

Digitalization of Educational Processes in Universities: Achievements and Problems

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ABSTRACT

Digitalization of the global economic processes has had a great impact on the digitalization of higher education. The idea of developing this area of educational activity is supported by many researchers who speak about the possibilities of expanding 24/7 learning technologies for the digital generation, thereby increasing the competitiveness of the university. The purpose of this article is to analyze the pros and cons of organizing the higher education process using digital technologies.

The methodological basis of the research were the theories of management, consumer behavior and sociology. Based on structural and logical analysis and deduction, the positive and problematic aspects of implementing distance learning in universities were identified.

The article presents a critical review of the literature that reveals the essence and directions of digital technologies management and the basics of consumer behavior of digital users.

Based on desk research, the analysis of university students' feedback on the use of distance learning technologies was carried out.

The attitude of students to the online educational process was determined. The positive sides and the problems of using digital technologies in the university were identified. Recommendations were made on improving distance education.

Keywords: *higher education, teachers, students, distance learning, digital competencies, educational technologies, digitalization of education*

1. INTRODUCTION

Modern digital technologies influence the management activities of the organization. [1] Digital transformation is a long process to create a "digital organization" in which most processes are performed without human involvement. The specifics of a university's functioning in the context of digital transformation are as follows:

- Creating special units related to digital technologies within the management structure
- Increased possibilities of using mobile digital devices to access the electronic databases of university employees, students and teachers
- Decision to use the digital resource to carry out, regulate and control the educational activity.
- Increased speed of interaction between suppliers and consumers of educational services as a result of using digital technologies;
- Creating new options of organizational and social interaction between the staff of the organization and the actors of educational process;
- Knowledge of modern digital devices and the software, ability to apply digital technologies in management

practice becoming mandatory competences for all the participants of the educational process. [2]

Many universities have been using digital technologies for more than 10 years, such as electronic timetables, Electronic Library System, electronic educational resources (portals).

On the one hand, this facilitates the process of interaction between students and teachers. [3] Modern students as digital consumers of educational services see the following advantages of using digital technologies: an opportunity of listening to lectures by leading practitioners and scientists from other universities and countries, saving time for education and training, making learning easier and more understandable, learning 24 / 7 anywhere in the world, receiving the most relevant knowledge, revising lectures 24/7 anywhere in the world. They believe that continuous learning is much more interesting and it allows getting competitive specialist skills. [4] At the same time, using distance technologies does not guarantee high involvement of students in the learning process [5] and / or achieving high results [6], and changes do not occur only by making contact [7]. One of the factors of a university's brand formation and competitiveness is student's loyalty, which is shown in their feedback on the provision of educational services and recommendations to friends and friends. [8,9].

On the other hand, there is an additional load on the teacher when entering and processing information for each course taught. At the same time, digital competencies of teachers do not always meet the necessary requirements. It was found that young teachers are more easily involved in the process of distance learning than the older, more experienced generation [10]. The main problems are the lack of digital competencies, system problems, and increased workload. Research conducted in Finland shows that the development of distance education technologies in universities is more related to the belief about the developed digital competencies of the modern generation of students. At the same time, digital educational technologies are not aimed at replacing traditional pedagogy, but supporting and making it more convenient and accessible. [11]. Traditionally used technology is limited to multimedia presentations, e-mailing, searching for text documents, videos and Learning Management Systems (LMS) [12].

There may be two problems in implementing digital management at a university:

- Lack of educational technology
- Lack of digital knowledge and skills [10].

University teachers are considered the driving force for the introduction of digital education and training, therefore, university management needs to think about the system of improving the digital competencies of all the participants of the educational process [13].

UNESCO has made a short list of the possible effects of distance education. These are a disruption of the learning process, unequal access to digital portals, high economic costs, social isolation, and others. [14]

2. METHODOLOGY

Problem origin description: the digitalization process has long been a prerequisite in training bachelors and masters. However, due to an objective global problem - the COVID-19 coronavirus pandemic, the need to transfer training to an online format has become mandatory for everyone. On March 16, 2020, after the order of the Ministry of Education and Science of the Russian Federation, all Russian universities switched to distance learning.

The authors of the article formulated the hypothesis that in general, universities are ready for practicing distance learning. There are both positive aspects and problems in this process which are an incentive for improving the educational process in the context of digitalization.

The purpose of the study: to analyze the readiness of Russian universities to use digital technologies in distance education.

