Introduction of E-learning under corona-crisis 2020 in estimations by professors and students

N M Galimullina¹⁴, O N Korshunova¹, A V Sychenkova¹, O A Vagaeva² and T E Melnik³

¹ Department for Sociology, Political Sciences and Management, Kazan National Research Technical University named after A.N. Tupolev – KAI, 10 Karl Marx Str., Kazan, Republic of Tatarstan, 420111, Russian Federation
² Chair of Pedagogics and Psychology, Penza State Technological University, 1a / 11 pr. Baydukova / Gagarina Str., Penza, 440039, Russian Federation
³ Faculty of Algebra and Mathematical Methods in Economy, Orel State University named after I.S. Turgenev, 95 Komsomolskaya Str., Orel, 302028, Russian Federation

¹⁴ E-mail: nadiyagalimullina@yandex.ru

Abstract. The article analyzes the features of education in Russia as a prerequisite of sustainable development under the COVID-19 pandemic, in particular, using the distant learning technologies. The empirical basis of the research is the results of polling of 79 professors and 325 students. Both the professors and students emphasized such negative consequences of the distant format introduction in spring 2020 as the increased methodological and academic load and the increased time for preparation. Both parties of the educational process mark the advantages of the distant learning: saving money for transport and eating out, saving time for getting to and from university, possibility to use various formats of educational resources. 51% of the professors marked a decrease in the quality of students’ preparation in the distant regime; 35% of the students noted a worsened quality of educational services. Most of the professors (81%) and 33% of the students spoke for the combined format of traditional learning and mastering some part of the material with distant technologies. To a large extent, this is due to one of the qualitative differences of distant education from the traditional one – insufficient time and forms of personal communication between the participants of the educational process.

1. Introduction
The transformations caused by the COVID-19 pandemic have touched upon various aspects of social life, including education. All levels of education were transferred to the distant format since April 2020. The Federal Law of December 29, 2012 “On education in the Russian Federation” defines distant educational technologies as the educational technologies implemented mainly with the help of informational-telecommunication networks under mediated (distant) interaction between the learners and the pedagogical personnel. The issues of including the distant educational technologies into the educational process were repeatedly considered by the Russian educationalists: the advantages and disadvantages of the distant educational technologies were revealed, as well as the experience of using various distant educational systems (platforms, like Blackboard [1]).

Some works focus on students’ and professors’ satisfaction with distant education [2, 3].
The issues of distant learning organization within MOOC were considered most thoroughly. Researchers analyzed the issues of learners’ motivation [4], interaction between the participants of distant education [5], and organizational issues [6, 7].

With regard to our research, it is especially interesting to analyze the Russian works before the corona-crisis compared to the present situation.

In particular, E.V. Kulikova, analyzing the experience of Siberian Institute for Business and Information Technologies, carried out an expert polling of professors and students of full-time and correspondence forms of learning, and employers, to identify the negative factors of distant education impeding its massive introduction [8]. Then the most used techniques were: education management system or virtual teaching environment (for example, Moodle); digital record-book; e-mail for giving assignments and controlling their fulfillment; social networks for communicating with students and their parents; a personal web-site or a web page in the site of an educational organization; audio- and video-connection systems (for example, Skype or others) for consultations, webinars, and individual sessions with the learners; cloud technologies. The author concluded that most of the professors (94%) chose the traditional system with elements of distant teaching (mainly for autonomous work of the students), believing that distant educational technologies are most efficient for extramural studies. Among the reasons forcing the professors to use distant teaching, the almost equal numbers of the respondents named: expectation to improve the work efficiency (31%) and the requirement of the administration of the educational organization (28%).

One more drawback of the distant learning system is the difficulty (and often impossibility) to control that the students do written assignments and tests themselves. It is one of the reasons why many professors feel negative towards distant learning, the degree of such attitude varying from realization of the problems which require elimination to the extreme opinion that distant learning is profanation of education [9]. The students are quite likely to realize the scale of the problem, too, which also influences their estimation of the opportunities provided by distant education. 25% of the respondents believe that distant technologies give no advantages. According to E.V. Kulikova, the main reason for such attitude is that the students do not possess skills of working with the study material autonomously [8].

