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DISTANCE TEACHING OF STUDENTS DURING INSULATION

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Abstract

The purpose of the article is to study the organization of distance learning in Reshetnev Siberian State University of Science & Technology e-learning environment under the regime of isolation to prevent the spread of coronavirus infection (COVID-2019). For the analysis, the results of the main participants of distance learning process – teachers and students online questionnaire are used. The questions that define the levels of distance education: accessibility, convenience, quality, positive and negative sides of distance learning, forms of interaction of students with teachers were proposed by the authors of the study. These characteristics are correlated with basic categories of sociological research. Based on the analysis of literary sources and statistical data, the authors conclude that distance education technologies cannot be limited only to the transition to a virtual environment by replacing the live communication with teachers by means of online courses or create digital copies of textbooks, it is necessary to change the approach to education. Taking the data obtained, we formulated the key directions of transformation of the digital educational environment: the development of digital infrastructure; teachers of new formation training, who are aware of the importance and specifics of digital learning technologies in modern conditions; inventory of specialties and areas of training in which the transition to digitalization is impossible or limited due to their nature; the practical implementation of the concept of lifelong learning.

Keywords: COVID-2019, distance learning, ihe, sociological research.

1. Introduction

1.1. The educational process in the Russian Federation in a pandemic

In the context of preventing the coronavirus infection (COVID-2019) spread in the Russian Federation and in order to protect the health of university employees and students, the Ministry of Science and Higher Education of the Russian Federation issued an order on the need to strengthen security measures and provide for various forms of mixed, individual and distance learning. The Ministry of Science and Higher Education has proposed the use of e-learning and distance learning technologies for universities. At the same time, it was entrusted to ensure the implementation of educational programs in full and to provide for the organization of interaction between students and teachers online.

1.2. The share of universities of the Russian Federation implementing educational programs using distance learning technologies

According to the latest data of Federal state statistics service in 2019, the share of educational institutions, implementing educational programs using distance learning technologies is less than 40 percent. In the framework of the national project "Education", which includes ten Federal projects, including the project "Digital educational environment", the creation of a modern and safe digital learning environment, ensuring high quality and availability of education of all types and levels in the period from January 2019 to 2024, inclusive, was planned. This project is consistent with the evolution of the e-learning process (Sayekti, 2018). The pandemic has brought about changes in these plans: on March 16, 2020, the Ministry of science and higher education recommended transfer of students on distance learning because of the infection by coronavirus threat. After a week at the sixth meeting of the Working group on the organization of educational process in educational institutions of higher education in terms of preventing the coronavirus infections spread on the territory of the Russian Federation Minister of science and higher education Valery Falkov pointed out that all universities in Russia organized their work in a new environment using e-learning and distance education technologies. At the same time, more than half of teachers of higher education institutions of the Russian Federation expressed disagreement with the opinion of public servants and believe that the higher education system is not ready to transfer classes to a remote format. These data are confirmed by a study conducted by the Analytical centre NAFI at the end of March 2020 among teachers working at Russian institutions of higher education.

2. Problem Statement

In conditions of self-isolation against the background of the coronavirus epidemic, the relevance of the introduction and use of information and communication technologies in the education system is increasing. Educational institutions in these conditions are forced to change the traditional forms of teaching into distance learning technologies using the Internet. This situation has several aspects. On the one hand, it is not difficult to implement these technologies, since most modern young people are fluent in a personal computer and skilfully use Internet resources (Illingworth & Allen, 2016). On the other hand, modern distance learning technologies are implemented mainly in the educational information or digital environment (Raine, 2019) created by the educational institution and are inextricably linked with e-

learning. This is especially true of higher education institutions (Rahmah et al., 2018). Each Russian university has its own virtual space, with the help of which access to electronic educational resources is provided and the student interacts with the teacher.

