direct his or her efforts to the production of educational material relevant to the use of this form of education, the selection of educational media resources, or the production of his or her own products.

However, it should be noted that health-saving technology is the least relevant for this form of training. Since students have to sit for a long time, this can cause a problem in the development of the skeleton. Sitting in front of the monitor for a long time can lead to a problem with the organs of vision. It is advisable to make classes shorter and have longer breaks so that students could do physical exercises and their eyes could rest.

The methods and approaches used in our research are focused on stimulation, self-realization, and self-affirmation of the personality as the original subject of the educational process. They have allowed understanding the effectiveness of distance learning.

3 RESULTS

It should be noted that the important aspect of distance learning is the availability of a platform that is capable of delivering lessons most effectively. The MS Teams application, which is used in different secondary and higher education organizations of different countries, is widely used for distance learning. We consider the application of this platform in the case of Kazan Federal University (Kazan, Russian Federation) and Nazarbayev Intellectual School of Physics and Mathematics (Kostanay city, Republic of Kazakhstan).

Microsoft Teams allows to work remotely with students who are located in other cities and countries, including different time zones. Students have access to the teacher 24/7 and the ability to send individual messages, thus providing a more informal context for communication. Students receive feedback from the teacher on the material they have learned on their own, thus ensuring an individual approach.

Our analysis has shown that most students in higher educational institutions and secondary schools perceive distance learning as necessary and qualitative for education. They realize that they can do a lot by studying at home, especially during the pandemic when the risk of infection is high in public places. At the same time, they should understand that their motivation, self-control, and self-organization should be at a high level [11].

Our own experience demonstrates that every online activity of learners is divided into two parts. One «works» very well, the other «remains» a difficult task. The first involves the provision of subject content, namely theoretical and lecture material, in small portions recorded on a 10-minute video. The survey and analysis show that students see the advantages of this, as the small video allows them to watch it at any convenient time, revising it several times, using subtitles. On the other hand, the organization of virtual laboratories in some subjects, such as chemistry, physics, and medicine is very difficult.

A significant and very important problem of online learning is the interaction of students with each other. Learning is the active cooperation of students, group work, and an experience that is acquired through interaction. Students should not only get knowledge of the subject but also change as individuals in the process of working together in groups, be able to set goals and achieve them. To solve this problem, the lecturers of Kazan Federal University and teachers of Nazarbayev Intellectual School of Physics and Mathematics organize the interaction of students via video calls in Microsoft Teams. For example, a question bank for each module is created. The students get different questions, make their own point of view, discuss their solutions together. Presentations are also effective in distance learning. The display of the screen in Microsoft Teams allows each participant to see the visual representation of the material, listen to the speaker, ask questions and interact with each other.

This platform serves to work together on the proposed tasks, to conduct joint research, to exchange information, to control acquired knowledge, to feedback. Students are given the opportunity to work together, in the provided channel, with the proposed tabs. We will go through each of them in more detail.

In the tab «Publications» you can make correspondence with students here and now, attach necessary files. Students can use the icon «raise the hand» and ask their questions. That is, this tab acts as a kind of chat for correspondence.

In the tab «Files» text, graphics, audio, and video material necessary for conducting the session or for working independently are downloaded. The teacher can also give the opportunity to edit the proposed material.

The tab «Class Notebook» from the MS OneNote application was created to organize individual, pair or group work. The teacher, according to the type of work to be performed, creates individual contributions for the learners or contributions for the groups of learners. Work in these tabs can only be observed by the trainees and the teacher. Here you can place text jobs, attach drawings, graphs, tables, etc.

In the tab "Tasks" there are daily or final checking materials for formative or criteria evaluation. The teacher can place the necessary instructions, specify the maximum number of points, indicate the names of the students from the channel, to whom the job is assigned, schedule the timeframe of the tasks. After the work is done and tested by the teacher, it is possible to give feedback, point out deficiencies in the answers provided. The results of the written work will be displayed in the "Ratings" tab. When making a test, the Microsoft Teams Forms application is the most appropriate. Using this application, the scores earned are displayed on the screens of both students and the teacher.

The Microsoft Teams application allows you to record a lesson where PowerPoint presentations are widely used. In order for students to understand what they will do in a presentation class, they must necessarily include themes, learning objectives, evaluation criteria. White Board is also widely used for visualization and collaboration. The teacher and all students can work in collaboration on the board. All team members can ask questions in writing, edit the observed material using a wide colour palette, and explain the answers provided. It is the same board that is in the classroom. However, White Board has the advantage of being able to use a text editor and paste the necessary image in addition to the records on the board. A record of the course is required in the absence of the student. For example, there have been technical problems in which a student is not well or is attending a doctor. If learning is difficult to maintain, the students may review the entry at any time convenient for them.