A 2018 research with a sample of students, professors and personnel of Ural Federal University showed an ambiguous attitude of pedagogical personnel of various status and age to the prospects of broad use of electronic learning in higher education. The participants of the educational process were worried not so much about the technological “advantages” like speeding-up videos or changing the screen resolution, as about the loss of live contact with an instructor, which was proposed to compensate by introducing tutoring or combined forms of learning [10].

A sharp forced transition to distant learning technologies in spring 2020 in Russia caused the need to research this issue in more detail, to identify the regional specificity, the difficulties, problems, and opportunities for the development of electronic teaching in our country, based on summarizing the practical experience of professors and students of Russian universities.

2. Problem statement
One should admit that digital education still remains rather an addition to the traditional one, under normal conditions [11]. That is why the main problem researched in the article is related to the experience of accelerated and overall introduction of distant education in Russia under the corona-crisis, when in March 2020 the Russian higher and secondary professional education found itself in a situation of a unique experiment with accelerated introduction of e-learning. Almost the whole semester spent in such a regime allows making the intermediate conclusions, presented in this article.

3. Purpose of the study
The main objective of the work is to analyze the perception of the transition to e-learning in spring 2020 in Russia by the professors and students as the basis for scaling this experience in the future.
4. Research methods

To disclose the problems of the present research, we performed a polling among the students and professors of several Russian universities (Kazan National Research Technical University named after A.N. Tupolev – KAI, Orel State University named after I.S. Turgenev, Penza State Technological University). Synchronous research of the opinions of both parties of the educational process would help to deeper understand the problems of distant education and, probably, correct or elaborate new techniques of online teaching, effective both for the educators and the learners. The polling comprised 79 professors and 325 students, including 232 university students and 93 students obtaining secondary professional education.

5. Discussion of the results

Undoubtedly, one of the apparent specific features of distant education is the form of conducting academic sessions. The most frequently used form of teaching and controlling, marked by the respondents, was online sessions in the form of videoconferences (68% of the professors and 50% of the students), providing the text of a lecture for the students’ autonomous work (60% and 78%, respectively), preparing summaries and accomplished assignments and checking them (52% and 69%). Besides, 55% of the students regular underwent control tests, 45% watched video materials, materials from external distant courses and open access resources, 40% exchange text messages with professors online, with immediate or delayed feedback from the professor.

At that, both professors and learners marked the increased working load and time expenditures after transition to the distant regime. The students marked an increase of both the volume and the number of assignments and the time for their accomplishment (84% of the university students and 76% of the technical secondary professional schools students). The students of technical majors experience the load increase in a larger extent (87% of them marked the increase of time spent for studies, this time not being changed for 7% of them only). These figures differ for the students majoring in humanities (the load increased for 70% of them and stayed the same for 23%). This is probably due to the traditionally large amount of work done autonomously by the students majoring in humanities in the usual offline format.

The professors also mark the increased volume of work – 53% of the respondents of this group noted the increased number of the documentation, 75% – the increased volume of the checked assignments, 73% – the increased time necessary for the provision of the educational process. Only 8% of the professors experienced no changes in the work load, while 4% marked even reduction of the time spent for checking assignments.

Speaking about the changes in the process of preparing for various types of academic sessions, the professors also mark its complication. This is especially true for practical sessions – seminars (74% of the instructors noted that preparation for and conducting of these sessions became more labor-consuming) and laboratory works (71% of the professors marked complication of this process). Preparing for lectures also became more difficult, but the opinions about it were somewhat different – 64% of the respondents noted complication of this process, for 16% it became simpler, and for 18% stayed unchanged.

The increased load to the professors is also indirectly confirmed by the results of polling the students about the availability of feedback with an instructor. Over three quarters of the respondents (77%) marked that the professor is available at any time, both during each session (22%), and outside the scheduled sessions (55%). This indicator was especially high for the technical secondary professional schools students (16% and 65%) and the university students majoring in the humanities (34% and 64%). At the same time, almost one third of the technical students (30%) marked the absences of regular feedback from a professor (not in every session).