The problem is that until recently, most universities used distance learning technologies in integration with traditional learning. At the same time, the electronic information and educational environment was often used as an additional resource: not all educational programs were fully provided with appropriate technological means and information technologies. According to the order of the Ministry of education and science of Russia "On the approval of the Procedure for the use of e-learning, distance learning technologies by educational organizations in the implementation of educational programs," educational organizations are entitled to apply e-learning and distance learning technologies in full or in part to any type of training. During home self-isolation, the electronic information and educational environment became the main tool for distance learning, the load on the university servers increased significantly, and malfunctions began to appear. The virtual university environment was not originally designed to significantly increase the number of users. In addition, not all students and teachers have experience working on a distance education server and prefer the more familiar Internet technologies: email and social networks. According to Huang and Huang (2020), students are more satisfied with the learning process on the network than on other resources.

3. Research Questions

The study involved the main participants in distance learning: students and teachers of the Reshetnev Siberian State University of Science & Technology.

3.1. The following questions were posed for students

What is the level of accessibility and convenience of distance learning? This question is specified by questions about the degree of various resources use: servers and training channels, technical and Internet resources, personal opportunities, as well as forms of interaction between students and teachers.

What is the quality level of distance learning?

What are the pros and cons of distance learning?

3.2. For teachers, the following questions were posed.

What is the level of accessibility and convenience of distance learning? This question is concretized by questions about the degree of various resources use: servers and training channels, as well as forms of interaction between teachers and students?

What is the quality level of distance learning? This question is specified by questions about the quality of electronic educational materials and online resources, the availability of distance learning for students and the need for technical or organizational assistance for teachers.

What are the pros and cons of distance learning?

4. Purpose of the Study

The purpose of the sociological research is to identify the features of the distance learning at the Reshetnev Siberian State University of Science & Technology during a pandemic.

5. Research Methods

The study was conducted by the online survey method in March-April 2020. A total of 3600 students and 381 teachers were surveyed: the sampling error rate was less than 2%.

To identify students' opinions, a three-stage sampling was used: level of education, institution, place of residence. The levels of study are as follows: undergraduate (first, second, third, fourth courses), graduate and postgraduate courses. Reshetnev Siberian State University of Science & Technology has nine full-time institutes and a college. Place of residence was determined by three characteristics: a local student or living in another region; if the student is from other cities, he remained in the hostel or returned home during a pandemic. As to the teachers only the teaching experience at the university was considered.

The basic categories of sociological research: accessibility, convenience, and quality. These characteristics determine the level of distance education (Mulyani et al., 2019). All questions were formulated in terms of basic categories. The number of respondents is given as a percentage. The opinions of students and teachers were analysed separately from each other.

6. Findings

6.1. Distance learning of students

Distribution of answers to the question "What resource is your distance learning fulfilled with?" allowed us to determine that the vast majority of surveyed students (99.6%) are enrolled in distance learning. Of these, nearly 60% of respondents use the university's distance learning server. A little less than half of the students (44.3%) communicate with the teacher through social networks and messengers. A quarter of students (22.4%) combine classes on the university's server and communicate with the teacher through social networks and mail. Based on these data, the successful use by students of various resources for distance learning can be noted. At the same time, the following comments of students were revealed: "A lot of materials are sent by mail", "They gave the assignment, but you don't know how to do it", "The training is disgusting", "The training is over", which shows the lack of emotional readiness of some students for distance learning.

Answers to the question about the types of devices used by students for distance learning showed that the vast majority of students have technical accessibility for distance learning. Most often, smartphones and laptops were noted (two-thirds of respondents). One third of those surveyed have a personal computer for training. Most students have two devices each: a smartphone and a laptop or smartphone and a personal computer. Every eleventh respondent (9.2%) uses only a smartphone; therefore, you must make sure that the university's distance learning server is optimally working in the mobile version. Not a single student wrote that he does not have access to remote resources due to a lack of technology.

To the question "Does the speed of the distance learning services of our university suit you?" two thirds of respondents have their own assessment of the speed of distance learning servers of our university:

almost 40% rate it positively, 31.6% of students are not satisfied with the speed. This means that students are actively working with the university's distance learning server. It should also be noted that there are some students (almost 30%) who do not work with our resources, and who need to be additionally informed about the capabilities of the university's distance learning server and the need to use it.