An issue that remains open for discussion is online exams. The preparation for online tests and exams depends on the form of their implementation, that is, on the requirements imposed on students. For example, an oral exam and a computer test will require a variety of training, ranging from assignments to software support tools. If it is a written exam, it is easier to do it in the form of an assignment, since the tasks in Microsoft Teams have the ability to define them both for individuals and for the entire group. So all the teacher has to do is create the questionnaire and set a short time to answer them. It is the definition and appointment of the date and time period that will limit the execution of tasks for control.

Microsoft Forms provide a wide range of options, including multiple-choice questions (testing) and tasks requiring a written answer.

Our experience proves that there are risks in conducting online tests and exams. Firstly, an unstable or missing Internet. Secondly, a sudden blackout. Thirdly, the missing equipment is on the student's side as well as on the teacher's side. Examinations and tests are « live broadcasts ». They are held at specific times. Moreover, if there are technical problems, the teacher should be able to react quickly, adjust the work plan and the content. It is important to plan in advance and coordinate possible work scenarios with the administration of the educational institution in case of «force-majeure»: additional days, reserve time.

The Microsoft Teams platform allows you to store and have access to correspondence in the team and to all files, to study records, to work together on proposed tasks and projects. An analysis of the improvement in the quality of learning while using this platform in the organization of distance learning shows the advisability of its use for students of different age categories, for educational organizations of different levels, namely Kazan Federal University (Kazan, Russian Federation) and Nazarbayev Intellectual School of Physics and Mathematics (Kostanay city, Republic of Kazakhstan).

A survey was conducted among teachers in order to determine the rate of using MS Teams in their professional activities (Figs. 1 and 2).

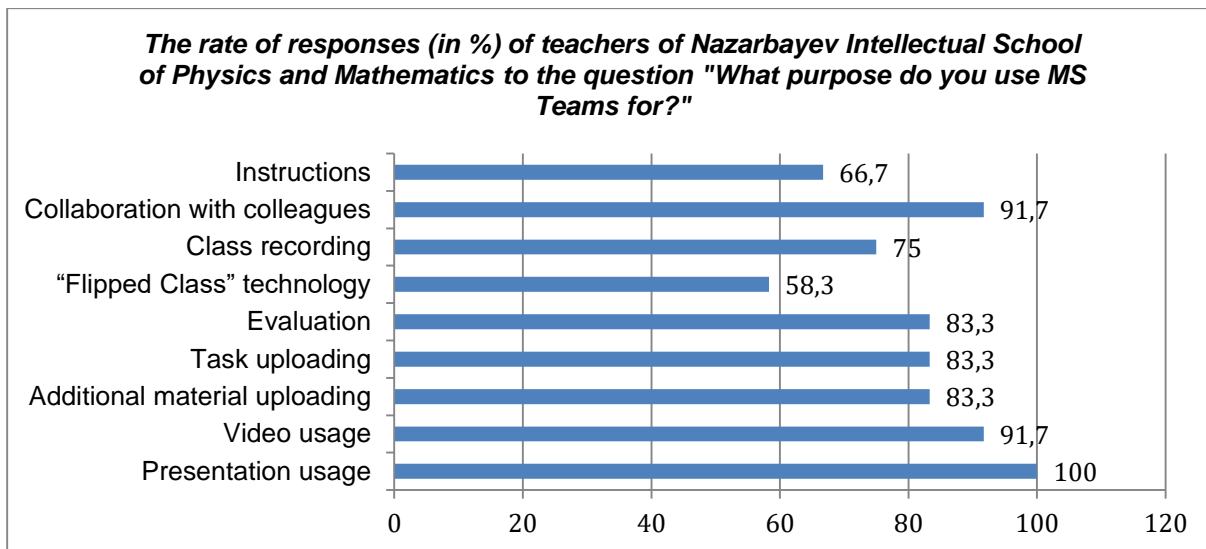


Figure 1. The rate of responses (in %) of teachers of Nazarbayev Intellectual School of Physics and Mathematics to the question "What purpose do you use MS Teams for?"