The next block of questions referred to the estimation of the quality of distant education. A half of the professors noted a decrease in the quality of the knowledge and skills acquired by the students (51%), while 44% think that the quality of education did not change, and only 5% marked the increases in the quality of the competences formed.
The students provided a comparative estimation on this issue. For 35% of the respondents of this group, the quality of educational services decreased in general, and for 32% – in certain disciplines. 10% of the respondents marked an increase in the quality of educational services decreased in general, and 15% – in certain disciplines. For 36% of the learners, the quality of educational services did not change. The absence of changes was marked mainly by the university students majoring in the humanities (48%) and the students of technical secondary professional schools (44%), while in the opinion of 38% of the technical students, on the contrary, the quality of education decreased in general, though 19% marked an increase in the quality of teaching of certain disciplines.

The students are not completely satisfied with the quality of conducting various types of academic sessions. When estimating lectures, 44% of the respondents of this group marked their worsening, 21% – improvement, 29% – absence of differences. When estimating seminars, the same 44% marked their worsening, 23% – improvement, 27% – absence of differences; laboratory works – 38%, 23%, and 30%, respectively.

In our opinion, the estimation of the quality of education and forming competences in learners is to some extent subjective, as under distant learning it is not always possible to apply the whole range of estimation techniques to control the mastering of knowledge and forming the skills and competences. The causes for this problem are partially reflected in the block of questions about the advantages and disadvantages of distant learning.

The polled professors named such advantages of distant education as: the economy of time for getting to and from work (82%), the economy of money for transport, eating out, etc. (49%), the possibility to use various educational resources, including audio- and video-formats (48%), the larger opportunities for autonomous work of students (34%). 6% of the respondents of this group marked no advantages of distant education. At the same time, the professors noted such negative aspects of the distant learning format as the lack or insufficiency of personal communication with students (65%), their insufficient activity (54%), difficulty or impossibility to objectively estimate the knowledge, skills and competences acquired by the learners (53%), the increased volume of methodological work (43%) and technical problems – speed of the Internet connection, quality of connection, stable work of the Internet resources, etc. (43%). Also, the respondents marked such drawbacks as the absence of the university atmosphere (37%), the impossibility to obtain quick feedback from a student (25%), the increased study load (23%), the lack of clear requirements on the educational process organization (19%), the limited choice of teaching forms and methods (18%). Only 1% of the professors marked no drawbacks in the distant format of learning.

The students marked such important positive aspects of distant learning as the economy of money for transport, eating out, etc. (73%), the economy of time for getting to and from university (36%), the possibility to use various educational resources (34%). For the students, the additional advantages are: larger opportunities for autonomous work under the guidance of an instructor (15%), even distribution of the attention of an instructor to all students of the group (10%), opportunity for each student to demonstrate their knowledge (10%). In the opinion of 13% of the polled students, distant learning has no advantages. As for the disadvantages, the students also marked technical problems (45%), the lack or insufficiency of personal communication with a professor (44%), the incomprehensible form of the material presentation (43%), the complicated pattern of the educational process organization (40%), the insufficient time for accomplishing assignments (34%), the absence of the university atmosphere (30%), the impossibility to obtain quick feedback from an instructor (29%), the lack of a clear system of the performance estimation (26%). For 8% of the respondents, the distant format of learning has no disadvantages.

Besides direct mastering of the curricula and syllabi and forming the competences incorporated in them, the learners develop the so-called soft skills competences – supra-professional non-specialized skills, not directly related to professional training. Answering the question about forming such skills and qualities in the distant regime, the students marked the skills of searching for and processing information (70%), self-education and self-development skills (62%), self-motivation skills (41%), and time management (26%). Interestingly, 41% of the respondents marked that they developed stress resistance,
most of such answers being given by technical students (44%). At the same time, the distant format did not allow effective training of such qualities as working in teams (6%), public speech skills (5%), communication skills (10%), creativity (15%), and presentation skills (15%).