Research Objectives:

- Conduct an online survey of Russian university students on the use of distance educational technologies.

- To identify the positive aspects and problems of using digital technologies in the university educational activities.
- To develop recommendations for improving the system of distance education in universities.

Research methods: to analyze the process of distance education being one of the requirements in the pandemic conditions, the following were carried out.

- Online survey of students of large Russian universities in the cities of Tver, Moscow, Kostroma, Rostov, Ulyanovsk, St. Petersburg, Vladivostok, and Ekaterinburg. The survey was conducted using the Simpoll survey service from March 23 to March 29, 2020. The sample is random, quota based.
- Interviews with university professors.

Sample sizes: 400 students. Among them: Bachelors - 240 people., Masters - 160 people. Day-time students - 200 people, correspondence students - 100 people, part-time students - 100 people. The interview involved 12 teachers.

Sample size justification: the sample size is determined depending on the level of the confidence interval of the allowed error. According to the calculations of V.I. Paniotto, in order to obtain a representative sample with a 5% error for the studied population of 100,000 units and more than 100,000, the representative sample must be at least 400 units.

3. RESULTS OF RESEARCH

First, it was identified what messengers or services are used by universities in distance education. Students and teachers named such messengers as WhatsApp, Viber, Skype. The services named were Moodle, Edmodo, OnLineTestPad, Google Classroom, Zoom, Teams, Ding Talk, Eduterra.Pro. Among the official websites were university sites used for placing some lectures. There are also special portals designed for distance learning. Classes are held in the form of webinars, online conferences and testing. Students act as virtual speakers, pass tests, and post their works on the portals.

The most common lecture formats are:

- Course capture (when the teacher reads a lecture in the classroom equipped with cameras, and after the lecture, the recording is uploaded in the LMS);
- Live lecture where students can ask questions in chat or voice;
- Independent study of materials by students without a "talking head".

The most common seminar formats are:

- Live workshop, where you can organize group work, interactive discussions, etc.);
- Q&A on the course page in the LMS;
- Answering students' questions in a recorded video format.

In general, students are familiar with digital technology. 99% of students have a personal account and communicate with the teacher in messengers, chat rooms and/or by e-

mail. Electronic scheduling is used by 92% of students, 89% of students place their works on the portfolio, 70% of students get assignments from the teacher in the electronic system, 64% of students use the electronic library systems, 38% of students get graded in the electronic system. The format of online lectures and webinars is used only by

15% of students, mainly the representatives of part-time and correspondence forms of study

Table 1 Distance learning tools

№	Distance learning tools	% respondents
1.	Student account	99
2.	Communicate with the teacher via messengers, chats and e-mail	99
3.	Electronic schedule	92
4.	E-portfolio	89
5.	Get assignments	70
6.	Electronic Library	64
7.	Get grades	38
8.	Online lectures and webinars	15
9.	Blended learning	10

Students note the following positive aspects of distance learning:

- Saving time on trips when using an electronic schedule and an opportunity to place works on portals (100%);
- Reducing the cost of traveling and printing out documents (100%);
- Communicating with the teacher at a convenient time without taking into account the time for consultations (92%);
- Feeling positive about using modern digital services for learning (74%);
- Possibility to study anywhere in the world 24/7 (52%);
- Possibility revise the material from anywhere in the world 24/7 (subject to recording lectures) (45%).

Problems encountered by students in the transition to distance learning:

- Most often distance learning is a computer screen broadcast of the teacher and his story. Chatting only. There is no way to discuss important and complex issues. It's quite difficult to ask for help;
- Not everyone has access to good internet and a computer off the campus, many students combine study and work;
- Communication is periodically interrupted due to traffic load or insufficient technical supply of equipment at the university, both the teacher (if he is teaching from home) and the student;
- Many students have to learn from mobile phones, where the available functions differ from desktop computers;
- Not all students have access to paid programs that are required to complete assignments. Whereas the required license software is installed in the university computer classes, students have to download pirated versions to do their homework;

- Many students note the increased size and amount of assignments and the hours spent at the computer;
- Physical Training classes are conducted either in the form of testing or students record videos of their

- exercising and send them to the teacher, which is not the purpose of the discipline;
- Learning becomes an independent process, students experience problems with understanding the material;
- Teachers' requiring to turn on the camera when completing assignments. Not all students have proper conditions at home to turn on the camera;
- Students worry about being able to learn successfully in the new format, it is more difficult for them to participate in online discussions.