Students prefer to use social networks in distance learning. Formats such as chat, phone, video services, email can be attributed to the usual and affordable tools. Students do not need additional training on the use of these resources. Practical work presented digitally with feedback from the teacher, a combination of tools: screen translation, group chat and audio conferencing, collaboration with documents in Google Docs, are tools available on the university's server. They are used by only one fifth of the respondents. Probably, additional information is required and, possibly, training in working with the university's distance learning server.

Thus, the level of accessibility and convenience of distance learning is quite high: the vast majority have technical resources and access to various learning channels. At the same time, half of the students surveyed lacked perseverance, discipline, motivation to engage in distance learning, which indicates students' personal unpreparedness for the distance learning format.

The following information signals the quality of distance learning: half of the respondents do not have enough information to master the program, students lack live communication with the teacher, they note that there are a lot of distracting factors in the home environment. At the same time, students highly value the opportunity to study at a convenient time and convenient place. They note that distance learning forms the skills of working with information, develop independence in the search and use of the necessary information. These data show that the assessment of the quality of distance learning is in its infancy: at present, it is impossible to give an accurate assessment of the changes in the education system.

6.2. Teachers distant work

The study involved teachers with various work experience at the university. It should be noted that the least represented in the sample are teachers with an experience of more than 30 years, while in the general totality there are 40%, and this fact is associated with less Internet activity of age teachers.

For distance learning, most respondents most often use the server of Siberian State University named after M.F. Reshetnev (84%) and social networks and messengers (74%). Teachers often use these resources in tandem.

Teachers with experience of less than 30 years are twice as likely to use social networks and messengers, often turn to courses of other universities, actively combine various resources and distance learning tools (Zoom video conferences, email, electronic libraries, courses on the Stepik platform, Google sites, Google forms, Colab goggle). The university's cloud storage is used only by young teachers with less than 15 years of experience. Respondents with a long experience of work more often mark the university's server and use little except for it. It is possible that "experienced respondents" simply noted this answer, but in real life they rarely use electronic resources, which is indirectly confirmed by answers to further questions from the questionnaire.

Two thirds note successful technical readiness of the university for the organization of training using distance educational technologies is. A quarter indicates some technical problems, and only 5% of respondents categorically say that the university is not ready for distance learning from the technical side.

Teachers with experience of more than 30 years are much more likely to negatively assess the readiness of the university to organize distance learning.

Estimation of the speed of electronic services at Siberian State University named after M.F. Reshetnev depends on the frequency and time of its use: if work on the server is carried out early in the morning or late in the evening, then the speed is satisfactory, if at the height of working time, then the server is slower. The answers of the respondents confirm the opinion that the estimation of server speed is ambiguous. Those who work most often with a distance learning server have the most negative ratings: teachers with experience from 16 to 30 years. Specification of technical difficulties was recorded in the answers to the question "What difficulties do you have in implementing training using distance learning technologies?".

Almost 80% of respondents rated positively the quality of electronic educational materials and online resources offered by students at our university in their answers to the question "How do you generally assess the quality of electronic educational materials and online resources offered to students at our university for learning using distance learning technologies?". It should be noted that this issue concerns the assessment of not only other people's electronic resources, but also their own. 7% of the teachers surveyed gave a negative assessment of the electronic educational environment of the university. 13% found it difficult to answer, which can also be attributed to a poor rating. Among the responses of respondents with various pedagogical experience, there were no particularities or significant differences.

Regarding the accessibility of distance learning, only one fifth of the respondents indicate that all students can freely study remotely with them. The remaining teachers surveyed noted a greater or lesser number of students who have technical or personal difficulties for distance learning. The data obtained show a more categorical, compared with students 'assessment, teachers' opinion that for the most part students are not ready to switch to e-learning and distance learning technologies in full.

Teachers are also not ready for full-fledged work in remote mode. One-third of young teachers, half of middle-aged teachers and two-thirds of "experienced teachers" need assistance in teaching using distance learning technologies. The data obtained show a significant enlargement in teachers who need help with an increase in their age: the older the teacher, the more he needs help. The type of indicated assistance differs significantly in each age group. Young respondents are more in need of organizational assistance, while the older generation is in need of technical assistance.