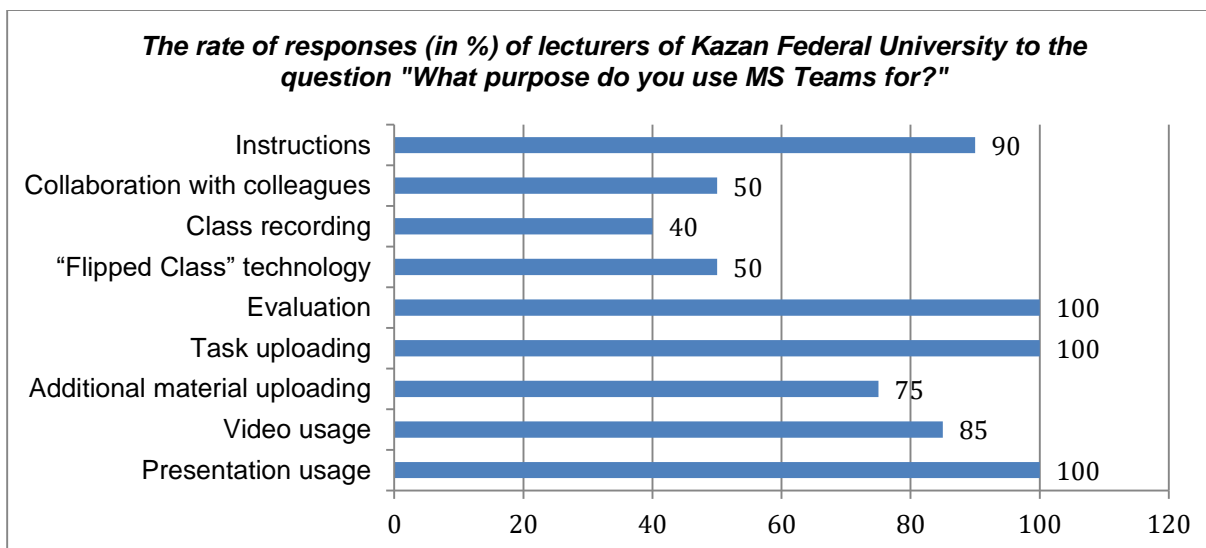


Figure 2. The rate of responses (in %) of lecturers of Kazan Federal University to the question "What purpose do you use MS Teams for?"

The results of the survey indicate a high percentage of the use of presentations and videos in distance learning, as well as assignments for learning in and out of the classroom by teachers and lecturers. It should be noted that teachers and lecturers do not use the "Flipped Class" technology widely. Although it is the technology that would allow learners who are outside the walls of educational institutions to work at their own pace and to be acquainted with the proposed materials beforehand. This technology would help to review the studied material, to conduct individual consultations during online classes with the teacher. Moreover, the recording of classes is not very active. Using the records of the classes, students who are absent for any reason can view the teacher's explanation and the work of their classmates. They can prepare questions that caused difficulties in studying a new topic.

A survey was conducted among students to assess the benefits of using distance learning (Table 1).

Table 1. Evaluation of the benefits of distance learning (in %) among students.

Distance Learning	Kazan Federal University	Nazarbayev Intellectual School of Physics and Mathematics
Allows to choose the pace and time of learning	83,3 %	76,7 %
Gives the ability to combine studies with clubs and sections	83,3 %	70 %
Allows you to conduct classes in a comfortable and familiar environment	80 %	80 %
Uses modern information technologies	80 %	76,7 %
Improves the quality of education	63,3 %	66,7 %
Provides lifelong learning	60 %	53,3 %

It should be noted from the survey that although the survey was conducted among students in educational institutions at different levels and in different countries, there is a clear appreciation of the benefits of distance learning. Students have the opportunity to study in a comfortable environment, with an optimal pace of study using modern information technologies. Students have time to attend daily sections and clubs.

4 CONCLUSIONS

To conclude, distance education, in particular, and digitization, in general, is a necessary but inevitable reality. The challenge of today's education allows creating blended learning of high flexibility where there is no difference between distance learning and learning «face to face». In our opinion, it is not important which learning platform is used, it is much more significant what environment we create, what learning materials we provide to students, how we involve in the online educational process and interact. A sense of community and a two-way process of education and upbringing remain fundamental.

Distance learning is currently one of the new forms of education that make it possible to provide educational services to learners using the information and educational environment. It becomes an integral part of online and offline learning. It should be added that for higher education students (Kazan Federal University) and school students (Nazarbayev Intellectual School of Physics and Mathematics) the use of distance learning has a number of advantages in getting knowledge and organizing the educational process in general.

An important factor is that the teacher appears to be an "advanced" specialist in distance learning. They manufacture and use new developments of modern information technology. The teacher acts as a tutor when students receive new knowledge, and students develop the ability for self-learning that will enable them to effectively master the curriculum and apply the acquired skills to lifelong learning.

The results of the research can be useful to the experts working in educational institutions, to students and to everyone who is connected with the field of education. They may improve the pedagogical culture of the public.

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