There is no real communication with classmates and teachers. There is a decrease in motivation to study at home.

Students who study at a foreign university or live in a different time zone have the following problems:

- The schedule is designed in accordance with the time of the city or country in which the university is located. The time difference with countries where students come from is not taken into account;
- The time to join the class can be late in the evening, night or early morning. At this time, student's performance is very low and chatting with a teacher can be difficult;
- There is a shift in the time for individual online consultation. Because of this student may have problems with getting detailed information on the subject.

In general, students have already got tired of self-studying; they miss real communication with teachers and classmates. Particularly worried are those students whose education is associated with creativity and their direct contact with the teacher is important.

After a week of distance classes, the positive trends noted by teachers are:

- Increased attendance and motivation to learn demonstrated by those students who could not attend the classroom before;
- Better discipline: students connect to webinars in some time before, they are rarely late;
- Increased mutual assistance and desire to help each other in case of problems with broadcasting or connection;
- Students learn new educational tools with great interest;
- There is constant full control over attendance and student performance;
- No loss of time on traveling to work and back.

From the interviews, the following problems that teachers faced were identified:

- You have to read lectures in an empty classroom or from home not always getting immediate feedback. The lack of direct contact when you do not know whether or not you are being listened to, whether or not the student is really involved may become a psychological barrier for some teachers;
- Lack or insufficient competencies for using the equipment and programs, especially by the older generation of teachers who make up the majority of the teaching staff.;
- Insufficient number of system administrators for providing simultaneous assistance;
- An increased load on software development, preparing electronic materials, their placement in the resources used;
- The need to check a large number of assignments, which means longer time for working on a computer. This is sedentary work affecting the head and eyes;
- Serious questions arise about how to conduct tests and exams. Some teachers suggest switching to a credit / failure system (but there may be difficulties);
- Formats for preventing cheating and joint work are not clear: giving little time for the exam, complicating the examination tasks, increasing the amount of tasks, allowing using materials;
- Lack of real communication with colleagues and students.

4. DISCUSSION OF RESULTS

Based on the study, the following conclusions can be drawn:

- Universities, which began to introduce electronic informational and educational networks earlier (10-15 years ago), managed to train the entire faculty to use digital technologies, allowing them to do distance teaching. Teachers quickly mastered in virtual classes and in new roles not of mentors, but of intellectual tutors. They moved from the transmission of knowledge to training based on digital pedagogy and the use of informational and educational networks.

- More problems arose in those universities where systematic work was not carried out or there was a lack of technical or material resources. These universities had to quickly and thoroughly formulate new rules of the game and tell teachers and students about them.
- Either the university or each teacher had to quickly decide and inform students about the changes in the courses, schedule and format of classes, topics, materials, assessment, the role of teaching assistants, etc.
- Many universities had to teach teachers and students the required procedures for moving to distance formats: downloading lecture notes, posting all the materials and communications online, etc. The universities had to conduct regular training sessions to address the questions about the system both individually and via the corporate mailing.
- The same advantages of distance learning, noted by students and teachers are saving time and money on traveling and printing materials, ability to work 24/7.

Similar problems are:

- Increasing load on the implementation of necessary procedures for preparing for classes, placement, implementation and checking the assignments;
- No access to the computer, high-speed Internet and the necessary software;
- Lack of real communication.

Problems experienced by students are:

- Increased amount of tasks for self-control material;
- Requirements to turn on the camera when performing the tasks;
- Psychological barriers to participating in online discussions;
- Lack of offline consultations with teachers on the creative tasks;
- More problems for students who have a time difference with the place where the university is located.

Teachers note the following unexpected advantages of the new system:

- Attendance and responsibility of students and better performance;
- In the video conferencing mode, it is easier to hear what students are saying, even if they are speaking in a low voice;
- If the teacher remains online after class, many students use this chance to talk, and they develop very interesting conversations

5. CONCLUSION

Based on international literature and the research data, we can clearly say that distance education is not the main pedagogical technology, but it extends and complements the educational process in classical universities. Without real interaction in the classrooms, the educational process will not be effective and will not give good results in training bachelors and masters. An urgent need is to increase the professional level of digital competencies of

teachers [15], especially since students are ready to use a number of digital tools [16]. Universities need to consider the possibility of acquiring modern technology and high-speed Internet, to solve systemic problems. It is important for teachers to optimize the process of developing tasks and their checking, so as not to overload the participants in the learning process

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