Almost 40% of respondents experience technical difficulties in implementing training using distance learning technologies: mainly Internet errors and server malfunctions are written by teachers with less than 30 years of experience. A third of teachers of different ages note that there is not enough live communication with students. It should be noted that until recently, the main form of training was full-time, and the sudden transition to distance education destabilizes teachers, increasing the level of stress. Therefore, respondents want a return to a familiar and stable professional environment. A quarter of respondents, mainly young people, have difficulties with organization and self-motivation.

A fifth of the respondents indicated other answer options that can be grouped in the following areas (distribution by frequency of statements - the former is most often called; the latter is less commonly):

- specification of technical problems,

- specification of the option "not enough time to complete the work",

- answer options "students are to blame",

- lack of knowledge, skills, and materials for distance learning,

- difficulties of a personal and economic nature.

Distribution of answers to the question "What are the most important advantages of distance learning for you at the moment?" showed the following: one fifth of the respondents surveyed highly value independence, the ability to set and perform professional tasks; one third of the respondents noted the use of information technologies and their capabilities as a plus (ease of updating the content and the possibility of archiving old material, the availability of educational material for download, the ability to combine work with other matters).

At the same time, 18% of respondents, regardless of age, indicated that they did not see any advantages of distance learning and 3% of respondents found it difficult to answer. 6% of the teachers surveyed indicated other answer options that can be grouped in the following areas (distribution by frequency of statements - the former is most often called; the latter is less commonly):

- pluses in the conditions of a coronavirus pandemic,

- technical and professional capabilities,

- good experience,

- saving of owned resources.

Teachers with experience of 16 years or more write about the minuses of distance education in the comments on the question of its advantages: "All these technologies and their advantages (real or apparent) should not replace normal traditional education", "The main drawback is that the load on teachers has increased at times "," Nothing can replace full-time study! ". This fact shows the importance of the problem of the education in the distance format quality for the faculty.

7. Conclusion

Distance education is evaluated by three main characteristics: accessibility, convenience, and quality. It is not limited to creating digital copies of textbooks or moving to a virtual communication environment by replacing live teachers with online courses. The approach to education should be changed (Tereliansky et al., 2019). Consider some key areas of transformation.

- Digital infrastructure development. Respondents generally praised the digital infrastructure of our university. Two thirds of the respondents positively note the technical readiness of the university to organize training using distance learning technologies. Half of those surveyed positively rate the speed of electronic services at Reshetnev University.

- Teachers of the new formation training. The use of digital educational technologies requires specific skills from teachers (from modern information technologies knowledge to the ability to

"keep oneself in front of the camera"). A lot of work remains to be done in this direction: teachers blame the imperfection of the digital infrastructure, the negligence of students, and the lack of technical capabilities at home. Almost no one thinks about the specifics of digital educational technologies, in contrast to the simple digitization of full-time materials.

- Updating specialties and fields of study. You must be aware that there are entire areas of activity that do not have any prospects for their development in digitalization.
- Practical implementation of the continuing education concept. The rapidly changing environment today requires people to actually continuously master new competencies and professional development. Thus, it is necessary to return to the previously raised question of the implementation of the "lifelong education" model. Teachers need to be purposefully trained in distance technology. At the same time, various aspects of this direction should be taken into account: the specifics of perceiving information in a remote format, the ability to organize your workday on your own, to prioritize, etc.

The forecast of Russian scientists that such a rapid and dramatic change awaits the modern education system that those people and institutions who are unable or unwilling to reconstruct due to their own inertia and short-sightedness will simply have no place in the educational environment (Tereliansky et al., 2019) has been confirmed. The pandemic accelerated the transfer of students to distance learning due to the coronavirus infection threat. All Russian universities were able to organize their work in the new conditions, using e-learning and distance learning technologies. Students have the technical resources to study remotely. At the same time, there is a psychological problem in the organization of distance learning, both among students and teachers.

Acknowledgments

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