As for the technical aspects of e-learning organization, most of the respondents used a desk-top computer or a notebook (96% of the professors and 74% of the students), or a smart phone (4% and 23%, respectively). A small part of the students (3%) marked the lack of technical opportunities for the full-fledged distant learning. Access was carried out through home (89% of the professors and 70% of the students) or mobile Internet (11% and 24%, respectively), less often through public (3% of the students) or corporate access points (2% of the students).

The respondents mainly used specialized educational platforms – BlackBoard, Moodle, LMS, etc. (74%), messengers – WhatsApp, Viber, etc. (73%), e-mail (71%), sites and services for videoconferencing – Zoom, MS Teams, Adobe Connect, Skype, etc. (66%), to a lesser extent – social networks (24%).

In general, one may note that the technical aspects of implementing the educational process in the distant format are now shifting to the background compared with the problems of academic-methodological and social character. At least, this is true for large cities provided with the high-quality, steady and affordable cellular systems. In the Internet, there are a lot of educational projects (massive open online courses (MOOC), educational portals, electronic libraries, etc.). Most of the universities use educational platforms, which provide access to the necessary learning materials and organize interaction between students and professors.

The issue of the possibility to transfer the educational process into a distant format is brought up rather often recently, facing a steady resistance of the public. Polling about the expediency of such changes in the education as a whole or in teaching certain disciplines has shown the following results. An absolute majority of the polled professors (81%) spoke in favor of the combined form of traditional education with teaching some material with distant technologies, while 28% saw the need to return completely to the traditional off-line education. Not a single professor supported transition of the whole educational process into the distant regime. Speaking about certain spheres transferring to online learning, technical disciplines and natural sciences were thought to be taught distantly by 1% of the professors each, and social disciplines and humanities – 5%.

The students had a different opinion about this issue. A third of them (33%) would like to study in a combined format, 28% consider it appropriate to return to the traditional full-time training, while 13% are ready to convert to the distant learning completely. Traditional training is supported to a larger extent by the university students of the humanities (43% against 28% of technical students). The former are also, more than the technical students, apt to support the combination of the traditional and distant forms of learning (36% and 28%, respectively), while this opinion is most popular among the students of technical secondary professional schools – 43%. Also, the students’ opinions differ depending on the spheres of education. Technical disciplines can be mastered in the distant format by just 6%, and sciences – by 12% of the respondents, while 32% of the students believe the humanities can be taught distantly. The attitude to the latter depends on the level and sphere of education. Most of the technical students of universities (39%) spoke for transferring social disciplines into the distant format, and were supported by the students of technical secondary professional schools (29%), while the students of humanities did not share this opinion (only 11% chose this answer).

### 6. Conclusion

Analysis of the obtained results allowed making the following conclusions. Further broad dissemination of distant technologies in education is inevitable; the pandemic has drawn this issue from the category of the discussed (disputable) ones into an actual fact. At the same time, the issues identified in the previous research have not disappeared but were pushed on to the new level, namely: the need to review curricula, especially in terms of the forms and methods of controlling the results of the learners’ autonomous work, upgrading the professors’ qualification, and the issues of technical maintenance of the educational process. It is important to highlight the main problem shown by the research: reduction
of the direct contact between a student and a professor; thus, face-to-face communication is considered to be the most important factor of education, which is present a priori and cannot be formalized through standards and curricula.

It is essential to note the unpreparedness of the students to the increased volume and requirements to the quality of the work done autonomously, which followed after introduction of distant learning in 2020. This situation is a challenge for today’s educational system as a whole at all of its stages: from a school to a university, from the viewpoint of probable revision of priorities, both in terms of the set of learners’ competences and methods of forming them.

Distant teaching techniques facilitate broad dissemination of the best pedagogical practices and acquaintance of the learners with the courses of the leading specialists; at the same time, they put regional universities into a difficult situation, challenging the very appropriateness of having the departments with full-time staff in them. However, the presence of a higher educational establishment in a region is an important factor of improving the socio-cultural atmosphere, a factor of cultural and economic development of a region.

Thus, distant technologies are a 21st century’s challenge to the educational system, undoubtedly leading to further complication of the teaching forms and methods, to searching for the most adequate solutions complying with the modern society’s development.

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